

# Majoring in projects

BP's top project managers are honing their leadership skills in the newly opened Projects Academy at MIT. *Terry Knott* learns how this initiative is designed to lift BP's performance in the world of capital projects

**M**anaging major projects lies at the heart of BP's businesses. Developing large oil and gas fields in deep waters or remote areas, building export pipelines, refineries, chemical plants, and networks of fuel retail stations – all of these involve capital expenditure on a grand scale. Controlling project budgets which are frequently measured in billions of dollars while meeting schedules that stretch out over years, plus the running of multidisciplinary teams numbering thousands of people and interfacing with a vast range of contractor and service companies, demand not only top class project management abilities but also skilful handling of the complex array of influences and risks which often may be lying in wait to derail progress. And should a major project go off the rails, it can do so in spectacular fashion in terms of negative impact on the economic bottom line.

Today's projects are becoming greater in number, larger in scope, more complex in content and geographically more widespread. In effect, managing a large project today can be equivalent to running a good-sized company.

BP's capital projects expenditure for 2003 is set between \$7-8 billion, equivalent to spending around \$20 million every day. And this represents just one year's spend on the company's continuous procession of projects as they march through their successive development stages from pre-sanction to start up – thirteen new projects came into operation last year, six more will start up this year, thirteen next year and six in 2005. BP expects to spend around \$100 billion by the end of this decade on around 70 major projects, located in some 20 countries around the globe.

'BP's current projects portfolio probably makes the company the single biggest project manager in the world,' says Tony Meggs, BP's group vice president for technology. 'We see capital projects to be

the real drivers of the long term performance of the company. The numbers involved are huge, hence if we are able to improve the return on our capital employed by even just one or two percent, it will contribute significantly to BP's continuing success and will differentiate us from our competitors.

To do this we must raise our game in the way we select, plan and execute major projects. The prize is very large.'

He acknowledges that currently there is a wide spread of performance across the company's projects portfolio, which includes both world-beating projects and some less so, resulting in BP being in 'the middle of the pack' within its peer group.

'The improvement strategy is to tackle this on three levels,' explains Meggs. 'We must transform the poorer performers by eliminating errors – getting the basics right. The overall standard for all projects must also be raised so that BP is in the top decile. And we must break out of the pack by developing new and innovative ways of thinking about projects, as we did successfully in the 1990s in the North Sea. These changes can only be achieved by our people on the ground, the project leaders working in difficult conditions. The Projects Academy we have established and are investing in demonstrates BP's commitment to our project management community to help them attain new levels of performance.'

The Projects Academy was launched in May this year, a unique venture created by a partnership of BP with the Sloan School of Management and the School of Engineering, both within the world-renowned

Massachusetts Institute of Technology (MIT) in the USA. Over the next two years, more than 100 of BP's current project managers – and potential project managers – from across the company's business streams, will pass through the academy in Cambridge, Massachusetts, experiencing the

outstanding academic perspective and ground-breaking research work that MIT is famous for, coupled to the specific business processes and project management expertise possessed by BP.

Meggs, who is BP's executive sponsor of the Projects Academy, envisions that this

environment will encourage attendees to learn from one another, from experience in other industries, and from academia, while the best aspects from the multiple backgrounds of BP's heritage companies will be captured to create a common project culture and methodology. Leadership, business acumen and technical excellence will form the basis of a unique executive education programme designed to stimulate new thinking and deliver a step change in project management performance.

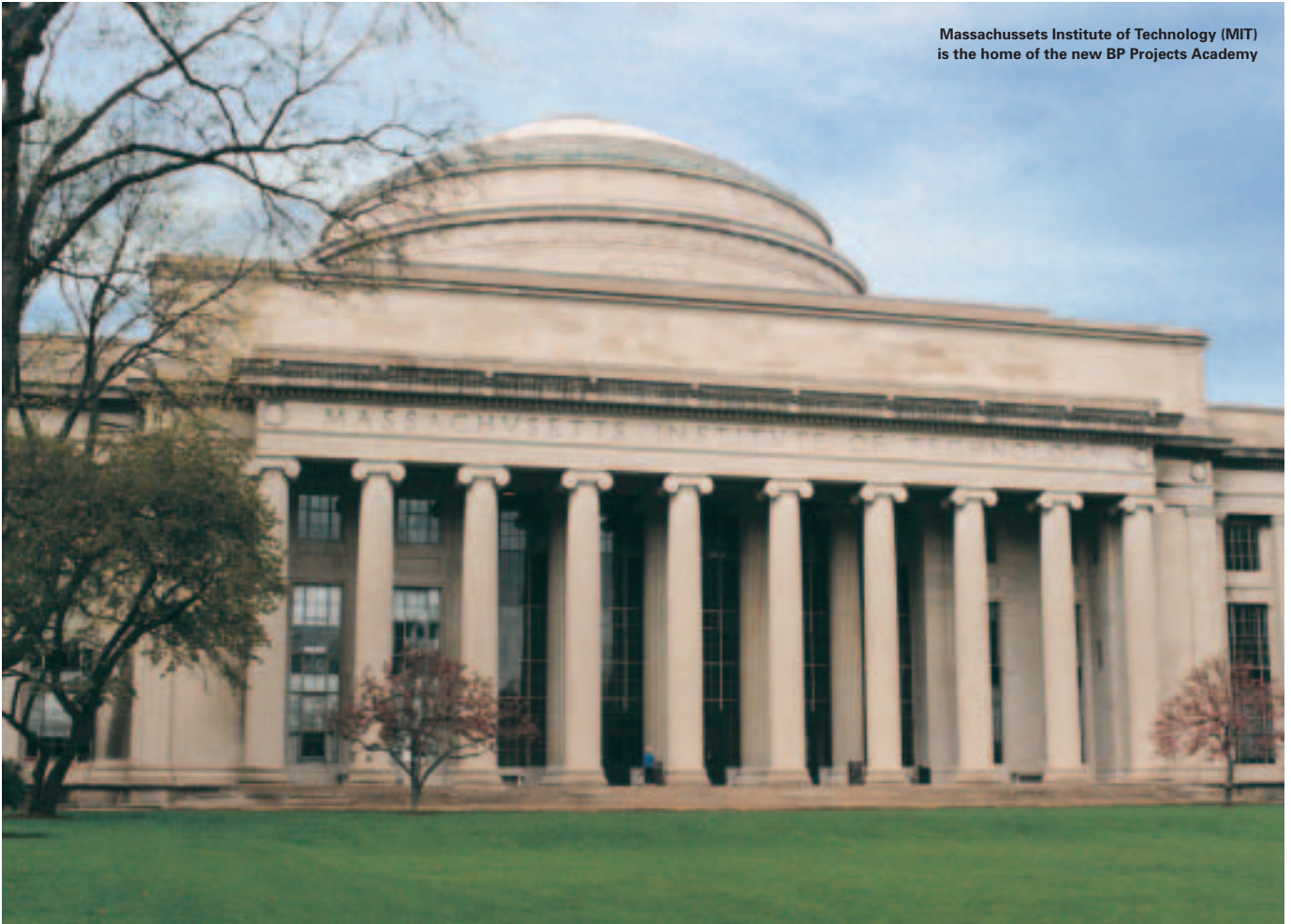
## No wrecks

The Projects Academy has its roots in a comprehensive review carried out by BP in 2002 of major projects in the exploration and production (E&P) sector – BP's upstream business accounts for over two thirds of the company's capital projects expenditure.

'The review, which was called *No Wrecks*, sought to identify the root causes for some projects not meeting their targets,' says Ellis Armstrong, BP's commercial director for E&P and chairman of the Projects Academy governance board. >>

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>> 'The causes fell into several categories, for example the target setting process, contracting strategy, and project definition or front-end loading. Leadership was identified as one of the biggest levers available to improve the productivity of invested capital. This led to the concept of providing a top class education opportunity for our leaders, one that will make a positive difference for the future.'

No single existing executive education programme could offer what BP was seeking, so more than 50 academic institutions worldwide were evaluated to assess their ability to deliver the leadership and business elements associated with traditional business schools, while bringing in the technology and procedural expertise necessary for project management. From a shortlist of five, MIT was selected in December last year.

'Large projects have many complexities in their make-up,' notes Armstrong. 'In addition to design and construction, there are also relationships with contractors, geopolitical and environmental issues, and frequently the application of new technology. Taken together these form a complex system, and

sometimes you can miss how the system works. MIT has carried out research into the management of such systems and the interdependence of the risks involved, and has developed significant intellectual capability in this area, as well as possessing expertise in the introduction of new technology. Together we are building a programme which will help BP to manage project risks in a more rigorous way, particularly at the front end of projects. You have to live for years with the decisions you take in those early stages.'

#### **Cadre power**

The curriculum for the Projects Academy has been shaped collaboratively by BP and MIT around the three broad themes of leadership, business acumen and technical excellence. The programme is split into three terms, each lasting for two weeks, oriented around the time-driven elements of a project's life cycle, namely strategy development, pre-sanction planning and post-sanction execution. There will also be 'deep dive' action-learning sessions where managers will engage in live cases in ongoing BP projects, applying what they have learned

in the academy. Teachers will be drawn from both MIT and BP.

From an initial candidate list of almost 600 people in BP, 105 have been selected as the first intake to the academy – more will follow. Each was vetted against several criteria, being either an experienced project manager or identified as likely to become a manager of a major project within two or three years of graduating from the academy. The intake is divided into four cadres, the first of which completed the first term in June.

'There is real power in bringing enthusiastic people into the classroom and connecting their learning with the real world,' explains Don Lessard, professor of international management and deputy dean at the Sloan School of Management, and the Projects Academy programme director for MIT. 'We have researched management issues in a variety of industries and have taught executives from many of them through our Sloan Fellows and Management of Technology Programmes. But the Projects Academy goes far beyond these in scale and scope with a single industry and corporation.'

'We'll be applying system dynamics not only to determine why projects succeed or

fail, but also to determine which changes in design and “mindsets” are likely to lead to large improvements in performance,’ says Lessard. ‘We’ll examine how you can evaluate and manage risks to add value. We’ll be raising self awareness in the cadres and transforming the way people manage and work within multifunctional teams. At MIT we have a long-established culture of interdisciplinary activities – the dual focus on business management and technology truly is a “sweet spot” for us.’

Few if any institutions can match MIT for its range of attributes and proven track record of innovation, both in management science and in engineering and technology. MIT has a culture of collaboration with industry that goes back to its early days over 100 years ago – cutting across departmental lines to achieve a multidisciplinary global perspective has always been a fundamental part of its activities.

Lessard’s views of the Projects Academy are shared by his colleague Charles Cooney in MIT’s School of Engineering. Cooney is professor of chemical and biochemical engineering and faculty director of the Deshpande Center for Technological Innovation. As a member of BP’s Technology Advisory Council, he already has a good understanding of the company, and is responsible for co-ordinating the project planning and technical excellence content of the Projects Academy programme.

‘Many departments in the management and engineering faculties will come together in the academy to create a new educational paradigm with BP,’

Cooney points out.

‘By working collectively with so many senior BP people, we will be able to identify the real rather than the perceived leadership and technology needs in the company, matching these to MIT’s skills. We will also be bringing in MIT’s experience from other

industry sectors, for example from aerospace which involves very complex technical systems, pharmaceuticals where decisions are made on long term timescales, or the automotive industry where many lessons have been learned in manufacturing. The task for MIT is to link these experiences to the kind of challenges and opportunities facing BP.’

Systems engineering will play an important part in helping project managers make technology-based decisions, says Cooney. ‘Systems engineering enables you to see the

bigger picture when tackling complex projects with many interdependencies having a dynamic nature. For example, planning a new petrochemicals plant involves choices from a range of technology options and alternative feedstock supplies, optimising interfaces between refinery and chemical plant, managing energy consumption, and working against a backdrop of ever-changing environmental constraints. So you are not just designing a process, the context is wider, the challenges more complex.

The systems approach seeks an optimised solution among all the factors. BP has a need for this; MIT has the skills to offer it.’

The Projects Academy programme will itself be dynamic in nature too. As each cadre passes through the terms, the programme curriculum will be adjusted to reflect the needs of BP’s leaders as these make themselves more apparent. Particular areas of leadership and technology which are identified to warrant further in-depth study are likely to spin off collaborative research projects for MIT, with discussions already under way between BP and MIT to develop these.

#### The wider view

Clearly not all people currently involved with the running of BP projects, numbering many thousands, can attend the Projects Academy. The candidate selection process is rigorous in seeking out those that will contribute to and learn most from the programme, within the context of improving leadership and thereby BP’s capital productivity performance. Those that do participate are expected to

cascade their collective learnings into their project teams.

As an advanced programme, the Projects Academy will not be teaching the basics – already possessing good knowledge and experience of these is a prerequisite for

entry. For the wider project community, BP provides several education programmes to assist with personal development in becoming skilled in all of the basic aspects of projects.

The expectation is that the interest generated by the existence of the Projects Academy will motivate more people in their aspirations to become top managers. The academy’s candidate approvals board, led by BP’s Projects Academy programme director Jim Breson, is currently vetting more candidates, particularly younger people who will form the core of the next generation of

project managers, and is planning to include some of the company’s business unit leaders who carry heavy responsibilities in running large profit centres. An ‘executive version’ of the programme is also under consideration for BP group executives, which is intended to provide them with greater insight into the demands placed on managers of today’s challenging projects.

So what of the views of the end-users of Projects Academy, BP’s current and future leaders?

Mike Drennon, performance unit leader for Block 18 in BP’s Angola business unit, a new development area for the company which has very significant potential, believes the Projects Academy offers distinctive learning opportunities that will deliver marked benefits to BP.

‘The programme is designed not only to draw more from us as individuals, but also to give us access to our collective “bigger brain” – that is, the chance to share with other project managers in a facilitated, teaching environment,’ he enthuses. ‘And in the application of technology we need to learn how to move away from the cautious step-wise approach we now take due to the risk of failure, and consider the blue skies technology that can create business opportunities that do not currently exist. Working with MIT will identify how we might achieve this – changing the access thinking to stretch what we can do.’

Birte Borrevik, until recently project manager of BP’s \$600 million Valhall Flanks development offshore Norway, and now a leader in the company’s E&P Project Excellence Team, says she sees the academy to be primarily about creating project leaders, more than managers.

‘For a large and complex project, you need a mix of managers for the various disciplines involved, for example in drilling, or in engineering and construction. These managers push the project along. But you also need a project leader to pull the project along, to make the compromise decisions needed every day. Projects Academy hopefully will help to convert good managers into great project leaders.’

While it is early days for the Projects Academy, its potential to act as a transforming influence has already generated much excitement among BP’s projects community.

‘This is a new type of leadership education we are trying, and people are learning from it and getting a big kick out of it,’ observes Tony Meggs. ‘It is our long term investment in people that will build the next chapter in BP’s history. Our project leaders are already very good. The Projects Academy will make them the best of the best.’ ■

Systems  
engineering  
will help project  
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decisions

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