

LONDON 18 MAY, 2017
GUEST SPEAKER **RICHARD SAXON** PRESENTED:

“CONSTRUCTION IN CRISIS: IS OFF-SITE MANUFACTURING THE ANSWER?”



EXECUTIVE SUMMARY

The London housing market is feeling the brunt of skilled labour shortages in the construction industry, in the absence of a much needed government push towards research, development, and training. In comparison to other countries such as Japan, the UK is lagging far behind.

Kim Vernau, CEO, BLP Insurance, highlights the key points raised at an interactive discussion organised for industry peers on offsite construction as the solution to an industry in crisis. Guest speaker and Non-Executive Director, Richard Saxon, provided a reality check into how skills and innovation gaps in the UK are limiting progress and why a top-to-bottom shake up is required if there is going to be any sign of a recovery.

THE CONSTRUCTION CONUNDRUM

Mark Farmer's recent report, Construction labour market in the UK: Farmer review, subtitled 'Modernise or Die', portrays an industry in drastic need of change. This is not dramatic language, but an accurate reflection of the current and seismic ills of the UK construction sector.

The future of the industry is plagued with uncertainty; skilled tradespeople are retiring at an alarming rate, falling numbers of graduates are joining the industry and apprenticeship levels are significantly below the required threshold. Moves towards Brexit could add to our woes, with a significant proportion of skilled tradespeople previously coming from the EU. The self-inflicted wound is only getting deeper.

It is no secret that construction quality is also on the decline, with increasing attention being given to the availability of new build properties that are fit for purpose. Off-site construction has been voiced as a viable solution, but a key problem lies in the relatively unproductive nature of the UK construction sector. While other UK industries have witnessed exponential productivity gains, construction productivity has remained unchanged over the past 30 years. We're also lagging behind an international level, with Germany and France on average producing in four days what the UK can in five.

THE ARGUMENT FOR OFFSITE CONSTRUCTION

Increasing capacity through the addition of machines to the current workforce will help to compensate for shortages of labour. Furthermore, factories can provide a steadier work culture in a fixed location that is not exposed to unpredictable weather, often a deterrent for people coming into the industry.

Embracing off-site manufacturing will also help the industry to improve its image. The construction industry is oft maligned for its poor safety record and lack of focus on sustainable production. Off-site construction is inherently safer than its onsite equivalent, with work carried out in a more controlled and systematic manner.

Adoption of digital innovation will be fundamental to the success of offsite construction, as a key component of more efficient, effective and timelier production. The role of digital in the design process is also an attractive proposition for millennials and younger generations to join the industry. As the process of electronic tagging develops, components can increasingly be built robotically, meaning

that operating and maintaining buildings can be done in a much more sophisticated way. Looking back in 20 or 30 years' time, we will say that this was the decade in which everything changed. A rising proportion of buildings are already being pre-fabricated. Even traditional built housing is now typically made up of around 10-15% off-site content, and construction products (other than raw materials) are making up an increasing part of specifications. However, there is still a long way to go and the threat of industry-wide failure unless significant work is undertaken.

THE MANAGEMENT OF OFF-SITE CONSTRUCTION IS A WHOLE NEW BALL GAME

Evidence suggests that specialist firms involved in making off-site components are just as prone to suffering business failure as traditional building firms. Costs are largely the problem; these are usually higher because of the initial capital requirement and the inability to guarantee full utilisation of factory capacity.

Supply chains also remain desperately fragmented and the onsite assembly of the parts is fraught with difficulties and risk of damage. The logistics of off-site construction is a whole new ball game and the skills are just not there. The Construction Industry Training Board (CITB) recently published a report called "Faster, smarter, more efficient – building skill for off-site construction", with a daunting list of the skills required. The problem is that offsite doesn't resolve the skills problem, it just simply starts a new list.

SURVIVAL BOILS DOWN TO CASH FLOW

As a low-capital-intensity industry, the survival of construction firms has always been dependent on cash flow. Overcapacity keeps margins low, allowing small privately held firms to prosper in this environment because of a healthy return on modest investment. The problem arises when firms are unable to afford costly training or research and development. Innovation subsequently pays the price as businesses simply don't have the margins.

Construction suffers more so than any other industry from exaggerated business cycles. Efforts to alleviate the pressures through subcontracting only further depresses capacity, shuts down training, and pushes research and development to the back of the queue. With cycles coming round roughly every eight years, the next cycle could be fast approaching. This doesn't fit in well with factory-



based high capital offsite construction. There are tens of millions at stake to create the capacity to build, and then it can't be utilised because the demand simply isn't there.

BEHIND THE INTERNATIONAL CURVE

Off-site construction is miles ahead in other regions. One example is Toyota's housebuilding industry in Japan, where a million houses are built a year in a country with a population twice the size of the UK. Instead of mass housebuilding, it operates an individual house replacement model which is aligned to Japanese homeownership patterns. Typically, a mortgage will be taken out on a plot of land rather than the house and when the building reaches 20 to 30 years old it is replaced.

The UK is the absolute opposite; we spend half of our housing construction spend on fixing up old properties seen as more attractive and as holding more value. This is the British way of housebuilding, although the properties are increasingly being built with largely pre-fabricated off-the-shelf elements.

We need to change and evolve our methods and rationale if we're going to achieve a more forward thinking, modern and efficient way of building. For real progress to occur it is vital that the industry becomes more integrated and the fragmentation of hundreds of thousands of construction firms needs to reduce. Toyota benefits from knowing exactly who is going to provide every component in a new build house so that production lines can flow at an optimal pace. They don't believe in competition, they believe in relationships. The result is a long and reliable supply chain with the capacity to keep innovating.

REACHING A CONSTRUCTION TIPPING POINT

Government intervention is needed to respond to the fundamental market failure in the construction industry, whereby it is continuously reacting in an exaggerated manner to economic cycles. At a national level, the public sector should be buying buildings during those periods when nobody else is, rather than adding to peaks in demand by subsidising purchasing power as has recently been the case.

The public sector also needs to support research and development, alleviating the cost for firms to innovate which otherwise makes them less competitive. The Japanese government's model is to allocate research and development jobs to major construction firms and then share findings across the industry.

Training around the implementation of digital working methods is also essential. We also need building regulations that recognise offsite construction and give 'type approvals' and planning approvals available earlier in the process.

THE ROLE FOR BUILD TO RENT

One ray of hope is the institutionally funded Build to Rent sector. This has been a significant hole in our market ever since World War 2, but finally the government's Housing White Paper has recognised the importance of its role in helping to overcome the UK housing shortage by building fit-for-purpose properties for people not in a position to own a home.

The rise of Build to Rent means that even if the build for sale market is depressed, providers will still buy sites in a timely manner, without waiting for sales. It's a complete change of mindset for housebuilders, and one which suits factory manufacturers' style of speed, quality and reliability. Larger developments are also better to build and run, creating a completely different housebuilding model which fits with the off-site proposition.

CONCLUSION

Moving towards digitally driven operational models and offsite construction is increasingly being seen as a cure to the UK construction industry, increasingly struggling under a lack of investment, weak order books, poor recruitment and training and the inevitable impact of Brexit.

While its merits are clear for all to see in theory, such a dramatic shift in the way we build will be a long time coming. A complete shake up of the industry is required, involving not just methodologies to be used and the more rapid assimilation of technology into the design and manufacturing processes, but also essential consolidation and integration across the supply chain. A long and rocky ride lies ahead.

Richard Saxon, CBE, joined the BLP Insurance Board in 2013 having been a firm supporter of BLP Insurance over recent years. In 2001, he was awarded a CBE for services to architecture and construction in recognition of his work for the modernisation of the industry. Richard is former chairman of one of the UK's largest firm of architects, designers and engineers, BDP, is a RIBA Client Adviser, and has been a member of the government's Low Carbon Construction Innovation and Growth Team, and their BIM Steering Group. He is currently Chairman of the Joint Contracts Tribunal.



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IMAGES FROM 18 MAY, 2017, AT ZETTER TOWNHOUSE, LONDON



As the skilled construction labour force dwindles, and home ownership weakens, optimists believe that the industry can reinvent itself by moving to digitally-driven operational models and offsite construction.

BLP
IS MANAGED
BY **THOMAS
MILLER**

BLP
90 Fenchurch Street
London
EC3M 4ST
United Kingdom

T: +44 (0) 20 7204 2424
W: blpinsurance.com