TATA STEEL

TATA

Tata Steel's Construction Summit 2023 white paper series - Supply chains

Are supply chains ready to deliver on net zero ambitions?

CONTENTS

INTRODUCTION

Construction's challenges

The challenges facing the construction industry – especially around demographics and productivity – will not change, either under the current government or future governments.

That was the headline from Fergus Harradence (Deputy Director, Department for Business & Trade, formally known as Construction at the Department for Business, Energy and Industrial Strategy (BEIS) when the Construction Summit took place) when he delivered the keynote address at the Construction Summit 2023.

According to the Office for National Statistics, the construction industry's productivity has been largely stagnant for over two decades. By contrast, productivity in the manufacturing and services sectors, as well as in the economy as a whole, has increased over the same period.

Poor construction productivity is evidenced across the globe and the gap between output and productivity has widened over the past decade. There is no easy answer to addressing this issue and the challenge will only increase as the workforce continues to age. Currently, more than a third of UK construction workers are over 50 and by 2066 a quarter of the UK population will be over 65.

Sustainability and decarbonisation

The contribution of the construction industry and the built environment to national carbon emissions is typically put at somewhere around 40%. The sector therefore has a vital role to play in meeting the UK's legally binding target of net zero by 2050.

However, it should not be forgotten that the target isn't 'just' net zero. There are intermediate targets that must be met too, starting with a 68% reduction by 2030, and a 78% reduction by 2035. Alongside these carbon emissions targets are wider sustainability issues, such as the fact that construction generates 60% of UK waste.

What is the conclusion to be drawn from all this? First, that the sector is faced with a multi-faceted and constantly evolving target of what 'good' looks like. It must seek to drive change throughout its supply chains to improve productivity, while also decarbonising and improving sustainability and promoting culture change in a rapidly evolving workforce.

The role of government

Fergus Harradence's keynote address focused on the role government has to play in supporting the industry. He outlined how the current government has set a clear direction of travel towards a policy-driven, systems-based approach.

The overarching aim is positive societal outcomes, tied to the UN's 17 sustainable development goals. Government policy sits under this overall goal, and a strong message of the whole Construction Summit was that the UK has a policy environment that is genuinely envied by other countries.

Ultimately, the vision is to deliver on these policies through a 'system of systems', rather than an "organic, laissez-faire" approach – a core part of which is digitalisation and product platforms. He went on to cite the example of the Seismic construction platform, which went from concept to reality in five years, and which is now delivering the £19.2 million Laurence Calvert Academy in Leeds.

Government's goals in guiding construction procurement:

Productivity
Design
Industrialisation
Connected and autonomous plant
Building digital skills capability

Improved operations
Supply chain integration
Asset optimisation

Culture change
Collaboration
Quality
Safety

Construction Summit 2023 – showcasing the industry's progress and vision

Well-designed policies can stimulate innovation; public procurement requirements often trickle down to projects of all types; and new legislation can prompt change and improvement where it might not otherwise have been forthcoming.

At the same time, however, government policy and regulation can take a long time to be made. Businesses are often ready to lead when the government won't legislate far enough. The relationship between government and industry can be fraught.

That is what led to Tata Steel UK and Constructing Excellence coming together to create the Construction Summit, with 2023's edition being the first. It represented an opportunity for thought leaders and decision-makers to come together to see where progress is being made, learn from best-practice examples, and be inspired by one another to continue their own positive journeys.

The Summit featured presentations across three different strands

- Supply chain
- Climate change and net zero
- People and skills

Each strand was viewed through the lens of productivity, sustainability and future paths, to give a complete snapshot of where the construction industry is today, and what it is working towards in the short, medium and long term.

This white paper – focused on supply chains – is one of three, each associated with a separate strand. It asks whether supply chains are currently ready to deliver on net zero ambitions, what 'supply chain 4.0' looks like and whether collaboration is key to supply chain success. Finally, it looks at what construction in 2030 will be like given where we are today.

Images captured from the Construction Summit 2023

IS THE CONSTRUCTION INDUSTRY REALLY READY FOR NET ZERO?

Sustainability is a watchword for the construction industry. Projects are keen to state their 'green' credentials, sometimes controversially – especially when it comes to the question of whether to retrofit or rebuild. What do people actually mean when they claim a building is sustainable and what is good practice?

Government policy is using the UN Sustainable Development Goals as a framework, but those 17 goals are wide-ranging. Sustainability is a diverse and multi-faceted thing but, as Gilles Alvarenga (Thrive Associate, Chetwoods) described, in construction it's usually all "carbon, carbon, carbon".

Operational and embodied carbon

Nevertheless, carbon emissions are the starting point when trying to address the question of whether the construction industry can achieve net zero. Whether the industry is 'ready' or not really depends on how the topic is looked at.

Consistent tightening of building regulations over the last few decades means that operational carbon – the emissions associated with the use of the building – is now relatively low. As a whole, the construction sector has been on a journey with operational carbon, to the point that it can now deliver relatively efficient buildings in use.

Understanding around embodied carbon remains low, however. Awareness is increasing, but embodied carbon remains unregulated. A similar journey needs to be taken with embodied carbon, and some steps have been made – such as through LETI and RIBA carbon targets, and the industry's own Proposed Document Z. However, time pressures mean this new journey needs to be undertaken significantly faster.

Meridian Water is a 20-year regeneration project in the London Borough of Enfield, creating 10,000 homes and 6,000 jobs next to the Lee Valley Regional Park. It is, in the words of Rafe Bertram (Sustainability Lead, Meridian Water, Enfield Council), "aligned with the forefront of sustainable development worldwide".

Key to the project was starting with a clear definition of zero carbon. By 2050, nearly 70% of carbon is expected to be from the construction of buildings, because operational emissions have been tackled so well. That means tackling not just operational energy and carbon, but energy during construction, operation and end of life.

The UK Green Building Council's net zero carbon buildings framework therefore provides the definitions for the project's net zero scope.

Using design to address carbon emissions

Jonathan Munkley (Technical Director, WSP and Co-founder of ZERO) introduced the ZERO playbook, an interactive knowledge base combining the insight of over 100 industry professionals and experts. Among the topics covered by the playbook, it asks: 'why measure embodied carbon?'

"To manage something effectively, it's important to be able to measure it accurately. The converse is also true: if something is mismeasured, it's likely to be mismanaged."

For the construction industry, an uncomfortable truth is likely just around the corner: as embodied carbon starts to be measured more accurately and more often, emissions accounted for are likely to increase at first. But with more accurate measurement comes the ability to lower them with greater confidence, and then real, long-term carbon savings can be realised.

One way to illustrate how everything has a knock-on effect for everything else is looking at how lowering operational carbon can increase embodied carbon. This is because more material – such as insulation – is needed to drive greater operational efficiency.

The reverse of that is when specifiers exclude items like solar panels for the embodied carbon they would add to a project. Such an approach, however, doesn't necessarily address the impacts created by energy generation elsewhere, or take into account ongoing efforts to decarbonise the national grid.

For Gilles Alvarenga, form factor is one of the best tools in a designer's arsenal. Because it promotes efficiency, it's a design solution for both operational and embodied carbon.

Maximising internal floorspace while minimising a building's thermal envelope helps heating systems to run more efficiently. At the same time, taking a simpler approach to the thermal envelope reduces the amount of construction material needed to build the building in the first place.

Using the early design stages to concentrate on measures like form factor helps to drive savings in both carbon and cost throughout a project. Sustainability is often thought of as making buildings more expensive, but that is because technology is often used to address shortfalls between intent and real-world performance.

Rather than an over-reliance on technology, sustainability can be designed in from the outset. And 'sustainability' means just that – a more holistic approach beyond 'just' carbon.

Form factor: the ratio of external envelope area to floor area. The lower the form factor the better. For example, a simple cube design is more efficient than a long and thin design. Projections from the building envelope (e.g., porches, bay windows) increase the form factor and add complexity, thus increasing the risk of thermal bridging and air leakage, while also adding cost.

Regenerative architecture

Reduce, reuse, recycle – often referred to simply as 'the three Rs' – is part of the waste hierarchy. It is a common mantra, and one that has been adapted in countless ways. Tata Steel, for example, refers to the four Rs and adds 'remanufacture' to the list.

Regenerative architecture seeks to go beyond sustainable architecture. Rather than seeking only to minimise the resources used on a construction project, which is still ultimately damaging to the environment, a regenerative approach aims for an overall positive impact. It may also be termed 'restorative'.

Conventional construction practices have had such a sustained negative impact, that simply aiming for 'green' or 'sustainable' construction is not enough to undo those impacts. Restorative or regenerative architecture can help to improve soil, manage water, capture carbon, create habitats and build communities, among other positive impacts.

Regenerative design in buildings

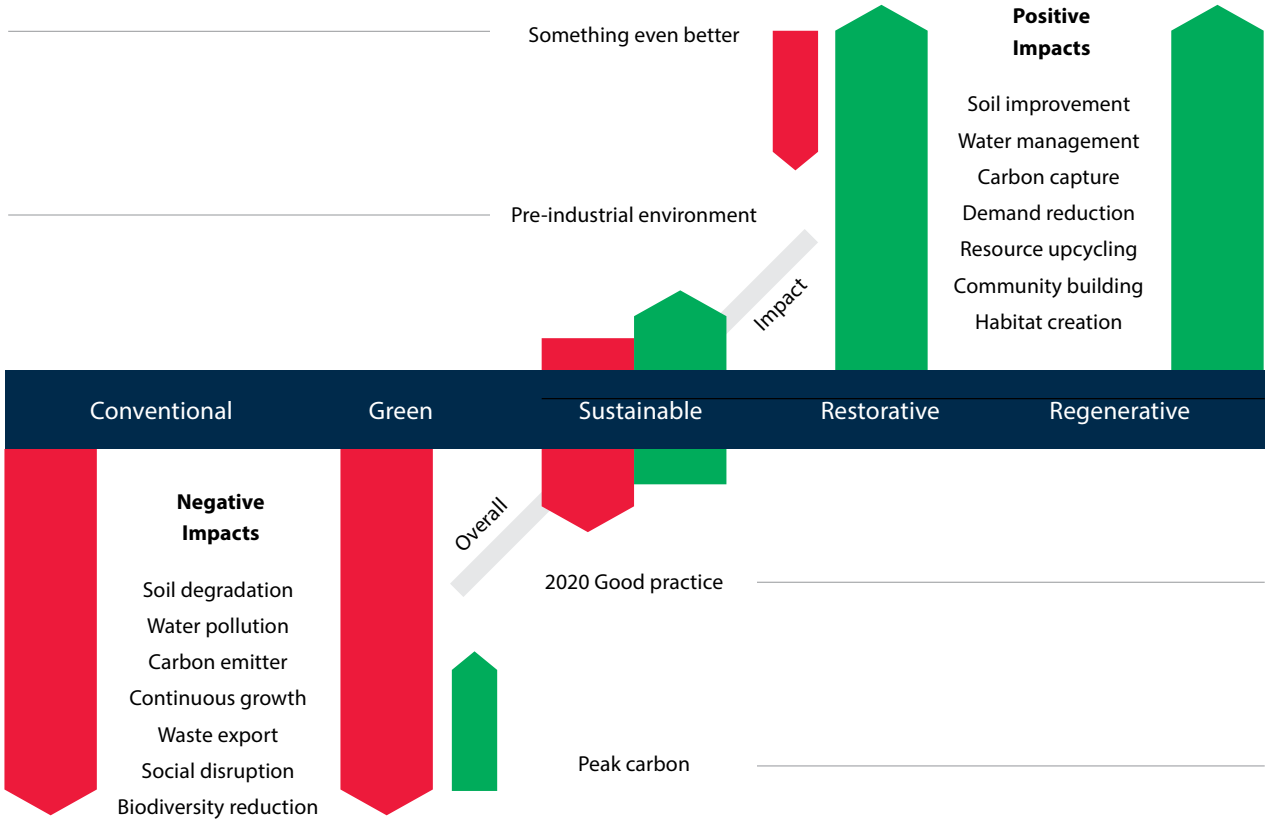


Image taken from Gilles Alvarenga's presentation for the Construction Summit 2023

Regenerative design uses six Rs

Reject	Repair	Reduce	Recycle	Reuse	Rot

Rejection is another design tool. An example is choosing to avoid the use of harmful chemicals, or materials that emit volatile organic compounds (VOCs). Such an approach can immediately reduce wider environmental harm and create healthier internal environments for building occupants.

Much like managing embodied carbon, managing the rejection of harmful materials or products relies on having the right information and measurements at hand. Those information sources, such as the Declare label and environmental product declarations (EPDs), are becoming better-known, better understood and more accurate and thorough.

Reducing material use means questioning assumptions and asking what is necessary to deliver a design. For example, is a suspended ceiling necessary? Is a tall skirting board essential? (Halving the height of skirting boards throughout a project instantly halves the embodied carbon associated with skirting boards.). Why use a floor finish that gives the appearance of concrete over a floor that is already concrete?

Embracing circularity and adaptability

As part of getting to grips with embodied carbon, reuse is arguably the most important of the three/four/six Rs for the construction industry to come to terms with. By creating products and components capable of spanning multiple building life cycles, material extraction and use, and emissions associated with manufacturing and disposal can be drastically reduced, or even eliminated entirely.

Gilles Alvarenga encouraged a different perspective on how we view buildings: rather than looking at the building as an asset, what if we viewed it as a collection of components that have future value?

What often limits this approach is the idea that a building designed for one use can't easily be adapted into a different use. Rafe Bertram offered a unique take on this by observing: "Buildings are kind of similar to each other. They have to fit people into them."

In other words, adaptable, circular buildings where components can be reused don't have to be radically different from what we are constructing now.

It comes back to the early design stage thinking: how easy would it be to adapt, say, a school into a residential building or an office building? Considering timescale is important too – is a building expected to be used for 20-years or 120-years?

In terms of the industry's knowledge and understanding, the circular economy is a little way behind – but it is coming and will increasingly be part of construction project requirements. Meridian Water is working to embed circular economy principles by using the Excess Materials Exchange platform. The platform certifies material to ensure it has the highest possible value, then connects projects in the borough who can use that material.

Delivering net zero

The overall message from this session of the Construction Summit was that delivering a net zero project requires a clear vision, and engagement throughout the supply chain.

The construction industry is at the beginning of a journey towards low embodied carbon, adaptability and circularity. In many ways, however, it has always done some of these things. There is an ecosystem there waiting to be tapped into; all of the tools and thinking are already there. It's more a question of putting value on 'new' ways of delivering projects.

This is where triple bottom-line decision-making comes in. Rather than being put off by upfront financial costs, it's essential to make decisions where social and environmental factors are taken into account too. Through this, aspirations can be made into a reality that gets people excited.

Rafe Bertram reminded us that: "Industries change, and that's fine. It's a cycle of growth and decline. One industry feeds into another; one approach leads to new approaches." The construction industry is not immune to that cycle, so if supply chains are to engage in these new visions, we must consider how they might need to change.

WHAT DOES SUPPLY CHAIN 4.0 LOOK LIKE?

Engaging on sustainability issues throughout the supply chain is a significant challenge. Traditional supply chain management is linear. Information flows from one link in the chain to the next. Any link in the chain that refuses to engage on the topic is a potential block to openness and transparency several steps away on the chain.

Under the banner of 'industry 4.0', supply chain 4.0 represents a move away from a linear supply chain management model to a more integrated model where information flows in multiple directions. With that move comes potential benefits in productivity, sustainability and digital transformation.

> "Supply Chain 4.0 - the application of the Internet of Things, the use of advanced robotics, and the application of advanced analytics of big data in supply chain management: place sensors in everything, create networks everywhere, automate anything, and analyse everything to significantly improve performance and customer satisfaction."

- McKinsey & Company Supply Chain 4.0 - the next-generation digital supply chain (2016)

What is supply chain 4.0?

Every stage in the construction supply chain features issues that need to be overcome. The crux of supply chain 4.0 is using digital tools to take away those supply chain management problems.

The problem of construction

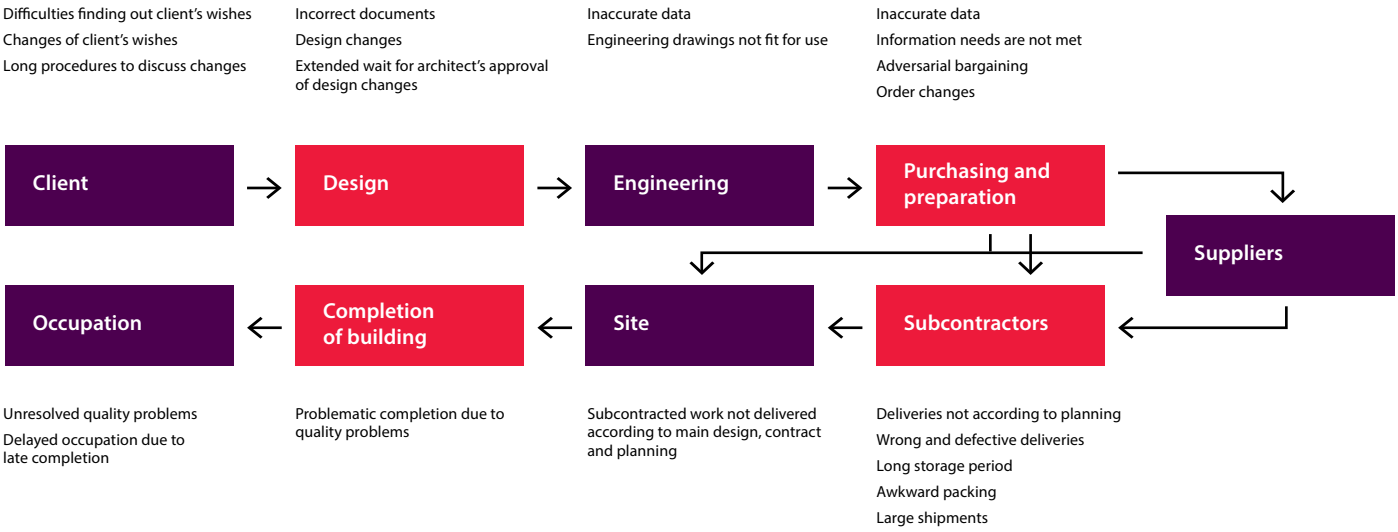


Image taken from Gilles Alvarenga's presentation for the Construction Summit 2023

Where industry 3.0 (and supply chain 3.0 as part of it) represented the adoption of automation, computers and electronics, industry 4.0 is about cyber physical systems (robotics), the internet of things and networks. According to David Philp (Chief Value Officer, Cohesive Group), supply chain 3.0 has not reached full maturity, for while the technology is there, the skills to fully exploit it are not.

Going from supply chain 3.0 to 4.0 will therefore take time – and a lot of data. The case for change, however, cannot be overstated. The combined issues of waste, carbon emissions and economic performance affect buildings across their whole life cycle.

Traditional construction has had negative consequences for people and the planet. Its model is not set up to support the sustainable and regenerative outcomes seen in the previous section of this document. As a result, change is needed to support efforts to tackle the climate crisis through a global, faster, more flexible and data-driven supply chain.

Through reimagining the supply chain and sharing data across the 'value chain', more cohesive workflows will improve productivity. A series of key enablers – such as artificial intelligence, digital twinning, modern methods of construction and ESG accounting – will also make supply chain 4.0 more accurate and less wasteful.

Smart management and autonomy will combine to deliver continuous performance through a feedback loop. Leading contractors are already recognising the need for better supply chain management. They are getting involved to create a legacy for digital technologies working together to improve the system.

Like embodied carbon and the circular economy, supply chain 4.0 is a journey. Consistency is being put in place, but forms of contract and collaboration need improvement. Interoperability, or connected supply chain data, is vital to demonstrate the value that will lead to buy-in from the supply chain.

Using data to drive supply chain management

It is one thing to say that digital transformation and digital tools will drive supply chain transformation, but what does that look like? Dr Jas Kalra (Supply Chain Lead, Lower Thames Crossing) shared correspondence he received from a project director addressing exactly that.

"Wouldn't it be great if, on any project, there was one central portal that everyone on the project had access to? A portal that the whole project lived on. If you and I became new members of the project, we would straightaway get logins to the project system. Everything you need to know on that project is on there. Anything you input to the project must be input through the system otherwise it doesn't count. No matter what organisation I go to, what project I am onto, the system remains the same. All communication takes places inside the system – no emails! Because emails, by definition, are outside the system. How do you govern and control and share that information? Everything we have now are all parts of the answer, but there is no 'one answer'."

Any such system, were it to become a reality, would have many potential benefits – and not only for supply chain management. For example, it could also support the golden thread of information, acting as the 'single source of truth' designed to increase accountability and improve building safety.

Already, some of the elements exist that could enable the creation of the 'one answer' that the project director is looking for. Tools and APIs have already been created, and there is a lot of knowledge, skill and motivation within the construction industry.

But there are also barriers to overcome, especially around not being able to coordinate different data inputs. Trust issues and commercial sensitivity will need to be overcome. And while some organisations do have the skill, knowledge and resource to invest, others do not – and their motivation to do so is low when their daily activity is centred on the survival of their business.

Enablers and barriers

		Supply Chain-level	Client level	Ecosystem-level
Data capture and sharing	Enablers	Contractual provisions Supplier development programme	Inter-functional relationships Data security Less-concern around IP rights Control Managerial hierarchy/ org control	Technological capabilities to capture real-time data (e.g. sensors) Democratisation of data
	Barriers	Data manipulation due to lack of trust Commercial sensitivities Low resources at subcontractor level Low priority	No direct link/visibility with the subcontractors Waste/delays due to coordination of data	Poor scope definition and requirements IP rights lack of a network effect Lack of a central coordinator
Data integration	Enablers	Procedures for monitoring, control, and coordination of data	Roles focused on cross-project analysis (e.g. sustainability) Systems in place to capture data by project (even if there is little cross-project integration)	Relatively higher skills and capabilities Some tools and API's exist
	Barriers	Different formats for different datasets Lack of automatic integration between different datasets Skills and capabilities gap (who should invest?)	Data differs by projects and functions Different formats for datasheets Different projects using different systems Skills exist at individual level - don't always translate at organisational level	We have the pieces of the puzzle, but they don't connect? We have the answer, what's the question (What's the 'why'?)
Data visualisation	Enablers	Client needs (but not budgeted)	Individual capabilities and motivation Knowledge bank, past projects Templates by stakeholders	Relatively higher skills and capabilities Some tools have been developed
	Barriers	Skills and capabilities gap Visualisation restricted to client needs - low levels of innovation	Requirements of different stakeholders little innovation beyond requirements therefor capabilities haven't been developed	Restricted by lack of data, clear cross-project/PMO integration Niche and decentralised

Table taken from jaskalra.com

Delivering supply chain change

Getting the process of transformation underway will mean making digitalisation relatable, so that a return on investment can be generated. It will also require bringing new talent into the industry – and a younger generation that understands digitalisation should help adoption.

Ultimately, culture change and trust are key. Both take time to build, which risks creating a feeling of starting all over again. It must be client-led, and a good starting point is engagement with Tier 1 contractors and product manufacturers. Getting their buy-in will develop the trust in contracts, competence and goodwill. Once culture is aligned between these key parties, there is hope for the successful transition to supply chain 4.0.

This level of change is certainly disruptive to existing business models. At the same time, failing to change will create disruption of its own. Better, then, to start the process of change now, rather than reacting to a need for change later.

Case studies are key to showing how the transition can be made and the benefits it is capable of delivering. Neil Pennell (Head of Design Innovation & Property Solutions, Landsec) presented an overview of The Forge, a project that put theory into practice. He explained the four roles of supply chain management in construction:

- Coordinating interface between the supply chain and the construction site
- Improving the supply chain itself
- Moving activities from the site to the supply chain
- Incorporation of industry, site and supply chain

The image on the left is 'The Forge' - The world's first major commercial development to use a platform approach to design for manufacture and assembly (P-DfMA).

As the world's first major commercial development to use a platform approach to design for manufacture and assembly (P-DfMA), The Forge learned from the efficiency of manufacturing and applied it to construction. An independent comparison between traditional construction and the P-DfMA design identified a near-20% reduction in embodied carbon due to:

- reduced material quantities;
- the use of materials with lower carbon intensity;
- a reduction in waste; and
- fewer vehicle movements.

Using configurator tools, standardising processes and tracking materials using QR codes allowed for better, data-led decision making and increased off-site manufacturing. Processes became more streamlined and accountable, making it easier to work towards the ultimate goal of delivering a development that is the first to meet the UKGBC's net zero definition.

Integrated Digital Technology - Supply Chain 4.0

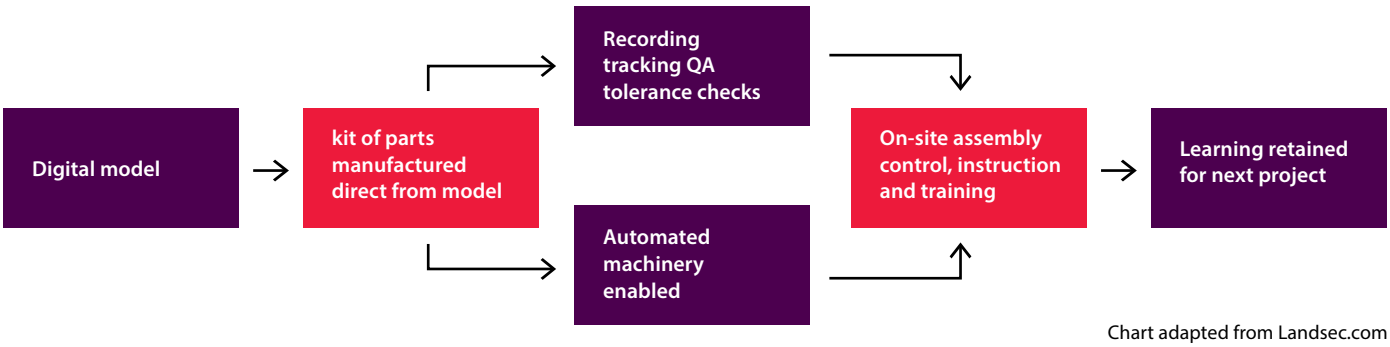


Chart adapted from Landsec.com

Ultimately, rethinking traditional construction and supply chain management on The Forge helped to create a more collaborative supply chain. Throughout this document so far, the importance of engagement and collaboration has come to the fore. The final section therefore looks at collaboration in more detail.

IS COLLABORATION KEY TO SUPPLY CHAIN SUCCESS?

So far, we have seen that collaboration and engagement can help to lower embodied carbon and speed the journey to net zero buildings. It can transform supply chains to deliver data-led and streamlined project processes. However, it is not yet the norm – in part because the necessary digitalisation has not been fully realised.

While digital tools are essential to a transformed construction industry, they don't prevent a change in culture. And is it this change in culture, which is necessary, supported by clients, designers, product manufacturers and contractors.

What does a change in culture look like? And why is the early design stage of a project the critical time to implement change?

Shifting focus away from price

A significant obstacle to culture change is that, in the words of Scott Tacchi (MMC Lead, Sir Robert McAlpine), the construction industry hasn't learnt lessons over the last 30-years. Provocatively, he called out the business leaders currently wanting to see disruption for being the ones who have preserved the status quo over that same time period. "The tech sector doesn't operate like this," observed Scott.

In his first few months as MMC Lead, Scott spent time interviewing staff, consultants, suppliers and external bodies. He found that businesses (main contractors) seldom ask their supply chain what innovation they can bring. The focus was always lowest price – a focus that is at odds with collaboration.

A key change implemented as a result of this finding was the setting up of partnering agreements to invest in innovation and R&D with key partners. The contrast of 'regular' construction compared to Scott's previous role at the Department for Education – where projects were platform-based and government policy was working – was stark.

What is MMC? Modern Methods of Construction - a broad term to describe contemporary innovation in construction, including new technologies (such as digital tools and techniques), offsite manufacture and use of efficient processes to deliver productive, sustainable and better outcomes.

Modern methods of construction (MMC) are central to Sir Robert McAlpine's new approach. First, though, they had to define MMC for themselves. MMC is often viewed as panel systems, volumetric solutions, or construction platforms and DfMA.

Really, MMC is about digitalisation and methodology. It is a structured approach that involves looking at a tender and reviewing where productivity improvements can be made in the programme.

This has meant adopting an 'integrator model'. The integrator is the organisation that plans and delivers the infrastructure programme. It manages the supply chain, coordinates design and construction, commissions the completed facility, and hands it over to the owner.

Key to the success of this model is bringing the integrator onto the project much earlier. According to Scott, 60-70% of collaboration opportunity is gone by the time a project reaches RIBA stage 3.

Using engagement to deliver new hospitals

Nowhere is the value of early engagement being seen more than in the New Hospitals Programme (NHP). Collaboration is helping to reduce risks and take advantage of opportunities in the market, primarily with the aim of being transformational and unlocking productivity.

"Hospitals have to be functional, but have less impact on environment," said Emma Whigham (Deputy Commercial Director, New Hospitals Programme - NHP). They must meet the needs of patients, visitors and the workforce – not just now, but possibly as far as 100 years in the future. That means creating buildings that are flexible and future-proof. To do this, the NHP is creating standardised approaches and templates.

The first step was recognising that NHS Trusts can deliver healthcare, but they don't have expertise in building buildings. Little wonder, then, that Emma views new hospitals as having typically been designed and delivered in a unique way nearly every time.

To combat this, the NHP is working with staff to establish standard configurations for over 60 different room types. The configurations include equipment and components, but specification isn't to the nth degree. It's about setting parameters in which to work, and framing the relationship between the NHP, the Trust and the marketplace.

The Construction Playbook acts as the backbone to this engagement, helping the NHP to work differently to achieve the overall goal. Emma described the NHP as "unprecedented", putting in place a whole-system approach to delivering hospitals. The marketplace needs to rise to the challenge of working in this new way, but it is also up to the NHP to give the marketplace confidence.

As we have seen in this document already, there are legitimate concerns as to whether SMEs are ready, willing and/or able to engage with transformation in construction. Through early market engagement, the NHP has interacted with over one thousand, two hundred unique businesses, 80% of which are SMEs – thereby showing that they can be engaged.

Collaboration lessons learnt by the Seismic project

Made possible by Innovate UK funding, the Seismic programme began in 2017 to create a standard offsite solution for the education sector. After a successful first phase to establish the concept, a second phase sought to deliver a demonstrator building constructed using the Seismic platform – a 'kit' of common components that can be used to create bespoke facilities/spaces.

The first ground floor module of the building was sited on March 1st 2022, and by the 24th of March the building was complete. Martin Harvey (Head of Design & Technical Services, McAvoy Group) explained how collaboration was key to making this impressive achievement happen. All of the consortium members set out to achieve the following.

- Like-minded and complimentary partners
- Clear about what to achieve
- Synergy – an attitude of 'together we can achieve more'
- Dare to disagree
- Common goal for benefit of individual businesses

The Seismic demonstrator building.

One of the biggest challenges to overcome was the initial feeling that everyone was "playing poker" and keeping their cards close to their chest. If it was possible to do the project all over again, Martin estimates that the timeline could have been two years shorter – simply by understanding that everyone's common goals benefit from knowledge sharing, rather than feeling that some unique advantage might be given away.

In hindsight, similarities between competitors were inevitable, as every organisation is working to comply with the same building regulations and meet the same employer requirements. Once this obstacle in thinking was overcome, and the consortium opened up its discussions to the supply chain, the results were "amazing, huge."

To illustrate what Seismic was working to combat, Martin offered the example of a project featuring 64 modules, of which 63 were different. Such an approach is not standardisation, does not create value and offers no benefits over traditional construction.

The Seismic platform offers genuine standardisation and has opened up new opportunities for the organisations involved. Projects that previously were too big for individual companies are now open to them because they can work together with the platform. And the benefits of collaboration that have been evidenced mean the parties are now keen to bring in anyone who is willing to collaborate, because of what they can offer.

What were the challenges?

Working with a direct competitor

Knowledge sharing

What were the surprises?

Competitor similarities

Same regulations

Same ERs

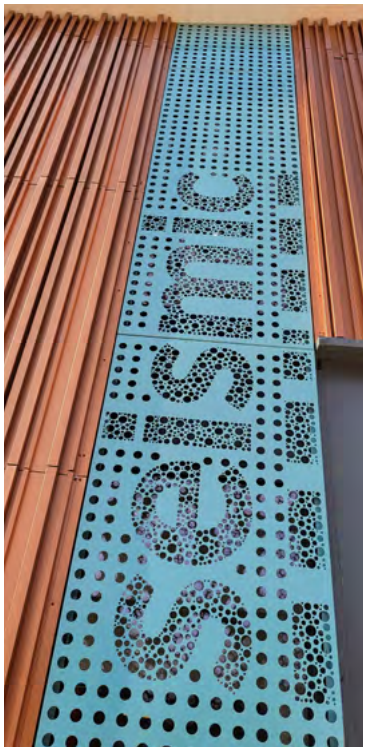
Same supply chain

What could have been done differently?

3 years instead of 5 years

Time taken to adjust to knowledge sharing

Delivering collaboration and early engagement



If we are to see transformation in construction, then it must be possible to see the value that can be created by approaches like MMC and construction platforms. And to see value, design teams need to be able to talk to the people who will deliver them. This is where early engagement and collaboration is so fundamental.

Scott Tacchi described how he was shocked at the state of designs being delivered to Tier 1 contractors. Similar to the modular project featuring 63 different modules, he cited the example of a hospital where no grid line was the same. The project was at RIBA stage 3, had gone through planning, and the contractor had no opportunity to offer improvement.

"The people building things are often the last thought," was his summation.

Martin Harvey talked about how "value is not all about money, it's what you can bring to the project, and the people building it." A benefit offered by the Seismic platform is the ability to build modules on the floor, reducing work at height. These kinds of health and safety improvements make a substantial difference and deliver significant value.

If the design team doesn't know about it though, or chooses to reject that benefit, then the client is wasting money – and losing that value.

CONCLUSION: CONSTRUCTION BEYOND 2030

When ten speakers across three sessions and a keynote address cover so much cutting-edge industry activity, and share such a wealth of knowledge and expertise, where is the right place to start summing it up?

The importance of whole life carbon measurements and the potential of regenerative design?

The data-led decision-making and digital tools that stand to make supply chain 4.0 a reality?

The examples of outstanding projects that are leading the rest of the construction industry and showing what collaboration looks like?

Maybe it is best to accept that it's impossible to adequately sum up everything discussed in this document. As Emily King (Director, ESS Modular (ISG Group)) pointed out in the Construction Summit's concluding session: "The big picture is too big."

How can clients lead better?

One key theme from the Summit was the need for client-led change. We have seen how clients need to lead for supply chain 4.0 to be fully realised. They also need to ask for what they want, in the right way. Clients do get what they ask for, but don't get what they want.

"If you tell me, you want low carbon, but you measure me on cost," said Emily King, "then you won't get what you want." Output-based procurement is essential to delivering the change that our whole industry knows is needed.

The UK government, for example, spends around £20 billion on buildings every year. It has created a policy environment that is envied and is creating change by procuring in line with its policies. Keith Waller (Programme Director, Construction Innovation Hub) described how, thanks to this support through procurement, the Manufacturing Technology Centre (MTC) and Building Research Establishment (BRE) are now moving from research and development to deployment.

Understand value in different ways

Change is coming, and it's coming very quickly. For businesses, this means understanding and being clear on what will change. David Symons (Future Ready Innovation leader, WSP) offered examples: biodiversity net gain is going to be massive; attitudes to tearing down existing buildings and constructing new ones will change.

He reinforced just how fast time will go between now and 2030. For large organisations in particular, seven years or less doesn't cover many planning cycles.

Keith Waller encouraged the audience to create value. Rather than 'buying cheap', base decisions on creating value. Despite the hundreds of written reports available, what actually changes minds is demonstrating that something can be done.

As projects like The Forge and Seismic have shown, learning from the efficiency and productivity of the manufacturing sector stands to offer a huge number of benefits. But first it's necessary to understand what is and isn't manufacturing. Emily King described how offsite is not manufacturing: "De-risking from the elements is a benefit, but it's not manufacturing."

Now is the time to lead

Although the government's supportive policy environment and leading-by-example procurement has helped to stimulate change, it is still up to industry to lead. "If you want to lead, then lead," said David Symons. Waiting for government to innovate and pay for that innovation means it won't happen.

By contrast, when industry innovates it means growth, jobs and skills. Product manufacturers, for example, want to innovate and see their solutions used in transforming construction – so leave risk with manufacturers.

This is where everything comes back to collaboration. As a society we are reaching tipping points: "We've got net zero, we've got resource shortages. 'Business as usual' is going to break."

Emily King spoke about mutual and reciprocated visions, and how open and complementary behaviour leads to ideas and creation. This is the lifeblood of collaboration, and it is needed now.

TOGETHER WE MAKE THE DIFFERENCE

Tata Steel UK and Constructing Excellence would like to thank all the contributors who came together to collaborate on some of the important conversations circulating the construction industry at Tata Steel's Construction Summit 2023, hosted by The BRE Group in Watford.

This white paper – focused on supply chains – is one of three, each associated with a separate strand from the Summit. We would like to take this opportunity to thank and highlight the speakers who presented across the 'Supply chains' strand and whose presentations have helped shape this white paper.

Fergus Harradence
Deputy Director,
Department for
Business & Trade

Gilles Alvarenga
Thrive Associate,
Chetwoods

Rafe Bertram
Sustainability Lead,
Meridian Water,
Enfield Council

Jonathan Munkley
Technical Director,
WSP and Co-founder of ZERO

David Philp
Chief Value Officer,
Cohesive Group

Dr Jas Kalra
Supply Chain Lead,
Lower Thames Crossing

Neil Pennell
Head of Design Innovation
& Property Solutions,
Landsec

Scott Tacchi
MMC Lead,
Sir Robert McAlpine

Emma Whigham
Deputy Commercial Director,
New Hospitals Programme
(NHP)

Martin Harvey
Head of Design
& Technical Services,
McAvoy Group

Emily King
Director,
ESS Modular (ISG Group)

Keith Waller
Programme Director,
Construction Innovation Hub

David Symons
Future Ready Innovation
leader, WSP

All names, roles and companies correct at time of event.

www.tatasteeleurope.com

Tata Steel
18 Grosvenor Place
London
SW1X 7HS
United Kingdom
T: +44 (0) 207 717 4444
F: +44 (0) 207 717 4455

Tata Steel UK Limited is registered in England under number 2280000 with registered office at 18 Grosvenor Place, London SW1X 7HS.