

Case study: Shepherd

Airtight planning and programme management help contain challenges on The Pirbright Institute project

Shepherd

Ingenuity Applied

Shepherd is a leader in the built environment sector, delivering ground-breaking projects and initiatives of national importance bringing added value to its clients. Shepherd offers independent specialist services (construction, engineering services and facilities management) or a totally integrated approach from initial project conception to completion and management.



Shepherd's brand promise is 'Ingenuity Applied' and The Pirbright Institute's £120m BBSRC National Virology Centre project certainly showcased that. Project Director David Crampton and his team have received numerous awards since completing this complex project: to create a high-containment facility for The Pirbright Institute, to carry out their

world-leading research and surveillance of virus diseases of farm animals and viruses that spread from animals to humans. The project would create one of the world's most advanced category SAPO4 bio-hazard containment facilities (the highest level possible).

The resulting award-winning structure vastly exceeded the building regulation standards for air tightness. It was delivered ahead of time and on budget despite stringent regulatory standards, heavy dependencies between different elements and some extreme supplier delays.

The high degree of integration and collaboration required between different disciplines and specialist teams from the group, along with the extraordinary level of planning detail required by a team of planners, led Shepherd to deploy Powerproject Enterprise to support its programme management, rather than

the standalone implementation that is the company's standard tool.

No compromise

David Crampton explained the challenge that faced the company: "This project was exceptionally complex. Not only is it a world-class facility, a national asset in terms of UK plc, but it plays a vital role in terms of animal and human welfare – including protection of our food source. It demands a higher standard in terms of construction and engineering systems than is achieved anywhere else in the UK, probably Europe, or even the world. Against that background we had to set a 'no compromise' message in everything we did, and that included the planning aspects of the project."

As Team Pirbright, one collaborative team led by the Project Director was involved in the planning, construction and delivery of M&E services to

“ We chose Powerproject Enterprise because of its multi-user capabilities – it meant that my team of four could all work simultaneously on the programme, and without this it would have required additional people to do the job. ”

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The Pirbright Institute. This was an extremely important project for Shepherd and meant a very large team of people was required to be involved with the appropriate technical authority, with significant collaboration challenges and reporting lines right up to executive level. At a practical level it created a vast and complicated programme management challenge. David explained: "In programming terms this meant developing a large and fully logic-linked programme that included design, construction, procurement, engineering service installation and commissioning. This amounted to 164 pages of A3 and over 10,000 programme bars."

Rob Rushworth, Lead Planner, was the man tasked with that project planning challenge who ran a team of four full-time planners for this project. He said: "We chose Powerproject Enterprise because of its multi-user capabilities – it meant that my team of four could all work simultaneously on the programme, and without this it would have required additional people to do the job."

Embracing more than 100 changes

On any large and lengthy construction project there are inevitably some

changes – and over 100 amendments were immediately foreseen at the start of the project. "Changes are inevitable – what is important is that we are able to respond to them in programme terms, by identifying what to do, what decisions to make and what the effects of the decisions will be" said David.

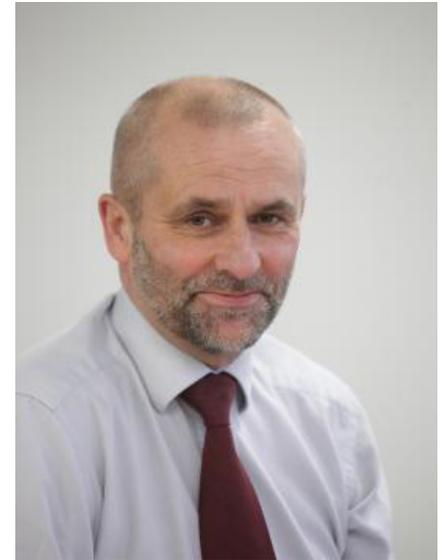
He continued: "The software helped us plan for potential changes and issues. We had one supplier piece of bio-containment equipment which was very important to the programme – so it was on the critical path from the outset. It became apparent it would be very late ... up to 12 months, in fact, but by having very careful programme management we were able to recognise the problem coming at us and adjust the sequencing."

"It would affect a small part of the building so we isolated this area, and managed the late arrival without affecting the overall critical path. We re-sequenced all the systems that would sit around that piece of equipment, including all the connections and services" added Rob.

Extraordinary interdependencies

With both construction and M&E services integrated into the Shepherd programme, and because of the

building's highly specialised planned usage, there was an extraordinarily high degree of interdependency – illustrated perfectly by the late arrival of that piece of containment equipment.



Rob explained: "Taking the installation of such an essential piece of equipment out of the critical path and rescheduling it was only possible because we had every individual wiring circuit detailed in the programme.

Having everything detailed in Powerproject Enterprise allowed us to provide detailed feedback to the build and commissioning guys in the field and say, what if this circuit simply isn't available to be tested? They can then tell us what can be done despite this to enable the rest of the systems to be progressed, and we could then feed that back into the software. In a normal building you would possibly programme out some LV lines, but not individual equipment power supplies, but we had thought ahead!"

So intent was the company on ensuring it did the best possible job, Shepherd invested in a full size practice replica of the laboratory simply to check that its plans and programme were accurate. Shepherd was able to test the containment standards, practice installing key M&E systems, and fully test the Building Management software. This in itself required dedicated project planning activity in Powerproject, but Shepherd went further: the team



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travelled worldwide, to learn lessons and best practices from other experts in Australia, America, Canada and across Europe.

Setting a new standard in complex project planning

Rob summed up the contribution that the software had delivered: "We investigated which planning software would be best for us on the project and knew Powerproject Enterprise would be a very useful tool in our arsenal. It certainly proved to be: it saved considerable man time. On a project with four full-time planners, it probably saved an extra headcount, otherwise we would have needed a middleman to pull it all together.

It effectively performed the task of a coordinator. Even when you are out and about and others are stuck in the office you can jump on the programme live and drop post-it notes for other users. This ability to quickly communicate



movement and change we found to be an absolute and genuine help."

“ Due to our experience using Powerproject Enterprise on The Pirbright Institute project we have now started to use the Enterprise version in a similar way on our most complex one-off projects. ”

David added: "As Project Director I had to provide my team with the tools they needed to provide me with the reports I needed. Powerproject is a common standard for us so that just rolled on – but Rob came to me with the idea of the Enterprise version and simply said 'we need to use this'. He gave me the business case, so I could gain approval for the expenditure – I could then provide him with the tool so he and his team could do their work to the best of their ability."

"I've been an Powerproject user for approaching 20 years now. Shepherd changed to Powerproject 12 years ago, and we haven't looked back since. Due to our experience using Powerproject Enterprise on The Pirbright Institute project we have now started to use the Enterprise version in a similar way on our most complex one-off projects, and where we work in partnership with our sister companies. It has proved its worth and is now vital" said Rob.

The Pirbright Institute BBSRC National Virology Centre project was ultimately delivered ahead of time and on budget in January 2014, ahead of its three-

year deadline, and has been awarded numerous industry accolades including the CIOB Construction Manager of the Year Silver Medal 2014 for projects over £80 million and the British Construction Industry Judges' Special Award 2014 for projects over £50 million.

Shepherd met and exceeded the essential air-tightness targets by over a thousand-fold, even at four times the standard pressure, when compared to applicable building regulations. As part of the UK Government's investment to make science and technology a British economic driver, it demonstrated a high value return on the capital expenditure required. It is an exemplar of world-class construction practice and project management, befitting a world-class building.

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Elecosoft UK Ltd is a leading international developer of project, portfolio and resource management software. Its core product, Powerproject, provides solutions for managing any size and any type of project and is widely recognised as one of the world's leading project management software solutions for construction.

Elecosoft UK Ltd is a part of Elecosoft plc, a holding company focused on software development and services for architectural, engineering and construction industries. The company is listed on the London Stock Exchange's Alternative Investment Market (AIM).

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