



Final report

**on the a UCL Grand Challenges – French Embassy partnership activity
Fourth Annual Call**

‘Managing Technology and Innovation in Complex Projects and Megaprojects’

Held on May 26th-27th 2016, University College London, WC1E 7HB London

***convened by Prof. Hedley Smyth (UCL) and Prof. Laurence Lecouvre (SKEMA Business
School)***

Executive summary

A workshop title “Managing Technology and Innovation in Complex Projects and Megaprojects” was organized at UCL on May Thursday 26th-Friday 27th May in room 247, 1-19 Torrington Place, Bloomsbury. The workshop was co-funded by the French Embassy and UCL Grand Challenges. The convenors were Prof. Hedley Smyth (UCL) and Prof. Laurence Lecouvre (SKEMA Business School) who had been planning the workshop since September 2015. Since that time, Prof. Laurence Lecouvre, moved from the SKEMA Lille Campus to the Nice Campus. She was ill during the two days, the doctors advice being that she should not fly. While she was missed, the event was not compromised as a result. Prof. Hedley Smyth had made a visit to widen the contact base at the Lille Campus in March 2016, meeting four additional members of the SKEMA team. He also presented Prof. Laurence Lecouvre slides to introduce the Workshop and report on prior joint research. A total of 14 academic staff participants from SKEMA and UCL took part in the workshop plus 2 PhD students, one from each institution (see p. 7) – a total of 16 participants.

The workshop was organized as a set of open presentations on each participant’s area of expertise. The resulting set of presentations made up the agenda of the two-day workshop (see p. 9). The practicalities related to the workshop are summarized on pp. 10-11. The workshop was a major success; collaboration was established and a second self-funded one is planned and a bid for further funding has already been submitted to the Society for the Advancement of Management Studies (SAMS). The quality of the workshop organization,

the collaborative and collegial atmosphere, and the intellectual input of the participants in presentations and dialogue were praised. In particular, the non-traditional format of discussion based on ideas vs. papers was praised, as was the interdisciplinary design of the workshop.

The follow-up workshop will be held on 27th-28th October on the Lille Campus of SKEMA. The idea is to undertake initial review and research around joint Anglo-French megaprojects, initially starting with the energy programme. The two-day workshop will be divided into two: presentations to present interim work, and, group work to progress towards research output and follow up activities, including publications. An electronic sharing system has already been set up to facilitate the preparation and activities. Longer-term, joint bids and other collaborative activities, for example doctoral activities, have been signalled.

There are also plans to jointly bid for the Eden Doctoral Workshop for August 2017 at SKEMA, developing the Megaprojects theme. These are funded through the European Institute for Advanced Studies in Management (EIASM): <http://www.eiasm.org>. Plans are underway for some PhD Students to attend this year's Eden Workshop in August, organised by SKEMA along with one UCL staff member.

Prof. Hedley Smyth has been asked to be a member of the EMBA Advisory Board at SKEMA.

The organizers and participants wish to sincerely thank the French Embassy and UCL Grand Challenges for this unique and inspiring opportunity! Thank you!

Workshop Proposal

Workshop synopsis

The aim of the proposed workshop is to bring together academics from French institutions and University College London with the aim of seeking to develop the research, research-led teaching and practice in the management of technology and innovation in complex projects and megaprojects. The scholars involved represent interdisciplinary academic expertise covering innovation, technology and management, and strategies for implementation at the interface between these areas.

Rationale and background of the workshop

The proposal is set within the remit of engineering science and the social sciences in particular the development of innovations, new technologies and their adoption and implementation in management through the development of support capabilities. The reason why the proposal is submitted to a call focused on science and technology stems from the fact new technologies and technical initiatives developed for and in large complex projects have frequently been constrained in developing their full potential due to a lack of innovation strategies to guide adoption and management support structures and process to ensure effective implementation. Exemplars, such as the construction of T5 at Heathrow Airport and Crossrail have developed the technical and management infrastructure for effective implementation. This is against a background of projects constituting around 20% of fixed capital formation. Consultants, McKinsey & Co (2013), estimate investment in global infrastructure alone needs to be \$57trillion in the 2013-2030 period; whether entirely accurate the figure is an indicator of the significance of projects.

Managing innovation in complex projects and megaprojects to science and technology based industries is critical. Projects create the preconditions for other standardised and routinized activities necessary in a developed economy and society, whether the contribution is for manufacturing (e.g. new product development), infrastructure (travel and moving goods) or office work (e.g. utilizing IT systems). Megaprojects prevail for government IT installations, defence and in the built environment, for example the Channel Tunnel in the 1990s, which colleagues carried out research upon.

The significance of large-scale (mega)-projects is part of the quest to be competitive in an increasingly complex global competitive arena and to improve societal well-being (McKinsey & Co, 2013). There is an increasing need to renew infrastructure in developed nations, provide new social and technical infrastructure in developing nations, and respond to new requirements, e.g. climate change. Whilst in the early to mid-20th centuries, firms could rely on firm resources (Barney, 1991) and limited supply chains, the technological developments and project complexity of the later 20th and current century require broad supply networks of specialist providers working together (Morris and Hough, 1987; Morris, 1994, 2013).

Integrating specialist technologies and innovations through collaboration have come to shape coordination by a systems integrator – the lead project organisation (Davies et al, 2007).

Despite this intense activity, the value and performance of many projects continues to come under scrutiny, especially against time and cost (e.g. Flyvbjerg et al, 2002; Standish, 2010). Yet the main project purpose centres on outcomes – the end rather than means – and Morris (2013) has recently renewed the call for a greater emphasis upon benefits and impact. This is very much in line with recent theorization around value and its co-creation by the supply and demand sides working in collaboration to improve the value in use and context (e.g. Vargo and Lusch, 2004, Lusch et al., 2008 in management; Smyth, 2015 regarding projects). The co-creation of value centres on innovation, technology application and developing capabilities for benefits' delivery. These joint activities are facilitated through collaboration (Kumaraswamy et al, 2005) and alliances (e.g. Doz, 1998; Morris et al., 2012). Where failure rates average 40-90% (Burnes, 2009), managing project innovation involves many parties internal and external to the firm (Davies and Hobday, 2005; Morris et al., 2012).

Addressing the theoretical issues for value creation and the development of technical solutions on complex projects embodies the workshop's aim to improve the study and practice of managing innovation and technology. The value added of the workshop to these theoretical debates is to bring together scholarly experts across a range of disciplinary bases. A critical assessment of the scholarly research on value creation in innovation and technological development posits a seeming lack of debate across these research realms. While research on any one of these initiatives, be it value creation, innovation or technology development is prevalent, an inter-disciplinary approach is lacking. There is insufficient dialogue between the separate areas to effectively develop further research, facilitate research-led teaching and affect practice with the rigour necessary to facilitate capacity for timely and enhanced value creation (Ballantyne and Vary, 2006; cf. Parmigiani & Rivera-Santos, 2011). This is a potential hindrance to the advancement of scholarly inquiry in these disciplines. By bringing together academics active in these fields of study, representing a range of disciplinary and methodological lenses, the proposed workshop has potential to further our theoretical and practical understanding of complex projects and megaprojects.

Why a UCL-French workshop? Recent advances in the study of individual strategic initiatives have been led by French or UCL-based academics. France and Britain have been involved with major complex projects and megaprojects, from the days of joint ventures for the engineering of the Channel Tunnel, through the Airbus projects, to the recent RAPT and Crossrail infrastructure projects, in which exemplary practices have been developed. While Prof. Peter Morris has spearheaded the intellectual development behind project management through his work covering defence, industrial and a range of commercial projects, Prof. Andrew Davies is known for innovation within the context of mega-projects, particularly on T5 Heathrow and Crossrail. Prof. Hedley Smyth has worked extensively on capabilities in business development and organisational behaviour necessary for supporting development in managing innovative practice and technological development. Dr Efrosyni Konstantinou has worked on the adoption of technologies and management practices by highly-skilled workers in politically-intensive, networked environments in academe and management consultancy.

The work of Dr. Stefano Miraglia explores the development of replicated and adaptive solutions, especially in the IT sector. Alex Murray has been working to improve the evidence base for benchmarking project performance between different procurement routes (inc. PPP / PFI), a factor seen as a key driver of the incentivisation of innovation in project development.

On the French side, Prof. Laurence Lecoivre has conducted research in industrial engineering and specifically product development. She is an acknowledged expert on the managerial sides of systems and project marketing and has worked on complex and megaprojects regarding project leadership especially in regard to marketing and business development, and human resource management in relation to SME suppliers. Prof. Rodney Turner, author or editor of eighteen books, is a member of the network managed by the International Centre for Complex Project Management and the IPMA Special Interest Group on Megaprojects. He has published papers on megaproject success and is Fellow of the Institution of Mechanical Engineers. Dr Carole Daniel has been involved in executive tailor-made project management programmes in the fields of Leadership and Team Dynamics since 2000. Prof. Pierre Daniel launched the SKEMA Center of Expertise in *Management of Strategic Projects*; his domain of expertise covers the Complexity Management and Business Decisions, focused on understanding how to manage complexity in governmental projects and programmes projects, start-up projects, product development projects. After several years' experiences on territorial projects, Prof. Philippe Vaesken developed his research in public sector and notably on restructuring projects and project management. Assoc. Prof. Eric Daniel researches in project sustainability, teaches on complex project management and coordinates innovative projects at ITEEM. He was in the cabinet of the French Minister for Veterans Affairs for 10 years and advisor to the General Director of the French Office.

There is a history of collaboration between the main convenors of the workshop (Prof. Hedley Smyth and Prof. Laurence Lecoivre) in terms of joint research and a journal publication (see *International Journal of Project Management*, 2015). This began with a series of visits and current research is comparing functional integration in French and British contractors, from which further conference and journal publications are envisaged.

For the UCL convenor, the workshop is a means of bringing together UCL and French colleagues with similar research interests; colleagues who require a platform to facilitate the debate across the topics. This is why this application is critical. The workshop will allow scholars engaged in the study of different areas of innovation and technological application to advance theorizing and provide a starting point for longer-term impactful interdisciplinary research to shape future research agendas. This is part of the future research agenda at UCL.

For the SKEMA Business School convenor the workshop is means to bring together UCL and French colleagues with complementary research interests, providing a platform to deepen cooperation and potentially facilitate collaboration and exchange. Beyond these expected short-to-medium term results, long-term scholarly knowledge in technology and innovation management in complex projects and megaprojects is an expected and shared outcome.

Aim and objectives of the workshop

The aim of the proposed workshop is to bring together academics from French institutions and University College London with the aim of improve the study and practice of managing innovation and technology for large projects and megaprojects. Within this broad aim, four specific objectives are identified driving the intellectual remit of the workshop:

1. Through inter-disciplinary dialogue, to engage in an ambitious, impactful and creative exploration of how the study and practice of managing large projects/megaprojects can benefit from innovation and technology application thematically and philosophically.
2. To contrast and compare the presented innovation strategies and innovation practices with the aim of developing meta-level theories of innovation and technology adoption.
3. To advance the scholarly inquiry within the remit of each of the presented research by seeking to mutually learn from one another's work and historic legacy. For example, how could theories of adaptive replication of integrated solutions and applying innovation strategies be broadly advanced in the management of projects? How might advances help capability development for large complex projects and megaprojects?
4. To identify mutual areas of inquiry leading to future collaboration beneficial to both UCL and French parties, be it with respect to research projects involving industry, co-authorships on papers, edited book volumes, conference symposia, etc.

Beyond these disciplinary theoretical gaps, the workshop is embedded in UCL's radical legacy to seek academically and practically impactful research.

Workshop Participants

French participants

1. Professor Laurence Lecoivre, formerly Lille, currently Nice Campus, SKEMA Business School [Management Systems and Project Marketing]
2. Associate Professor Pierre Daniel, Lille Campus, SKEMA Business School [Complexity Management and Business Decisions]
3. Associate Professor Carole Daniel, Lille Campus, SKEMA Business School [Leadership and Team Dynamics]
4. Professor Philippe Vaesken, Lille Campus, SKEMA Business School [Restructuring Public Sector Projects and Project Management]
5. Professor Paul Gardiner, Lille Campus, SKEMA Business School [Information Systems and Supply Chains in the Management of Projects]
6. Associate Professor Eric Daniel, Lille Campus, SKEMA Business School [Sustainability and Complex Project Management]
7. Associate Professor Adil Eltigani, Lille Campus, SKEMA Business School [Quality, Strategy and Performance Management]
8. Alfredo Bernard Roach, PhD Student, SKEMA Business School.

UCL participants

9. Professor Hedley Smyth, University College London [Learning and Knowledge Management, Project Marketing]
10. Professor Peter Morris, University College London [The Management of Projects and Megaproject Policy Implementation]
11. Professor Andrew Davies, University College London [Innovation in Megaprojects]
12. Professor Andrew Edkins, University College London [The Management of Projects and Delivery Models]
13. Alex Murray, University College London [Programme and Project Value Post-completion]
14. Dr. Effie Konstantinou, University College London [Professionalism]
15. Dr. Stefano Miraglia, University College London [Capability Development and Solutions Integration in Project Ecosystems]
16. Juliano Denicol, PhD Student, University College London.

Workshop Preparation

In the spirit of the call for proposals for bicultural workshops funded by the French Embassy in the United Kingdom, the workshop gathers a set of sixteen academics from The SKEMA Business School and University College London. The aim is to share, discuss and ideally to innovate the study and practice of the management of technology in large complex projects and megaprojects (p. 5).

With this aim in mind, as convenors, we have invited French and UCL academics working within the broad remit of the management of projects and their associated technical and technological content. The expertise of the invited academics thus reflects a range of (1) the management of the organisations involved and their coordination across firm boundaries, (2) the management of projects of organizing effective and efficient delivery, and (3) the means for managing complexity, innovation and performance improvement.

The workshop was not set up to follow the traditional setting of participants presenting existing or work-in-progress papers. Instead, we have assigned each participant a role that reflects his/her area of academic expertise in the remit of the workshop's topic, '*Managing Technology and Innovation in Complex Projects and Megaprojects*'. As background, Prof. Laurence Lecoeuvre and Prof. Hedley Smyth had met together and conducted joint research. As part of the preparation for the Workshop, Prof. Hedley Smyth made a visit to widen the contact base at the Lille Campus in March 2016, meeting four additional members of the SKEMA team (p. 1). Prof. Laurence Lecoeuvre joined the meeting by skype from the Nice Campus. It helped to map a more detailed programme and set parameters to brief the participants. It also proved invaluable, as Prof. Laurence Lecoeuvre was unable to travel for the event for medical reasons.

The aim of the presentations was to enable participants to briefly share their domain of academic expertise as it related to the Workshop topic. This enabled the participants to engage in a dialogue of comparison and mutual reflection, both during the sessions and more informally over the two days. This is indeed what occurred.

The anticipated result was to (1) the reflect upon, and indeed re-interpret, the management of technology and innovation in complex projects and megaprojects, (2) identify unexplored or understudied areas at the cross-roads of the themes, theories, and ideas presented, and (3) identify any ways forward for further joint reflection and deeper collaboration.

Workshop Schedule

The pre-arranged workshop schedule is set out below.

Day One, Thursday 26th May	
Depart	Lille Europe (e.g. Eurostar 0930)
Arrive London	St Pancras International (e.g. Eurostar 0957) and go to Hotel
1200-1300	Group Lunch
1300-1330	Welcome and Introductions
<i>The pattern for each session will be Presentation 15 minutes and Discussion 15 minutes</i>	
1330-1400	Presentation 1, Prof. Laurence Lecoeuvre, SKEMA
1400-1430	Presentation 2, Prof. Hedley Smyth, UCL
1430-1500	Presentation 3, Prof. Paul Gardiner, SKEMA
1500-1530	Tea
1530-1600	Presentation 4, Prof. Andrew Davies, UCL
1600-1630	Presentation 5, Prof. Pierre Daniel, SKEMA
1630-1700	Presentation 6, Dr. Stefano Miraglia, UCL
1700-1730	Presentation 7, Assoc. Prof. Carole Daniel, SKEMA
1730-1800	Presentation 8, Alex Murray, UCL
1930	Group Dinner
Day Two, Friday 27th May	
0845-0900	Arrive and Coffee
0900-0930	Presentation 9, Prof. Peter Morris, UCL
0930-1000	Presentation 10, Prof. Philippe Vaesken (tbc), SKEMA
1000-1030	Presentation 11, Prof. Andrew Edkins, UCL
1030-1100	Presentation 12, Assoc. Prof. Eric Daniel, SKEMA
1100-1130	Coffee
1130-1200	Presentation 13, Dr. Effie Konstantinou, UCL
1200-1230	Presentation 14, Adil Eltigani, SKEMA
1230-1300	Outcomes and Actions
1300-1400	Lunch
1400	Depart (e.g. 1504 Eurostar, arriving 1726 Lille Europe)

There were some minor re-arrangements just prior to and during the event, so the actual schedule was adjusted, in particular combining Presentations 1 & 2 in Prof. Laurence Lecoeuvre's absence and the agreed postponement of Presentation 12 in order to make more room for discussing Outcomes and Actions for follow up. These adjustments proved fruitful.

Practicalities

- **Travel arrangements.** Travel was arranged from and booked through UCL.
 - **By train.** All the French participants bar one travelled from Lille to London on Eurostar. The French Embassy agreement is to fund this travel. The agreement reached with the PhD Students is that they help the coordination in return for attending on can join in the dinner and be included in the catering. Alfredo Bernard Roach, the French PhD Student, pays his travel and hotel from other means. Outward Thursday 26th May 2016: Depart 0930, Lille Europe, Arrive 0957, St. Pancras International; Inbound Friday 27th May 2016: Depart 1504, St. Pancras International, Arrive 1726 Lille Europe.
 - **By air.** Prof. Laurence Lecoeuvre's easyjet flight, Nice-London Gatwick, is non-refundable and is written off due to doctor's advice not to fly.
- **Funding.** The French Embassy funds the workshop as follows:
 1. French staff participants' travel is funded. French staff participants' hotel in London on Thursday May 26th is funded. The hotel is located in Bloomsbury (see below for details), within a 5-minute walking distance from University College London. Hotel reservations include breakfast.
 2. All participants' Thursday evening dinner is funded;
 3. All participants' Friday lunch is funded.

Workshop and hotel location

- The location was University College London, in Bloomsbury, central London. See the link below for an overview of the university: www.ucl.ac.uk
- The address of the workshop: Room 247, 1-19 Torrington Place, London. It is short taxi ride from St. Pancras International to both the hotel and venue, with a 5-minute walk between hotel and venue. The nearest underground stations are (see also <http://www.ucl.ac.uk/maps/public-transport>)
- The hotel provider, The Grange Group, is an approved UCL supplier and the hotel is the Fitzrovia Grange Hotel, Bolsover Street: <https://www.grangehotels.com>.
- For general information, UCL is a 10-minute tube ride from central London (e.g. Leicester Square, Covent Garden, Piccadilly Circus, Oxford Circus), and a 15-minute walking distance to these central attractions. The nearest tube stations are: Goodge Street (1 minute walk), Warren Street (5 min), Tottenham Court Road (5 min), Euston Square (7 min), Euston Station (10 min), King Cross St Pancras (15 min). The hotel is within close proximity to several tube stations: Great Portland Street (4 min), Oxford Circus (5 min), Regents Park (7 min), Goodge Street (6 min).

Finance

The allocated workshop budget was spent on:

1. French staff delegates' hotel expenses;
2. French staff delegates' travel expenses;
3. Evening meal day 1, including the two PhD students;
4. Lunch day 2, including the two PhD students;
5. Coffee/tea on days 1 & 2.

The final costs are being calculated, as invoices are incoming. The final costs are set out below.

Item	Cost £
Initial meeting	136.42
French staff delegates' hotel expenses	850.00
French staff delegates' travel expenses	697.40
UK staff delegates' – hotel expenses	307.00
Evening meal – day 1	557.40
Lunch – day 2	195.60
Catering at meetings	327.60
TOTAL	3071.40