In with the new: fostering innovation

Innovation was critical to bringing New Street in on time and on budget – and that meant giving the supply chain a platform to propose their ideas. Paul Dalton, senior project manager for Mace, writes about the lessons he took from the project by using specialist supply chain knowledge to enhance the programme.

Innovation is a mercurial quality to develop in a project team but, given how notoriously unpredictable refurbishments are, we knew it would be critical at Birmingham New Street station. The complexities of the redevelopment meant there was a strong chance our programme would be tested to the limit by developments outside of our control, and we knew we’d need a team that could be agile enough to challenge convention as new issues arose.

We adopted a ‘partnering’ structure with Network Rail, and a delivery route based on a construction management model. Under the arrangement, we jointly procured the packages from our subcontractors with Network Rail, from both the Mace and Network Rail supply chains.

It created a supply chain that was closer to the project and better placed to propose alternative – and more efficient – options. Working closely with our suppliers was critical for finding improvements in cost, time and safety, and ultimately keeping the redevelopment on track. So what were the biggest lessons we took away?

1. Get people excited about working on the project
   Really warm up the market, and get people excited about working on your project. This early and informal engagement helped us to not only get people returning tenders, but also to help them start thinking about the programme, its challenges, and what they had to offer.

2. Score the right behaviours in procurement
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3. Use the contract to set the tone
   Once preferred suppliers were on board, having a commercial mechanism for rewarding suppliers for improving the programme means there’s a clear commercial incentive to innovate and generate efficiencies.

4. Recognise and reward those working at risk
   Developing new ways of working can be expensive, so it’s important to recognise where firms need to take a commercial risk, and make a judgement call on whether it’s worth providing a small contract to cover their time and development costs.

5. Create an environment where you can test out options
   Our BIM model was instrumental in trialling and optimising different approaches to our packages of work. It gave us a theoretical environment to test and refine models until we were confident they would work. A stand-out example was reworking our project to move a passenger tunnel which took the public safely through the site to the platforms. We had to move the tunnel to keep passengers away from the atrium demolition. We used the model to take the job from two weeks to just 57 hours, so we could execute it over a bank holiday weekend – minimising disruption to the operational station.

6. Be rigorous in assessing new approaches
   It goes without saying, but clearly we were incredibly robust in analysing the feasibility of any new, innovative approaches. We had a highly skilled technical team to review proposals, but we were also keen to see a business case, so we knew the innovations would make a demonstrable impact on the programme’s bottom line, expedience and safety.

On a final note, I’d like to give credit for some of the innovations our suppliers introduced to the project. We worked with over 60 different subcontractors for significant packages on Birmingham New Street.

Innovations at New Street

- The ‘Mega Muncher’
  Our demolition specialist, Coleman & Company, worked on Birmingham New Street for six years continuously. But a major challenge was to complete the demolition of the old Pallasades shopping centre to create the space beneath the atrium roof in the second half of the project.
  We couldn’t work overnight using conventional demolition techniques, so we worked with Coleman & Company and JCB to develop a bespoke excavator that would pulverise the beams, instead of breaking them and work within the constraints of the existing structure and operational station. The noise reduction allowed us to work overnight without disrupting residents and – together with lean construction techniques and detailed modelling – contributed to a significant 50% reduction in the length of the demolition programme.

- Taking it off-site: the service spine
  During Phase One, we installed new services to the building to serve the Phase One concourse that opened in April 2013. The original plan had been to thread new services throughout the building. But we worked with M&E specialist NG Bailey to develop a better approach: a service ‘spine’ consisting of 24 modules, built off-site and installed to form a single unit along the width of the station.

The 300 tonne spine includes two maintenance walkways and suspended plant rooms, as well as external cladding for fire protection. It measures seven metres wide, three metres high and spans 126 metres above the new station concourse across New Street. NG Bailey manufactured the spine’s modules at its own facility and installed them in just 15 working days. All the work was carried out by a team of eight working between 8pm and 7am.

The system saved 10,000 working hours by moving most of the work to the factory floor, and reduced carbon emissions by 57 per cent through lower amounts of waste. This was NG Bailey’s biggest ever example of manufacturing a services system off-site. It was delivered ahead of schedule and now has a life span of some 60 years.

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