

<b>Trial project:</b> <b>Dudley Advance II</b>	<b>New delivery model / procurement route:</b> <b>Integrated Project Insurance</b>
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**Cost savings targeted:** 15% - 20%

- Other key success criteria:**
- Programme certainty at below Target Cost
  - Highly efficient methods, including off-site manufacturing where best for project, and new methods of construction, eliminating waste in materials, processes and procedures
  - Leading BIM methods and technologies from commencement
  - Flexibility of the facility to be remodeled to meet future changes in demands and training methods

<b>Stage at which first report will be published:</b>	Kick off meeting	Brief / Team Engagement	Decision to Build	Build and Occupy
<b>Cost saving basis:</b>	Investment Target	Challenging cost target	Agreed Target Cost	Outturn cost

**Trial project details**

<b>Project title</b>	Dudley College Advance II (formerly "CABTech")
<b>Client department</b>	Dudley College (with regional growth funding via the Black Country LEP)
<b>Project value</b>	£11.685m
<b>Form of project</b>	New Build Educational Facility
<b>Independent facilitation and risk assurance</b>	Integrated Project Initiatives Technical: SECO (Belgian) / BLP Financial: Rider Levett Bucknall
<b>Alliance Members</b>	Dudley College Metz: architects Pick Everard: structural Fulcro: engineering services and project coordinator Speller Metcalfe: constructor Derry: Building Services Specialist
<b>IPI Brokers</b>	Griffiths & Armour
<b>Other Key Suppliers</b>	To be appointed



Advance II

**Executive summary:**  
Dudley College has selected the Integrated Project Insurance ("IPI") model to procure and deliver a new Centre for Advanced Building Technologies, termed "Advance II" (was known as "CABTech"). Not only is Advance II approved as a trial project by the Cabinet Office via the Roll Out Management Group but it is

now also the primary nominated project under the Innovate UK “Rethinking the Build Process” project 101345 with a consortium of eight industry partners and academic partner University of Reading.

The IPI new model of procurement applies an integrated collaborative working approach throughout to a level which exceeds any other previous procurement routes the College has used. It includes the adoption of a Project Bank Account, BIM, and lean design and implementation practices. Via IPI the College seeks to achieve cost, time and carbon savings in line with the “Government Industrial Strategy: Construction 2025”.

As described in the Guidance on the IPI model, officially published by the Cabinet Office and accessible at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/326716/20140702\\_IPI\\_Guidance\\_3\\_July\\_2014.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/326716/20140702_IPI_Guidance_3_July_2014.pdf), the successful consultants, specialist contractors, constructors and project coordinator were appointed at the outset under an “Alliance Contract” which has been developed for fully integrated collaborative working under the IPI model (“Brief/Team Engagement”). When the alliance members have developed a project solution which (a) has the support of the independent facilitator and risk assurers and (b) is approved by both the Insurers and the College as being “fit for the purpose” set out in the strategic brief at an agreed target cost that has adequate allowance for technical and financial risks, the new “Integrated Project Insurance” policy will be incepted and implementation will proceed (“Decision to Build”, planned for 4<sup>th</sup> quarter 2015).

## Project summary

### Project time-line

- 30 July 2014: Acceptance on the Cabinet Office Trial Projects Delivery Programme
- 12 September 2014: Invitation for Expressions of Interest (“EOI”) in OJEU
- 24 October 2014: Return of Prequalification Questionnaires (“PQQ”)
- 19 December 2014: Return of Invitations to Tender (“ITT”)
- 12 February 2015: Announcement of Award under OJEU
- 24 March 2015: Commercial Alignment of Alliance Partners completed
- 8 May 2015: Alliance Contract signed by all the Alliance members and Phase 1 commencement
- Fourth quarter 2015: planned Phase 2 commencement (IPI policy inception)
- First quarter 2017: planned completion

### Key project features

- Integrated collaborative working assured
- Strategic brief that includes affordable investment target
- An IPI “Alliance Contract” that empowers the team
- Alliance owns solutions and outcomes
- Financial exposure capped to insured limit, client financially responsible in the unlikely event it exceeds this limit
- Outcomes insured – including overspend
- Fitness for purpose as defined in the Strategic Brief
- Reduction in periods of design, construction and proving
- Efficiency gains whilst cutting process waste
- BIM – friendly
- SME – friendly

### Client objectives and vision

The project is being procured using the Integrated Project Insurance (IPI) methodology. A key element of the IPI

process involves appointing the whole project team, including the constructors and specialists, at inception.

The building will consist of several modern construction method training facilities, some of which are the first of their kind in the FE sector in the UK. Examples include a multi-storey ‘hangar’ in which students will learn how to fabricate and assemble buildings using the latest available technologies. There will also be a ‘digital centre’ in which innovative Building Information Modelling (BIM) and digital environment software packages will be used.

Other facilities include a ‘carbon-friendly technology centre’ where students will acquire skills in, among other things, the installation of air source heat pumps and photo-voltaic technologies and a ‘construction manufacturing and assembly centre’ where they will develop their building engineering skills.

The predicted outputs of the venture by 2020-21 are:

Jobs created: 390  
 Jobs safeguarded: 765  
 Number of new enterprises supported: 25  
 Number of enterprises receiving non-financial support: 1405  
 Number of learners: 3250  
 Number of apprenticeship starts: 725

The success criteria include:

- Cost and programme certainty;
- Inspirational innovation, as an exemplar to students;
- “Function over form”;
- Off-site manufacturing and new construction methods to eliminate waste in materials, processes and procedures;
- Apprenticeships and other employment/ training opportunities;
- Leading BIM methods and technologies with BSRIA Soft Landings;
- Flexibility for changes in demand and training methods;

- Aesthetic quality statement for Dudley Learning Quarter;
- Low carbon and reduced prospective operating costs;
- Opportunities for local and regional businesses.

### New procurement techniques and processes

#### Procurement

Dudley College Advance II is the first official pilot project for the “IPI model” to go forward under the Government’s Construction Strategy 2011. A substantial proportion of the £11.685m is Regional Growth Funding via the Black Country LEP, with the balance coming from the College. It was therefore decided that procurement should be carried out in compliance with the European Union Public Sector Directive 2004/18/EC for procurement, (and the UK Public Contracts Regulations 2006), selecting the Most Economically Advantageous Tender (MEAT). Roll-out could then follow successful trial without having to revisit the procurement process.

The objective of the pilot project is to demonstrate the challenge put forward by the supporters of the IPI model that it would unlock the potential to achieve:

- a solution that is “fit for the defined purpose” as set out in the agreed strategic brief, and in accordance
- at a cost between 15% and 20% lower than the Investment Target (itself based on “best practice” benchmarks from recent comparable projects).

Under the EU Directive selection of the team must be made on a fair and open tendering process predicated on answers to objective questions that can be measured in order to be able to select the MEAT. The procurement of Advance II was conducted under the Restricted Procedure.

Under the IPI model the Alliance Members are selected simultaneously at the outset and enter into an Alliance Contract (or “virtual company”). Two ingredients of the

IPI model remove traditional barriers to participation by SMEs:

- “Integrated Project Insurance” gives superior cover to all Alliance Members and all suppliers they engage, arranged by the Alliance
- A Project Bank Account, again arranged by the Alliance, ensures simultaneous, prompt and reliable payment.

The steps taken in the IPI procurement process are summarized below:

- The “Lots” for which EOIs were invited simultaneously were:
  - architectural designers
  - building services designers
  - structural and civils designers
  - specialist contractors (including mechanical and electrical)
  - constructors
  - project coordinators.
- EOIs were received from 78 firms
- The PQQ was prepared in accordance with PAS91 and required applicants to evidence their capability to deliver the services described as being within the scope of the lot for which they were applying; if they applied for more than one lot, they were required to show their capability against each lot. It included
  - the strategic brief, success criteria (including completion) and investment target
  - the questions, itemized under the PAS91 categories
  - a description of how the IPI process works
  - a summary of the IPI Alliance Contract and policy
  - the scoring system to be applied (Pass/Fail or %s)
- Two “Industry Days” were held at the College during the period when bidders were preparing their PQQs:
  - The College set out its vision for the project
  - The IPI model was explained

- Expectations from the PQQ process were explained
- Questions and Answers.
- In addition, a system of clarifications was operated: requests for clarification from any bidder were answered under a circulation to all bidders.
- In addition to the background information in the PQQ, the ITT document included:
  - The IPI Alliance Contract (Edition 1) including the commercial model, that bidders must accept
  - The IPI policy that was expected to be incepted with the insurers
  - Ten searching questions, spread equally under “People, Process, Opportunity and Risk” and “Cost and Value Creation”, that is 50/50 between quality/capability and cost effectiveness. The focus was not on “price”, but on which firms and people are best placed and motivated to deliver (in collaboration with their peers) a final outturn for Advance II with minimum waste of time and cost.
  - Schedules in which (a) management, professional, technical and supervisory staff and resources and (b) the overhead and profit percentage to be applied to them were to be declared
  - The ITT evaluation process and the scoring system to be applied at each stage.
- Up to five firms were invited to prepare ITTs against each Lot
- All ITTs received were analysed and scored. Half of the marks were awarded against the written answers, in accordance with the scoring system, and half were reserved to confirm scores from interviews. The overhead and profit percentages were scrutinized to ensure they were neither too high nor too low; they were not part of the scoring system but could be questioned in interview; and if no reasonable explanation of the level declared was given, the bidder would not proceed further.

- Team-based behavioural workshops were then held with short-listed bidders who were assessed to be capable of forming the best for project alliance(s). The focus was on culture, inter-action and collaborative traits in a competitive environment.
- Following these workshops the proposed award to the Alliance Team was posted in OJEU. After the Alcatel period (of 10 days) had expired the five successful firms signed the Alliance Contract.
- The process of “Commercial Alignment”, a “condition subsequent” to contract signature, was to enable the College and its new alliance partners to agree and take ownership of “Alliance Principles” to (a) act in good faith and collaboratively in a spirit of mutual trust and cooperation and (b) share common resources and supporting overhead facilities (as a “virtual company”). These duties were thoroughly completed within the designated 30 days.

**Alliance Contract**

Governance and related arrangements were the first priority under the IPI Alliance Contract, covering

- the Alliance Board, to comprise nominated representatives of the Employer and the other Members
- the Alliance Manager, appointed by the Alliance Board,
- independent Facilitation,
- independent Technical and Financial Risk Assurance,
- nomination of an Integrated Project Team (“IPT”) from the Alliance Members and other key Suppliers.

Experience has already shown that the process of making these decisions must not be rushed, as they depend upon perceptions of character as well as skill. There has to be understanding of the relative roles of the Alliance Manager and the project coordinator: it has been agreed that the former is broadly “business manager” for the Alliance and the latter “project leader” for the IPT, but there will be nuances yet to be resolved. All this points to earliest possible

assembly of any new Alliance, just as soon as the need and the funding are established in principle.

The heart of the Alliance Contract is the project process from selection through to proving, maintenance and potentially operation. There are three Phases:

- Phase 1: project development: when the IPT pools its skills to create the best solution for the Client. This ends when the IPT's "best for project" solution is accepted and the IPI policy is accepted.
- Phase 2: project delivery: when the IPT turns the solution into reality, realizing opportunities for improvement and minimising risks along the way. This phase ends with completion - when "fitness for the purpose" in the strategic brief is confirmed and the latent defects section of the IPI policy is accepted.
- Phase 3: operation, maintenance: this phase will embrace activities such as seasonal commissioning and may cover maintenance (and perhaps operation) for a designated period.

During Phase 1 the logistics of the Alliance Contract require there to be an orderly progression in document development, culminating in a suite of documents that confirm all necessary elements of the Alliance's agreed commitment to the project.

The sequence is broadly as below:

- Alliance Information and Data (including Strategic Brief, Investment Target and Success Criteria)
- Project Execution Plans
- Commercial Model (with gain-shares/pain-shares and their allocations between the Alliance Members)

The Alliance Members are paid on a cost-incurred basis to develop a delivery execution plan based on the best solution conceived, having regard to the Client's preferences and subject to affordability. The design solution and target cost put forward in the project execution plan and Commercial Model will be expected to (a) be "competitive" as compared with traditional

programme timescales and cost benchmarks, and (b) identify potential opportunities for further savings and adequate allowance for risk, both technical and financial. The IPT chooses when the design has progressed sufficiently for the target cost to be tied down and the solution to be submitted; all the skills are in the IPT and there is no requirement for the detailed design to have been advanced or completed before Phase 2 commences. If and when agreement is reached and the IPI policy is accepted, Phase 2 can commence; but the Client has the option not to proceed with Phase 2 if for any reason he is unable to do so.

Upon release of Phase 2, the design is (further) developed, plant selections, specialist services and systems can be confirmed with orders, inter-trades programming etc. can now be (further) developed by the IPT. Contracts are entered into by Alliance Members with suppliers in accordance with the agreed execution plan and contracting strategy approved by the Alliance Board. Full access to all activities is afforded to the Independent Facilitator and Risk Assurers – who will eventually have to give the project a "clean bill of health" before the Alliance Board confirms the project is "fit for the defined purpose" and completion is certified by the Alliance Manager. Gain-share or pain-share are calculated based on the agreed formulae in the Commercial Model (normally cost and time), and if the maximum pain-share will be exceeded, a claim is made under the IPI policy for transfer of funds into the project bank account.

Upon completion of Phase 2 the cost overrun cover of the IPI policy closes out and Phase 3 starts, supported by the latent defects cover lasting 12 years.

### **Progress through Phase 1**

The Alliance Board has now been in place for just 3 months. On the one hand it has been motivated by the open-book environment, the "lean" challenge, and the freedom from the "liability culture" afforded by the IPI model and

the Alliance Contract; but on the other it has had to remobilize from an initial delay of 6 weeks whilst the funding arrangements between the LEP and the College were resolved.

The Integrated Project Team is extremely active and motivated, and has been engaged in facilitated workshops to “rethink the build process”. The following are at various stages of development:

- the level and logistics for BIM, with the consequent savings in specification-writing
- collaborative design processes between the design consultants, specialists and constructors
- planning for modularization, prefabrication and mechanization of site installation processes
- optioneering, drawing on the international expertise of the independent risk assurers SECO and BLP
- focus on “fitness for purpose in the strategic brief” in preference to non-statutory codes and standards
- procurement strategies that facilitate appropriately early responsible engagement with the supply chain
- cost-planning “top down” against the investment target, subdividing optimum cost and risk allowances
- opportunities and risks analysis
- arrangements for the Project Bank Account, with a Trust Deed for the multiparty alliance structure

The IPT is aware that maximum advantage must be taken from these innovative opportunities during Phase 1 – after policy inception the focus will be on compliance and cost-effective implementation. Insurers are intensely interested in these issues and indeed have already engaged in discussion with the alliance board.

When the alliance partners have developed a project solution which (a) has the support of the independent facilitator and risk assurers and (b) is approved by both the Insurers and the College as being “fit for the purpose” set out in the strategic brief at an agreed target

cost that has adequate allowance for technical and financial risks, the new “Integrated Project Insurance” policy will be incepted and implementation will proceed (“Decision to Build”, planned for 4th quarter 2015).

The next case study will be issued at this “Decision to Build” stage

### **Monitoring outcomes**

The Academic Partner in Innovate UK project 101345 is the School of Construction Management and Engineering, University of Reading who are responsible for monitoring the successes - and analysing the reasons for shortcomings - against defined deliverables. The consortium’s deliverables include:

- Updating and making “inter-active” the integration toolkit for the Strategic Forum for Construction
- Developing and testing a new “Alliance Contract” for use with the IPI model
- Developing and testing a new “Integrated Project Insurance” policy
- Use of an appropriate level of BIM to assist a fully integrated collaborative approach
- Critical review of codes and standards, and recording reasons why some inhibit innovation, sustainability, speed and efficiency
- Reviews of product selection, and whether criteria of whole life cost and sustainability are being applied
- Effectiveness of the Alliance Contract, IPI Policy and independent facilitation at engendering behavioural change and innovation
- Effectiveness of the independent risk assurance at engendering improvements in efficiency and risk management
- The role of leadership and incentives towards enabling the success criteria to be achieved in their priority

A wide range of expertise in support of these activities is available from the consortium for project 101345, for example the lead partner Rider Levett Bucknall and another industry

partner, the Building Services Research and Information Association.

### Draft guidance on the IPI Model

Guidance on the IPI Model is complementary to this case study, and is accessible at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/283331/IPI\\_Guidance.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/283331/IPI_Guidance.pdf)

Of particular interest will be Section 9 which identifies the benefits the IPI Model is expected to bring for:

- The Client Group
- Lead Constructor/Project Manager Design Consultants
- Specialist Contractors
- Other supply chain members Insurers
- Funders
- The Local Community

For change to take off and become “Business as Usual”, there must be seen to be benefits for all parties involved. Taking Clients as an example, the benefits include solutions and outcomes that are affordable and fit for the purpose defined in the brief, independent assurance of technical and financial viability, an insurance that underwrites the agreed budget, and a “no fault” latent defects cover for 12 years.

### Cost targets and savings

Cost savings targeted: 15% - 20%

### Miscellaneous

#### Authors

- This case study has been developed for Constructing Excellence by Martin Davis, as IPI Mentor, with invaluable assistance from his colleagues in Integrated Project Initiatives and the Alliance, and in consultation with Professor John Connaughton and researcher Dr William Collinge of the School of Construction Management and Engineering, University of Reading.

### Background: Trial Projects programme

The Government Construction Strategy aims to change the relationship between clients and the entire supply chain within the industry. The trial projects perform a central role in delivering the Strategy's sustainable 15-20% reduction in costs and are currently testing three new procurement models (Cost-Led Procurement; Integrated Project Insurance; Two Stage Open Book) that were proposed by industry and developed by a joint task group. Case study reports are therefore an output of monitoring the progress and outcomes of the trial projects. They are produced at four stages: Kick-off Meeting; Brief/Term Engagement; Decision to Build; Build and Occupy. Other case study reports can be found at:

<https://www.gov.uk/government/publications/government-construction-strategy-trial-projects>

### Project contacts

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