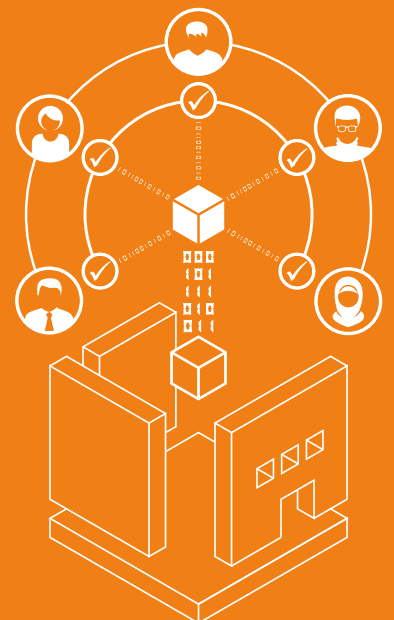


# INSIGHTS 2017

## WINNING IN THE FUTURE

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Defining the success  
of high-performing  
construction teams





**Jason Millett**

COO for Consultancy

Jason is responsible for Major Programmes and Infrastructure (MP&I) and is driving our goal to be the UK's leading programme manager by 2020. He has over 20 years' industry experience and leads on some of the UK's most significant projects alongside the largest global programmes. Under his leadership, MP&I has seen 43% growth over the last three years. He was CLM's programme director for the London 2012 Olympic and Paralympic Games, responsible for the delivery of the Games venues and the commercial closure of the most successful Olympics ever.

Prior to joining Mace he was CEO of Bovis Lend Lease while also holding the role of CEO of Catalyst Lend Lease.

Jason is an advisor to the Mayor's London Infrastructure Delivery Board, a fellow of the Chartered Institute of Building and the Association of Project Management.

**Mark Castle**

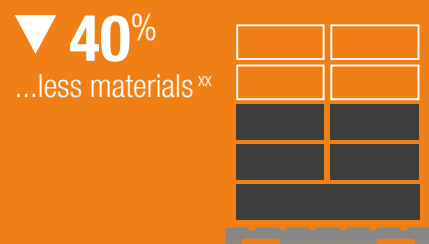
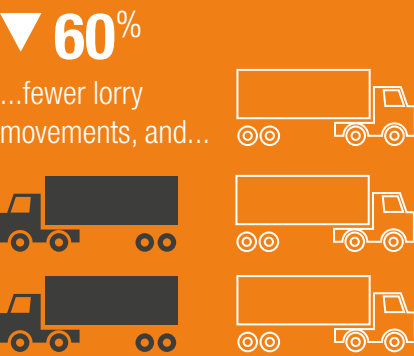
Deputy COO for Construction

Mark joined Mace in 2005 to set up the company's fixed price construction business. With over 35 years' experience, Mark has managed UK and North America based organisations and today retains a hands on approach to many of our strategic client relationships.

In 1998 he was appointed Wates' managing director for construction in London, prior to becoming an executive director in 2001. Following this, he was managing director for StructureTone, a construction group based in North America with interests in the UK, Ireland, Europe and Asia.

Mark also provided strategic leadership on major construction projects such as the Tate Modern extension, the Emirates Air Line cable car across the Thames in London in time for the 2012 Olympic and Paralympic Games and currently Tottenham Hotspur's new football stadium. He is a fellow of the Royal Institute of Chartered Surveyors and a director of Build UK.

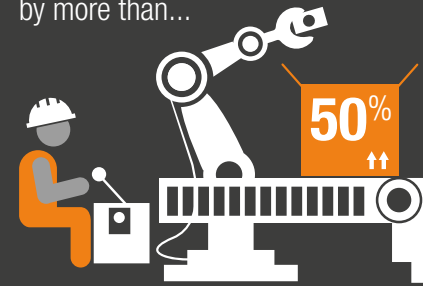
The use of Design for Manufacture and Assembly enables teams to work more safely and more efficiently offsite. By embracing this innovative technique Mace is able to deliver surface-level areas...



Over the last decade, output per worker in the UK service sector has improved by over...



and in manufacturing by more than...



In construction it has remained...



**INTRODUCTION**

**In what looks set to become a more testing future for the construction and infrastructure sector, this report looks at what factors will produce the highest performance from construction project teams. In collaboration with the executive search experts, Odgers Berndtson, we spoke to a wide field of experts – from construction leaders to a former Special Military Unit officer, through to an academic futurologist. We have identified the top five ideas most likely to help forward thinking companies define the winning teams of the future.**

The construction sector is becoming one of the most competitive of the truly global industries. In today's tough international financial climate, many countries face a shortage of good construction skills, so the ability of a business to find and retain the best people is often what defines the sector's winners. As a result, firms are increasingly seeking a flexible talent pool from across the world, to be deployed rapidly to a new project, bid or team. But that model, where this agile responsiveness underpins a firm's success, is now under real pressure.

The big issues are both political and technological. On both sides of the Atlantic, with Brexit and the election of Donald Trump, we are seeing policies on the horizon that could limit directly the speed and freedom of movement of project experts. This is at a time when the market is becoming increasingly globally

competitive in the race to squeeze margins and speed delivery – with new technologies, modular design and new methods of prefabricated construction, for example, redefining the traditional make-up of the construction team.

It is clear that the construction sector is already under pressure to look constantly at how to drive greater value out of the way teams actually work together and operate – through innovations in the technology, working practices and management they use. What exactly, however, will define the highly adaptable, successful project team able to compete and win in a more testing future economy?

One of the big reasons for wanting a flexible, global talent pool of workers, for large construction projects, especially, is the ability to manage your own productivity levels. Domestic labour forces differ hugely between countries on this measure, which is why productivity is rising up the agenda among governments' economic policy priorities – but the issue is applying increasing pressure in the construction sector, too.

At the macroeconomic level, the UK is a prime example of an advanced economy with a real productivity problem. The UK economy grew at a faster rate than any other in the G7 last year, and has consistently performed well against most of these states on pure growth terms, yet on productivity, the UK lags behind all, save for Japan. On average, a worker in other G7 countries produces 19% more output per hour than in the UK<sup>i</sup> and an hour's work in Germany produces an astonishing 35% more output than an hour's work in the UK.<sup>ii</sup>

The so-called “productivity gap” between different, but similarly developed, nations has naturally resulted in a great deal of debate over what the causes are. Theories point to underfunded R&D and labour force education, through to comparatively low levels of investment in infrastructure and transport, but these issues relate to national government policies, over which construction companies themselves have little control. And even so, policy solutions seem far away as most developed countries

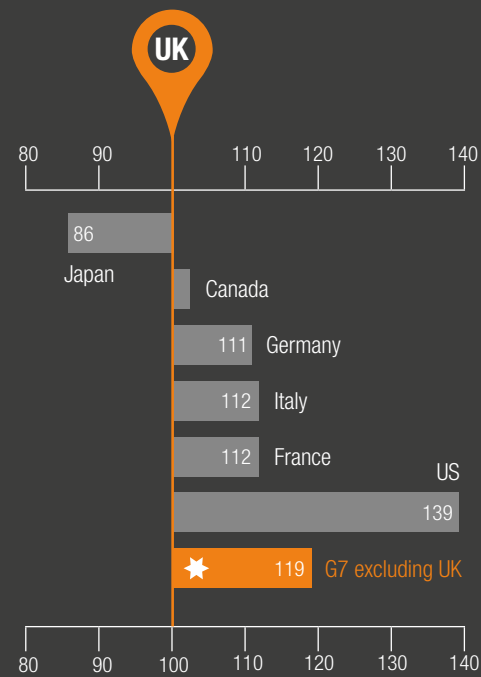
seek to curtail the public spending that is traditionally sought as the remedy.

Looking specifically at the construction sector, however, we see an even more accentuated reflection of these macroeconomic trends. In the UK, construction has actually been one of the success stories of the economic recovery in terms of growth, yet productivity levels have been far lower than some other parts of the economy. Over the last decade, output per UK worker has remained about constant in construction, whereas the service sector has improved just over 30% and output in manufacturing has rocketed by more than 50%.<sup>iii</sup>

In the US, too, construction seems hit by a sector-specific productivity lag: a recent report by the World Economic Forum shows that US construction has witnessed a 19% fall in productivity since 1964, whilst all other non-agricultural industries have, in direct contrast, shown a 153% improvement.<sup>iv</sup>

One answer for firms to the productivity challenge at the micro level has simply been to employ more flexible recruitment from a global labour pool. At a macro level also, immigration usually has a directly positive impact on productivity. Even in the comparatively less productive UK, research has shown that each percentage point increase in immigration drives a 0.7% increase in overall productivity.<sup>v</sup>

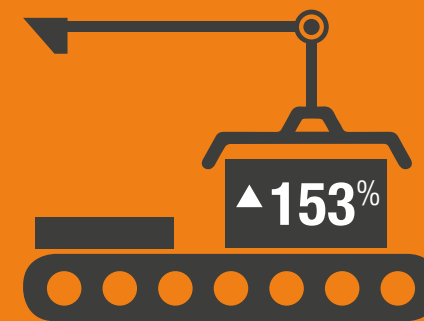
GDP per worker, G7 countries<sup>xxii</sup>  
(Index UK = 100)



★ Output per worker in the UK is now **19%** lower than the G7 average.



whilst other industries, on average, improved by...



...more output than an hour's work in the UK.<sup>xxiii</sup>

People-based solutions to the productivity crunch are, however, becoming politically far less tenable at present. In Europe, there is rising pressure, most obviously reflected in the decision of the UK to exit the European Union, which will very likely put an end to freedom of movement of workers there. The construction sector will have to wait and see how overseas skills will be deployed between the UK and EU, but it is safe to say that the sector faces a prolonged period of uncertainty until a Brexit deal is reached. The exit decision has fanned the flames of antipathy to freedom of movement which is rising in other EU states too – in Germany, France and the Netherlands, for example.

President Trump in the US also appears to be tapping-in politically to a public appetite for more protectionism and immigration controls in labour market policy. Such populist measures are causing uncertainty for the construction industry, which relies so heavily on a diverse global skills base.

So, it is increasingly likely that the construction sector will need to look for new solutions among the vast array of factors that influence construction productivity. These include, according to the Chartered Institute of Building, issues ranging “from macroeconomic management to the design of individual tasks on site, from technical issues associated with design and production to issues of occupational psychology, from organisational structures to financial

models, from product regulation to process innovation, from the weather to the site location, from education and training to mechanisation”.<sup>vi</sup>

The question Mace sought to research, in conjunction with Odgers Berndtson, was whether there was a more direct answer to the challenge of defining the precise cultures and operations that define a highly-productive construction team?



## OUR RESEARCH: WHAT WILL DEFINE HIGHLY SUCCESSFUL TEAMS?

We undertook an extensive review of expert perceptions and predictions for what will define the successful construction team of the future. We used interviews with senior figures across the construction sector, as well as a number of experts on team work and leadership.

Our research produced a number of implications which can be placed under three big themes comprising the factors that will determine successful construction teams.

### 1. Distinguish invention from innovation: being able to embrace very selectively the technological and process changes that will deliver the highest future value

Being receptive to new technologies and modes of working, and more quickly, was the biggest theme emerging from our respondents as the factor that will drive successful teams in the future. Crucially, however, our experts believed the key was being very selective – focusing not simply on chasing ‘the new’, but on developing capabilities to distinguish which innovations will deliver genuine transformation of value.

High-value innovations cited as driving most success in the future included innovations such as BIM (building information modelling), as well as 3D drawing and printing, and prefabrication techniques which provide new opportunities for improving efficiency.

While all firms appear aware of the value of such innovations, however, many have been slow to incorporate them themselves. In a recent survey of construction professionals, less than half described themselves as being “very” or “quite” confident of their BIM knowledge and skills. And 28% described themselves as “not very” or “not at all” confident.

That said, there are reasons to be optimistic. Only 4% were not aware of the software and 86% expect to be using BIM on at least some of their projects by April 2017.<sup>viii</sup>

Our research also highlighted the role that smart contracting can play in helping firms to reduce transaction costs and save time on administration. Such innovative approaches to procurement go beyond electronic contracting, which just digitally archives the process. Smart contracts provide better protection than traditional wet-signed paper contracts, offer greater flexibility, and are easier to administer compared with current contracting procedures.

*“One of the things that smart contracts do is that the contract itself changes as you get more information. So you can contract early but the contract doesn't become a club to beat your work with. Instead, it becomes the start of the conversation so that when things change, you can examine whether the contract suits your needs. And then people realise that contracts should be the tool to help you to manage the project from start to finish.”*

Sarah Fox, construction contracts specialist



In a recent survey of construction professionals,

**28%**

described themselves as “not very” or “not at all” confident of their BIM knowledge and skills.<sup>xiv</sup>

Only **18%**

of construction professionals utilise any form of collaborative tools or techniques on all of their projects.



**40%**

of executives believe engaging in ecosystems of digital partners is critical to their business success.<sup>xxvi</sup>



When construction professionals were pressed on why they didn't use collaborative tools or techniques...<sup>xxv</sup>

**42%** said...



*“The client did not want to use them.”*

**33%** said...



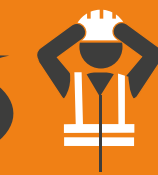
*“The parties involved have different aims and objectives.”*

**27%** said...



*“The projects we work on are too small.”*

**24%** said...



*“I'm concerned about liability and risk.”*

**82%**

of executives believe platforms will be the ‘glue’ that brings organisations together in the digital economy.<sup>xxvi</sup>



By removing the legal and transactional burden associated with current contracts, firms can enter into more fluid, flexible arrangements with subcontractors. This should, if implemented correctly, create a more collaborative and competitive market that innovative construction firms will benefit from. One of the barriers to this, however, lies in securing the support of banks and insurance companies.

Technology is not only shaping what we use, but also where we work. The use of Design for Manufacture and Assembly provides opportunities for teams to work more safely and more efficiently offsite. Building service units offsite allows for pre-commissioning, certification and higher quality control.

The UK government appears to be fully behind the concept of modular development – as tangibly demonstrated in DCLG's recent Housing White Paper.<sup>ix</sup> This presents companies with new challenges, though as it is difficult to amend pre-fabricated units onsite in the event of complications.

*“Teams need to think smarter and faster. It's a fast-paced industry and offsite construction means you need to get it right first time in the factory because you can't alter it when it's on site.”*

Ben Coster, Mace Project Director, V&A Waterfront, South Africa

Finally, technology has also led to different ways of working and enhanced the prospects of distance collaboration. A number of respondents cited the role of video conferencing and how similar tools are changing the dynamic of how teams interact and where they are based. But these developments are not always welcome. Taking advantage of these advances depends on quality leadership and having the right team ethos in these “virtual teams”.

*“People communicate differently when they're in virtual teams. They will not give as much information virtually as they would if they were sat in a room together.”*

Dr Sarah Gregory, Lancaster University Management School

In all this, a recent UK government-commissioned review of the construction industry perfectly summarises our view: that, “the current pace of technological change and innovation in wider society is such that unless the industry embraces this trend at scale, it will miss the greatest single opportunity to improve productivity and offset workforce shrinkage”.<sup>x</sup>

### 2. Quality leadership is still absolutely critical – but leadership practices must adapt to technological and societal change

While technology will be the driver of increased output and productivity for the construction sector, it is actual leadership which is necessary to harness its power for commercial success.

Over 90% of our respondents cited the right kind of leadership as a top priority factor in the performance of high performing teams. But the key question of what this is, is clearly being reshaped by societal and technological change.

According to a study of 195 leaders of global businesses conducted by the Harvard Business Review, the top five most important qualities of a successful leader are:

- high ethical standards;
- providing clear goals and expectations;
- clearly communicating those expectations;
- being flexible; and
- committing to the employee's long term development.<sup>xi</sup>

The pressures placed on today's generation of project managers in the construction industry are arguably unprecedented. Teams can be divided between on and offsite, or even split between continents courtesy of technological advances. It is a given that successful leaders should have exceptional communication skills and be able set the tone of the project as well as encourage and motivate those within the team. But what happens to communication when your team is collaborating via digital channels alone? How does a project manager build trust within a team that does not meet face-to-face on a regular basis? How does he or she avoid micro managing? A successful project leader has to empathise and be able to lead,

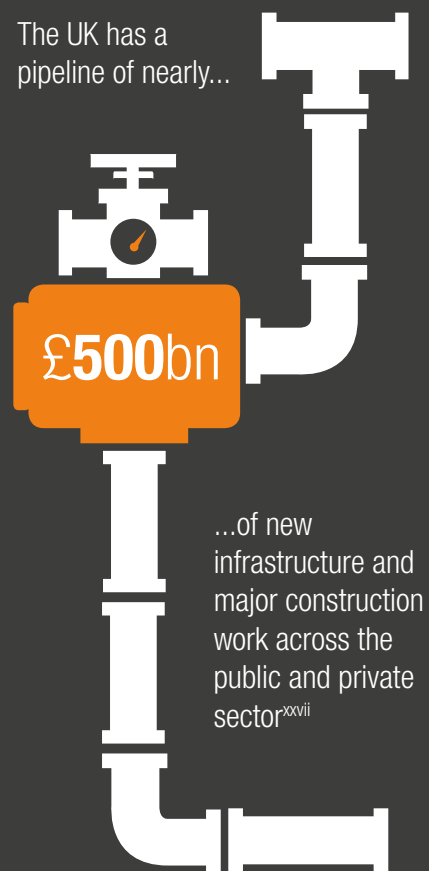
communicate and motivate across geographic and cultural barriers.

In addition, nearly half of our respondents felt that the demands of the millennial generation are creating new challenges. A recent study by Deloitte found that 38% of millennials expect to leave their job in the next two years, as they are unhappy with how their leadership skills are being developed.<sup>xii</sup> The research revealed a strong correlation between flexible working conditions and employee loyalty. In highly flexible working environments, the difference between those who see themselves leaving within two years (35%) is just two points above those anticipating to stay beyond five years (33%).<sup>xiii</sup> In contrast, among those in the least-flexible organisations, there is an 18-point gap (45% versus 27%).<sup>xiv</sup>

Construction firms not only need to think about this generation but also their successors who will soon be entering the age for apprenticeships – the “centennials” or “Generation Z” (those aged 18 or younger). It is worth remembering that the sector requires one million new recruits by 2022.<sup>xv</sup>

Construction is a sector that is exposed to high turnover rates, given that many young professionals may decide to switch firms at the end of one or two projects. According to a survey of millennial employees conducted by Hays, 46% of millennials in construction expect to leave their jobs within the next 12 months and a third expect to leave within 6 months.<sup>xvi</sup>

The UK has a pipeline of nearly...



Construction in the UK will require...



46%

of millennials in construction expect to leave their jobs within the next 12 months.<sup>xxix</sup>



This data may paint an overly negative story but it underscores the scale of the challenge and the need for effective leadership in teams. Project managers therefore need to be sensitive to the desires of these individuals in order to retain the best talent. In short, successful organisations need their managers to have the right set of soft skills to empower and manage the expectations of this new intake of talent.

The rise of professional project managers – as opposed to the old method of architects applying themselves to project management – was almost universally cited by our respondents. The industry experts were not averse to the idea of outsiders managing projects – so long as they had a proven track record. It was felt, however, that experienced managers with a strong personal reputation are needed to secure the “buy in” and trust needed to get the most from employees working regularly at distance or in completely “virtual teams”.

*“There is a need for strong leadership on major programmes of work. Heathrow T5 is a great example of where we had such leadership and a clear goal...but as an industry we should be encouraging leadership to come from all sorts of different places...the current approach is too narrow; you can always have a number two who has done construction programmes. The skill people need is a broader view of the outside world.”*

Phil Wilbraham, Planning and Programmes Director at Heathrow Airport

Above all, it was clear from our research that successful managers set the vision of a project but not in a directive or dictatorial fashion – as may have been the case even five or ten years ago. Good leaders trust in the people they have chosen for the task, set clear expectations, and then allow them to get on with it. They are also not fearful of changing direction or being flexible when required. Ideally, therefore, an effective manager needs to be involved directly in selecting at least the kinds of skills and performers they want for a project team.

### 3. Understanding the specific success factors of high performing teams

Once the right team is in place, how do we get a team of five to produce the output expected of a team of seven?

One of the most important aspects of delivering maximum value from people running a project is to leverage and scale the core capabilities of highperforming teams, namely: Trust; Common Purpose; Shared Consciousness; and Empowered Execution, according to Ash Alexander-Cooper, a former Special Military Unit officer, who now advises businesses on leadership at McChrystal Group. Ash says the best leaders ‘set the conditions’ for success; leading like gardeners rather than chess masters. Through positive leader behaviours, strategic alignment, and use of tools and processes to enhance contextual understanding, successful leaders empower project teams



by delegating authority and creating clear decision space. Actively sharing information at an appropriate cadence also helps focus effort, prioritise resources and enables enterprise-wide learning. The principle requirement is to understand how each team's activity and output relates to the wider group; what the specialist military community terms collective intelligence, enabled via an "all-informed net." The majority of our respondents concurred with the direction of this, stressing the need for very clear expectations and responsibilities management to be set, so that everyone on the team knows their role and understands what value they are adding. They can therefore see where their individual contribution fits into the bigger picture.

*"The important thing is to understand your role on the project. Even when a person is good at their job but they don't understand their role in the project or fit the team dynamic, there is a challenge."*

Ben Coster, Mace Project Director, V&A Waterfront, South Africa

Managing the space in which teams operate is also crucial. Our research suggests that high-performing teams work better when co-located. The experts we consulted felt that, although technology is tremendously helpful when you are forced to work from distance, nothing can replace face-to-face contact. In an efficient team, there is trust between colleagues as well as a sense of camaraderie and

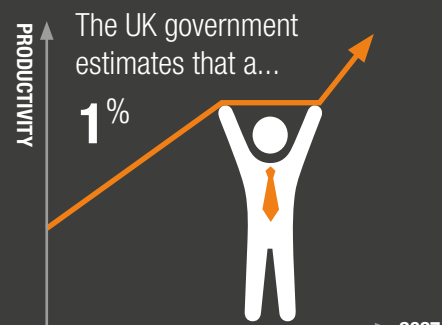
identity. This is difficult to establish over phone or video conferencing and emails.

*"Soft skills are so important. We don't always appreciate that in the construction industry. People perform best when they can be open - that is how you build trust and trust is a huge component of successful teams."*

Mark Jenner, Associate Fellow, Imperial College

Some experts believe that the most successful teams are therefore likely to be small, as accountability is much easier to determine. That said, several of our respondents argued that, as long as everyone's responsibilities are clear, there should be no room to hide in larger teams either. Members of a successful team will feel free to speak out and challenge each other. This is necessary to avoid internal squabbling and individuals playing the blame game. In terms of structure, teams should be integrated as much as possible. Over the last few years, we have seen a welcome shift away from the "siloes approach" (i.e. separate teams for procurement, legal and project management).

Explicitly managing effective collaboration is therefore essential for any leader wanting a successful project team. The cultures established by leaders and organisations are obviously very important to achieving this, but so is understanding the support to put in place to facilitate collaboration. Mace does a huge amount of work in the space of improving



rise in productivity each year for the next decade would add...



collaboration across project teams, using the BIM technology mentioned above. This defines common information requirements, processes for information delivery and data exchange - through to helping higher-level functions like helping create project goals and supporting decision-making.

### Looking to other sectors for inspiration

There are lessons we can learn in construction from looking at other high-growth, high-productivity sectors for what makes for successful delivery teams. One such industry with many parallels to construction - in that it relies often on project working, using people drawn from very different places and sometimes working across large distances - is the digital sector.

### Google's five factors that are significant for team effectiveness:<sup>xxxi</sup>



Research produced for Google's Project Aristotle on what drives successful teams provides a very relevant example with many direct parallels to our own research. The particularly interesting aspect of Google's work is that their researchers started with the hypothesis that team composition would be the most important variable in what makes a successful team, but the findings showed that how a team interacts is far more important than who is on the team.

Project Aristotle identified five factors that are significant for team effectiveness:

1. Psychological safety: Can team members take risks without feeling insecure or embarrassed?

2. Dependability: Can team members count on each other to do high quality work on time?
3. Structure & clarity: Are goals, roles, and execution plans clear?
4. Meaning of work: Are team members working on something they feel personally invested in?
5. Impact of work: Do team members fundamentally believe their work matters?<sup>xvii</sup>

## CONCLUSION: THE TOP 5 FACTORS THAT WILL DEFINE THE SUCCESSFUL CONSTRUCTION FIRM

Paul Krugman's dictum that "productivity isn't everything, but in the long run it is almost everything" still holds today. In countries like the UK, which has a pipeline of nearly £500bn of new infrastructure and major construction work across the public and private sector,<sup>xvii</sup> modest productivity gains in the construction industry could have a tremendous impact on the national economy as a whole. Indeed, the UK Government estimates that just a 1% rise in productivity each year for the next decade would add £240 billion to the size of the economy.<sup>xix</sup> Construction has a major role to play in this – across the world.

Making project teams more efficient will also increasingly be the differentiator in a global marketplace facing ever-increasing competitive and geopolitical pressures. With that in mind, productivity gains define the top 5 lessons from our research:

1. Create the "all-informed net": Good teams build into the project plan a military-style plan of procedures for communicating so that everyone knows what everyone else is doing, all of the time.
2. Use technology more wisely: New technology is becoming absolutely ubiquitous but good teams distinguish innovation from invention: they establish (or take expert advice on) which specific technologies add most transformative value.

3. Adaptable leadership: Outcomes are more important than outputs, so change direction within a project if needed (this supports the increasing use of 'smart contracting'). Adaptability is also important to technological and societal change, such as the career expectations of millennials.
4. Focus team members on their value-add: Most high-performing teams are small and co-located, but, by defining the very clear value, not just responsibility, of each person, high performance can be extracted from large teams working at distance.
5. Facilitate collaboration: Project collaboration needs to be established not just as an organisational culture, but implemented via physical tools, thus creating a measurable efficiency; using BIM (Building Information Modelling), for example.

Our research has highlighted how successful teams function, both within our own industry and elsewhere. Embracing technological change is necessary but it is equally important not to lose sight of the fact that teams consist of and are driven by people. Experienced and empathetic leaders are vital in selecting the composition of a successful team and instilling its members with a clear business-driven vision and sense of identity. Team members must each have clear roles and be able to challenge each other and trust one another.

This report lays out our unique formula for what is most likely to drive higher performance from construction project teams. The task for forward-thinking companies is to get ahead of this challenge and start to put in place the capabilities for high-performing teams that will succeed in what looks set to become an increasingly competitive and testing global future.

## REFERENCES

- i Office for National Statistics, 'International comparisons of UK productivity (ICP), first estimates: 2015', published 06/10/16.
- ii Ibid.
- iii Office for National Statistics, 'Productivity Handbook', April 2016.
- iv World Economic Forum (in collaboration with the Boston Consulting Group), 'From Shaping the Future of Construction: A Breakthrough in Mindset and Technology', published 04/05/16.
- v National Institute of Economic and Social Research, 'The Link Between Labour Productivity and Immigration in the UK', published 05/11/13.
- vi The Chartered Institute of Building, 'Productivity in construction: Creating a framework for the industry to thrive', published 24/05/16, p. 14.
- vii NBS and RIBA Enterprises, 'National BIM Report 2016', published 14/04/16, p. 32.
- viii Ibid, pp.31-32.
- ix Secretary of State for Communities and Local Government, 'Fixing our broken housing market', published 07/02/17, p. 14.
- x Mark Farmer, 'Modernise or die: The Farmer Review of the UK construction labour model', published 17/10/16, p. 9.
- xi Sunnie Giles, 'The Most Important Leadership Competencies', Harvard Business Review, 16/03/16.
- xii The Deloitte Millennial Survey 2017, published 31/01/17, p. 18.
- xiii Ibid, p. 21.
- xiv Ibid.
- xv UK Commission for Employment and Skills (UKCES), quoted in Mace, 'The UK's productivity problem and how to solve it', published 23/12/16, p. 5.
- xvi Hays UK Salary & Recruiting Trends 2016, published 07/07/16.
- xvii Google, 'Guide: Understand team effectiveness - Google re:Work', published 13/09/16.
- xviii National Infrastructure and Construction Pipeline, published 05/12/16.
- xix Ibid.
- xx Mace research
- xxi Office for National Statistics, 'Productivity Handbook', April 2016.
- xxii Office for National Statistics, 'International comparisons of UK productivity (ICP), first estimates: 2015', published 06/10/16.
- xxiii World Economic Forum (in collaboration with the Boston Consulting Group), 'From Shaping the Future of Construction: A Breakthrough in Mindset and Technology', published 04/05/16.
- xxiv NBS and RIBA Enterprises, 'National BIM Report 2016', published 14/04/16, p. 32.
- xxv <http://www.pinsentmasons.com/PDF/2016/Collaborative-Construction.pdf>
- xxvi <https://www.accenture.com/gb-en/insight-business-technology-trends-report#Trend>
- xxvii National Infrastructure Pipeline Report, <https://www.gov.uk/government/publications/national-infrastructurepipeline-2016>
- xxviii UK Commission for Employment and Skills (UKCES)
- xxix <http://www.hays.co.uk/press-releases/construction-could-lose-generation-of-managers-as-over-half-of-millennials-expect-to-quit-by-2017-1696765>
- xxx National Infrastructure and Construction Pipeline, published 05/12/16.
- xxxi Google, 'Guide: Understand team effectiveness - Google re:Work', published 13/09/16.

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