CRITICAL EXAMINATION OF THE PLANNING OF MEGA URBAN TRANSPORTATION PROJECTS (MUTPS) - WHAT LESSONS FROM THE CHANNEL TUNNEL RAIL LINK?

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ABSTRACT

This paper presents the findings from the Channel Tunnel Rail Link (CTRL) case study, one of 30 such studies undertaken as part of the OMEGA Centre's International study which aims to identify 'What constitutes a successful Mega Urban Transport Project". The paper introduces the overall research questions and hypotheses that the OMEGA programme seeks to address and explains how these are reflected in the data collection and analysis methodologies employed by the OMEGA Centre (CoE) and it's nine International Partners.

The paper summarizes key insights from the CTRL study using data collected from primary and secondary data sources. The project profile is used as a repository of secondary data compiled by the centre and partners for each of their case studies. The project profile seeks to indentify, amongst others, the publically stated project objectives, the projects planning and evaluation processes, a timeline of key events, and details on the projects costs, completion times and financing. The primary data was collected via both pre-hypothesis and hypothesis led interviews with key stakeholders who played a significant role in helping to mould various aspects of the CTRL. The pre-hypothesis questionnaire comprises a series of open ended questions to elicit stories from stakeholders unconfined by prior hypotheses, whilst the hypothesis led questionnaire follows a more traditional interview methodology to test a series of hypothesis related to the planning, appraisal and delivery of the CTRL.

Finally, the paper illustrates the process by which the above data is combined to enable subsequent sensemaking of patterns of knowledge to evaluate the CTRLs performance against both initial and emergent objectives, C21st sustainable development challenges, and the treatment of risk, uncertainty and complexity and context in decision making. This section includes the CTRLs projects responses to the OMEGA projects overall research questions in the form of both generic and context specific lessons for Mega Urban Transport Project professionals.

Keywords: Project Planning, Project Appraisal , Project Delivery, MUTPs, decision making

INTRODUCTION

The purpose of this paper is to illustrate the methodology employed by the OMEGA Project using the Channel Tunnel Rail Link (CTRL) and to present a summary of the findings from the CTRL Case study project including initial lessons for MUTP practitioners.

The OMEGA Centre of Excellence (CoE) was established amid increasing concerns internationally about the capability of MUTPs to be provided not only on time and within budget, but also to deliver the benefits they promise for the 21st century, especially given the significant scale of their costs and uncertainties associated with their development. The hope that a transfer of management and financial risk from the public to private sector would introduce new disciplines and greater reliability has furthermore not been borne out on the scale expected, which has spawned additional major concerns. The work of the CoE and its International Partners, made possible by a CoE grant provided by the Volvo Research and Education Foundation (VREF), responds directly to these, albeit in the case of this research programme confined to the Developed World. The OMEGA International Partner Network is led by senior academics (supported by 10 PhD students) from nine other distinguished universities in different countries in Europe, USA, Australia and Asia, involving more than 40 researchers from a wealth of different disciplines.

The CoE and its Partners seek to 'make a difference' globally by addressing the growing international realisation that there is an urgent need to better understand what it takes for MUTPs to both deliver their objectives, and to examine more closely the criteria by which they should be judged 'successful' in the context of the increasingly uncertain, complex and changing environments of the 21st Century, and vision(s) of sustainability promoted both locally and globally. The fact that there have to date been too few attempts to bring about such systematic institutional learning from MUTP international experiences has led to the CoE's work being welcomed by numerous influential parties in the transportation field and has given the study access to some of the top decision makers in the MUTP field.

Each Academic Partner has conducting a minimum of three Case Studies, which were completed in early 2010, using a common set of analytical tools and techniques. These include the assembly of Case Study project templates and timelines using secondary data sources, pre-hypothesis research and hypothesis led research. These processes, along with the case study synthesis, represent the focus of this Paper, with particular reference to the OMEGA Centre's experiences in regard to its first Case Study, the Channel Tunnel Rail Link (CTRL).

The Paper is structured as follows:

- Methodology
    - Presentation of the key research questions and hypotheses which the research programme seeks to address
    - Approach to Data Collection - how the main questions and hypotheses were derived for use in the pre-hypothesis and hypothesis-led research phase for the CTRL Case Study
    - Approach to Data Extraction and Analysis using the four tests.
- Initial findings from the CTRL case study regarding Tests 1 to 3

METHODOLOGY

Key Research Questions and Methodology Overview

The OMEGA 2 Project seeks to address three fundamental Overall Research Questions (ORQs) and test three related Overall Research Hypotheses (ORHs), as follows:

- Overall Research Question #1: What constitutes a 'successful' mega urban transport project in the 21st Century?
- Overall Research Question #2: How well has risk, uncertainty and complexity been treated in the planning, appraisal and evaluation of such projects?
- Overall Research Question #3: How important is context in making judgements regarding Overall Research Questions 1 and 2?
- Overall Research Hypothesis #1: Traditional criteria relating to cost overruns, completion dates, generation of travel time savings for users and rates of returns to investors are inadequate measures of success in the 21st Century as sustainable development concerns become increasingly critical both globally and locally.
- Overall Research Hypothesis #2: The new emerging international and local agenda related to vision(s) of sustainable development is multi-dimensional and goes beyond notions of environmental sustainability, as critical as this may be, in that it also concerns inter-related concepts of economic sustainability, social sustainability and institutional sustainability.
- Overall Research Hypothesis #3: The level of competence in decision-making and planning in today's fast-changing world is best assessed by the adequacy of the treatment of risk, uncertainty and complexity and sensitivity to context – all of which are important demands on Strategic Planning.

The relationship between these ORQs and ORHs is shown by Figure 1 below.

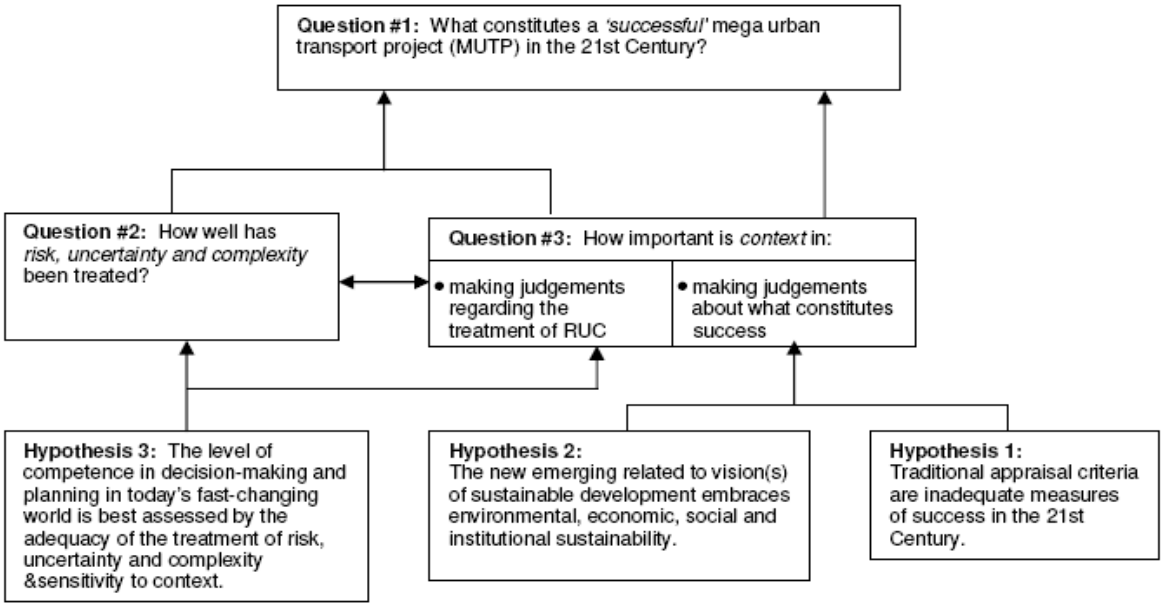

Figure 1: Relationship Between Overall Research Questions and Hypotheses

The research methodology developed by the OMEGA Centre and partners in order to provide answers to the above questions and hypotheses is shown in Figures 2 and 3. The methodology has been discussed extensively within the OMEGA International Partner

Network via Workshops and by use of online collaboration tools, enabling a consistent application by all Partners in compiling and analysing case study material.

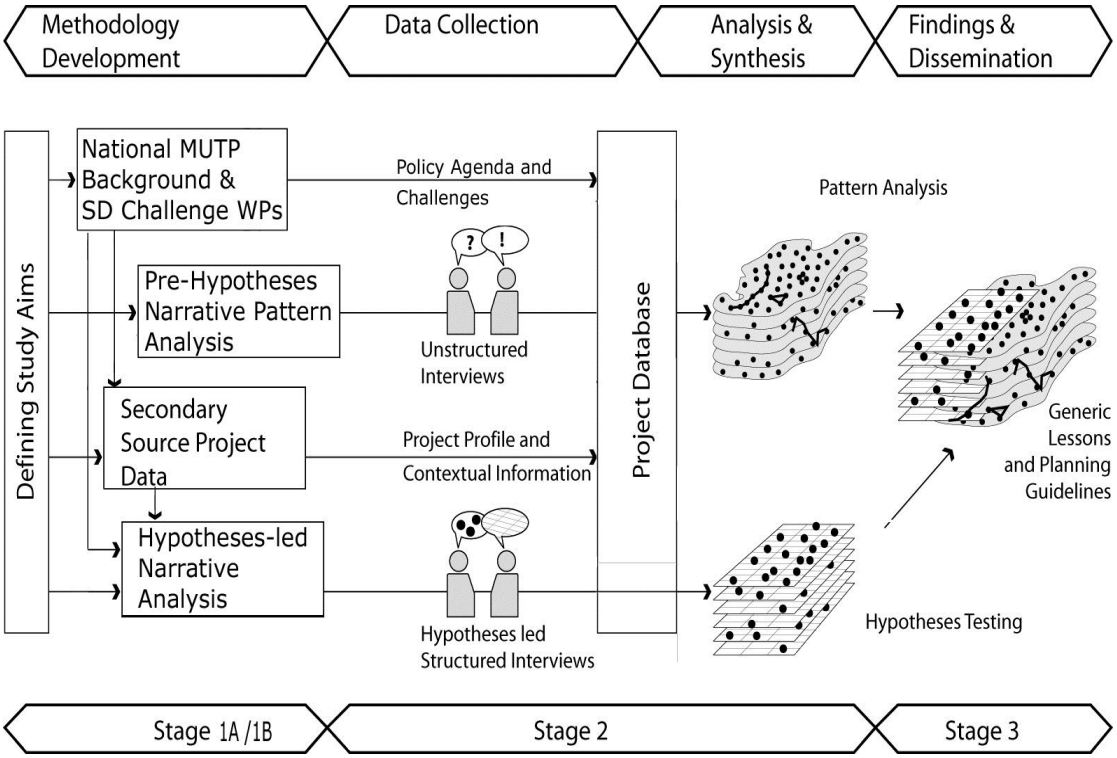

Figure 2: Overview of OMEGA Study Methodology

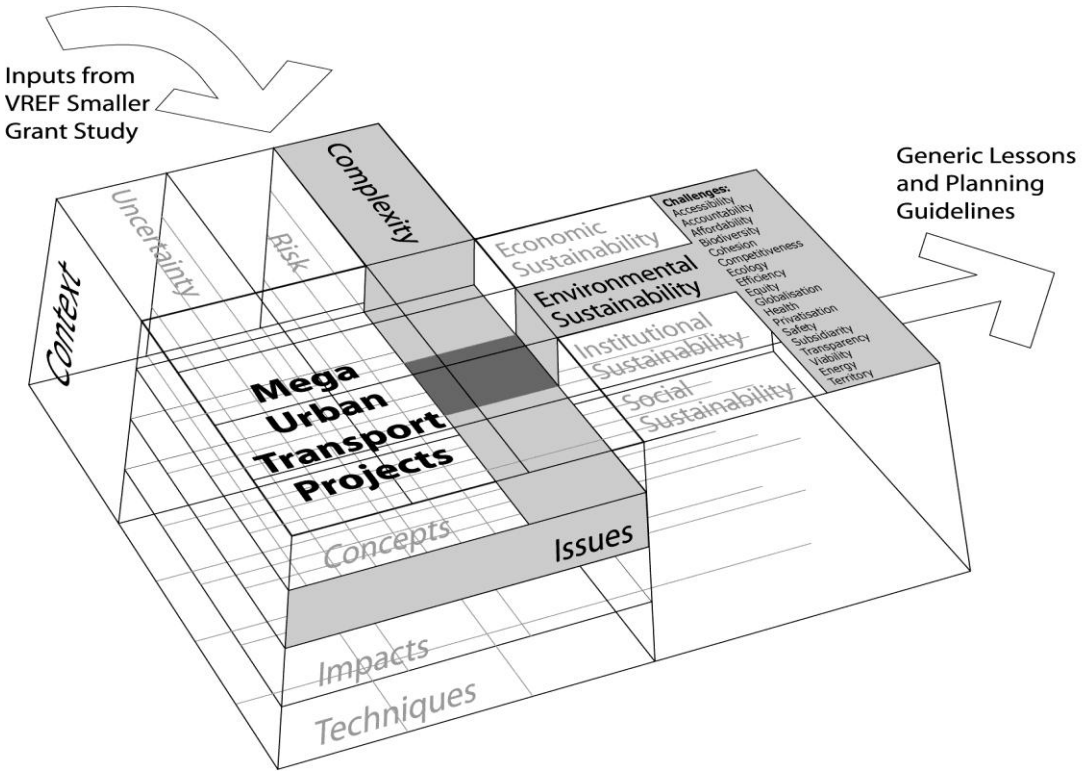

Figure 3: Key Methodological Inputs and Outputs of Study

The methodology for the OMEGA 2 Project comprises three principal stages, stages one and two, relevant for this paper, are outlined below.

- **Stage 1A & 1B**: **The definition of study aims, methodology development, and preparation of key Working Papers by the CoE and all Partners** on National MUTP Backgrounds and Sustainable Development Challenges and collection of secondary source data on case study projects (resulting in the preparation of detailed project profiles and project timelines for each of the 30 case study projects). A very significant component of this process was the formulation and agreement by the OMEGA International Partner Network of approaches to the collection of interview data using innovative pre-hypothesis ('storytelling') methods and more traditional hypothesis-led techniques. This enabled the consistent application of data collection and analysis methods across the Network for all case studies. Another major set of inputs in Stage 1 were key findings from the OMEGA 1 Project (the Smaller VREF project on the Treatment of Risk, Uncertainty, Complexity and Context) as this informed both the formulation of normative criteria for assessing project achievements and the content of hypothesis-led investigations.

- **Stage 2**: **The collection and analysis of interview data from key stakeholders involved in or affected by each case study project** using pre-hypothesis and hypothesis-led techniques, together with the consolidation of the OMEGA database which also includes project profile material collected in Stage 1. In summary the pre-hypothesis/storytelling investigations involved 'naïve' face-to-face interviews with a diverse range of (typically 10-15) key stakeholders where the emphasis was on the sharing of case study project-related experiences. Narrative data was then transcribed verbatim and analysed using a combination of Cognitive Edge's 'sensemaking' software and manual oversight to determine key patterns of knowledge that could be extracted. Similarly, hypothesis-led investigations comprised structured interviews with a diverse range of (typically) 10-15 key stakeholders who were requested to respond directly to the OMEGA research questions and hypotheses mentioned above, as well as a range of project-related hypotheses formulated by individual Partners and the CoE. Again, narrative data was transcribed verbatim and analysed by the research teams to determine patterns of responses to the OMEGA ORQs and ORHs plus any other additional insights of importance to the 'sensemaking' of the case study projects. The key output from this component of Stage 2 comprises a 'Country Synthesis Report' compiled by each Partner (and the CoE for the UK case studies) which analyses and synthesises data collected for the case studies. Whilst this paper does not cover the CoE Country Synthesis Report, it suggests findings and lessons from the analysis of the CTRL case study, one of the three UK studies, the findings of which are to be synthesised to form the UK Country Synthesis Rerport.

  A key step in the analysis of each project according to the 3 ORQ and ORHs is the application of a series of four tests, which provide a link between the primary and secondary data analysis and the overall research aims. The four tests applied to the CTRL and other data case studies are outlined below:

  Test 1: Project Objectives
  - Analysis of Project Achievements relative to: original project objectives set when the project commenced; and new project objectives that emerged during the course of planning and implementation.
  - Formulation of preliminary 'lessons' which identify how project performance could have been/could be further enhanced in relation to the setting of objectives.

Test 2: MUTP Sustainable Development Challenges

- Analysis of Project Achievements relative to identified visions, challenges and issues of sustainable development as represented by normative values and evaluative criteria for 21st Century MUTPs (drawn from OMEGA Working Paper Series #2 and other literature, including the UN Millennium Development Goals).
- Formulation of preliminary 'lessons' which identify how project performance could have been/could be further enhanced in relation to normative values for 21st Century MUTPs.

Test 3: Treatment of Risk, Uncertainty, Complexity and Context during MUTP decision-making

- Analysis of project Achievements relative to the:
    - treatment risk, uncertainty and complexity in MUTP decision-making, and
    - treatment of context in MUTP decision-making.
- Formulation of preliminary 'lessons' which identify how project performance could have been/could be further enhanced in regard to the treatment of risk, uncertainty, complexity and context in such decision-making

Test 4: Synthesis of Tests 1-3 for each Case Study project comprising an account of:

- The chief context-specific influences on project performance (strengths and weaknesses) - i.e. the identification of those context-specific forces that determined the relative performance levels of the project relative to existing project objectives and new 21st Century normative goals and evaluative criteria (the latter as determined by the OMEGA Network).
- The principal stakeholder 'winners and losers' associated with project performance levels.
- The responses to the Overall Research Questions and Hypotheses (as given in Figure 1) in the form of preliminary context-specific lessons and guidelines which seek to enhance Case Study project planning and delivery. This will include an assessment of opportunities and threats associated with external factors such as blocking and inducement mechanisms.

The CTRL Case Study

Located in South-East England (Figure 4), CTRL forms a high-speed link from the Channel Tunnel portal in Kent to its Central London terminus at St Pancras International Station. St Pancras International Station is the largest of its kind in Europe and is expected to handle some 50 million passengers per year. CTRL represents a 'meta' Transport Project comprising:

- Line haul - double track high speed rail link between Channel Tunnel and London St Pancras International (opened 14th November 2007)
- Stations & Termini
    - London Terminus - International Station at St Pancras
    - Intermediate Stations are located at: Stratford International (East London); Ebbsfleet (North Kent), and; Ashford International in mid-Kent.
- Major Development/regeneration hubs associated with CTRL at:
    - King's Cross (KX) /St Pancras Station in Central London
    - Stratford International Station in East London
    - Ebbsfleet International Station in North Kent
    - Ashford International Station in mid-Kent

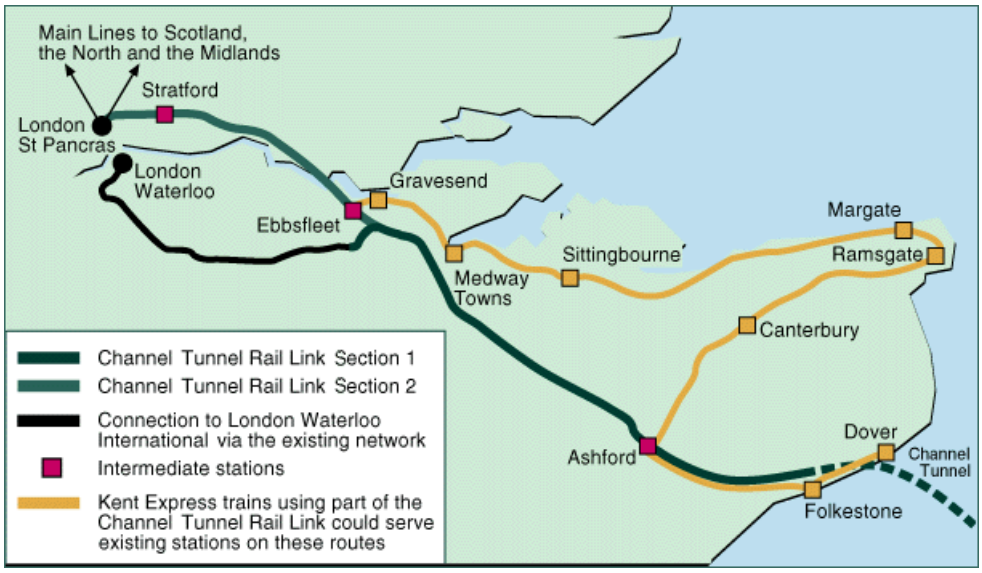

Figure 4: The CTRL Route

INITIAL FINDINGS FROM THE CTRL CASE STUDY - THE ANALYSIS OF OMEGA TESTS 1 TO 3

This section presents a selection of key findings from the analysis of the CTRL Project Profile, Pre-Hypothesis and Hypothesis used to inform tests one to three of the OMEGA 4 Tests introduced above. The data from all 30 International Case Studies is currently being received by the OMEGA Centre, and work on stage 3 of the OMEGA project methodology (Figure 2) is due to commence during the second half of 2010.

Test 1: Project Objectives

As stated above the purpose of Test 1 is to analyse the CTRL project achievements relative to the objectives that were set for it. The test is split into two parts:

- Test 1a examines the original project objectives set *when detailed planning for the CTRL project commenced;*
- Test 1b compares CTRL project objectives that *emerged during the course of planning and implementation subsequent to approval*.

Test 1 *also* fundamentally incorporates a number of 'baseline' measures of the projects achievements *since its approval (*ie. at the time the project was given Parliamentary (or equivalent) approval to commence. The baseline measures include the collection of data to respond to the following:

- was the project completed on time?
- was the project completed within budget?
- was the project delivered to the required/expected specification?
- does the project deliver desired agglomeration impacts?

CTRL Project Costs: Project costs escalated significantly over time in the 'early' planning period for CTRL (1986-1990), despite the frequent Treasury dictates to the contrary. The timeline below illustrates the cost increase between this period.

- **January 1986** - £400m (based on use/upgrading of existing infrastructure).

- **Mid-1987** - £700m+. BR split the project costs as follows - £450m for Phase 1 (which covered investment necessary to operate services from May 1993), £250m for Phase 2 (covered proposals for running international services north of London). A further £200m estimated for Phase 3 (covering works necessary for a high speed link).
- **August 1987** - government approved £550m expenditure for Phase 1 (excluding the international station at Ashford which government felt could not be justified commercially) but said it could not commit to Phase2.
- **February 1989** - £707m (Phase 1)
- **July 1989 -** £885m (Phase 1)
- **October 1989** - £905m (Phase 1)
- **July 1990 -** £1.255 billion (Phase 1).

The above cost data spans a period of some five years where route options were still being developed and the technical specification for the project changed significantly. The line evolved from a relatively straightforward upgrading of existing infrastructure to accommodate non-high speed trains (1986-1988) to a fully dedicated high-speed route (1988-1990). Remarkably, it would appear that no cost estimate was placed in the public domain for the construction of the CTRL at the time of its Parliamentary approval in 1996. All that is known about this cost estimate is that it was based on the least cost burden to the state of three tenders received.

Following parliamentary approval a financial restructuring of the project took place in 1997/98 when Government effectively rescued the project from impending disaster and CTRL was split into two Sections. Subsequent to this event, evidence suggests that CTRL was delivered within the new budget reserved for Section 1 and Section 2 as shown by the following cost breakdown.

- LCR source **-** Total cost of CTRL: £5.2bn - £5.8bn (Section 1: £1.9 billion; Section 2: £3.3 billion)
- National Audit Office source: - LCR and Department of Transport agreed target costs as follows:
  - CTRL Section 1 - £1,930 million in cash outturn terms (£1,670 million at January 1997 prices), plus a £260 million allowance for inflation
  - CTRL Section 2 - £3,303 million in cash outturn terms (£2,513 million at January 1997 prices), plus a £790 million allowance for inflation)
  - Actual cost for Section 1 was £1,920 million (cash out-turn)
  - Within the 1998 target cost for Section 2 (£2,513 million (1997 prices), LCR and Rail Link Engineering included a target construction cost for Section 2 of £2,215 million (1997 price)

In conclusion it is difficult to argue that the 'on budget' aspect of CTRL was not met in either the early planning period for the project (given the evolutionary nature of the design process) or the post-restructuring period.

Project Programme: No specific project programme and technical specification/quality objectives have been identified in the early planning period before the project became effectively 'frozen' (this did not occur until the project was proposed as a PFI in the mid-1990s). It is consequently impossible to make a judgement about programme objectives set at that time. However, it is abundantly clear that project specifications changed dramatically in response to the decision to proceed with CTRL as a dedicated high speed line and that this critically impacted upon programme and specification requirements. In conclusion: programme targets were met.

Project Specification: CTRL is believed to have been delivered according to the required technical specification.

Other Emergent Agglomeration Objectives: Through the projects long planning phase, CTRL was exposed to changing objectives which are highly relevant when evaluating the projects performance. These changing objectives are presented below:

Regeneration, Restructuring, Economic Growth

- CTRL has had a beneficial impact in stimulating the regeneration of the hubs at King's Cross, Stratford and Ebbsfleet, while the impact in relation to Ashford is rather less clear
- the full extent of benefits associated with CTRL in this respect will not be realised for some time to come;
- the vision/concept of CTRL as a regeneration and restructuring catalyst has seemingly carried significant weight and 'belief'. This is perhaps especially significant in relation to Ebbsfleet which has fewer locational advantages than King's Cross and Stratford (both London locations).
- the fact that former railway land earmarked for regeneration at King's Cross and Stratford was included as part of the funding mechanism for the project has catalysed significant investment in these locations
- CTRL firmly reinforced the pre-eminent position of London as a key financial centre

International Link

- Initial CTRL project objectives in the mid-late 1980s were principally confined to obtaining an international rail link between the three capitals (London-Paris-Brussels) as cheaply as possible, and at no cost to the public purse. Whilst the latter cost objectives have arguably not been met (see below), it is clear that CTRL comprises an efficient and effective high speed link to continental Europe.

Other Transport Objectives/Achievements

- Original CTRL project objectives called for:
  - a 50% increase in link capacity between London and the Channel Tunnel;
  - the ability to maximise use of the new line for domestic rail users *and* for freight.
- Given that, prior to CTRL, services between London and the Channel Tunnel were provided on the then existing 'standard' lines it is clear that the project has very significantly increased capacity and that passenger numbers are increasing - though these would still seem to be short of original growth projections (Project Profile). High speed domestic services commenced in 2009.
- S40 of the Channel Tunnel Act required BR to produce a plan (by end-1989) showing how it intended to secure the provision of international through services to various parts of the UK. This 'regional service' role has never been fully exploited by the provision of a direct link between the CTRL and cities such as Birmingham, Manchester and Edinburgh
- CTRL is scarcely used for freight. Interviewees note that freight use and high speed passenger services are largely incompatible in any case and we must therefore question whether this was ever a serious proposal

Olympics

- interviewees suggest that the London Olympic bid was instrumental in obtaining the necessary funding for the domestic services
- in addition, interviewees concur that CTRL was instrumental in enabling London to win the 2012 Olympics.

Private financing

- notwithstanding the need for financial restructuring in 1997/98 and the consequent greater public sector exposure to risk, CTRL demonstrated the private sector's appetite for major infrastructure projects in the UK.

Other objectives

- a key driver for CTRL (but not stated in public documents) was national prestige – government concern about not being left behind in the development of high speed railways following adverse comparison with French rail services on the Channel Tunnel line.

Lessons from Test 1 concerning MUTP project objectives

From the analysis of the CTRL case study and primary data collection a number of lessons can be derived concerning MUTPs and project objectives.

Project planners and delivery agents need to take account of the likelihood that new objectives will emerge over the course of the project planning and appraisal period as a result of changing contextual elements (including emerging/changing stakeholder agendas).

In the context of CTRL, emergent objectives were no bad thing in that they ultimately helped shape the project to better suit its contextual influences than early proposals that were essentially limited to a 'least cost' solution for upgrading existing facilities. The project therefore benefited from a 'time to breathe'.

The above would seem to contradict the view that project objectives (including those associated with project and agency roles/functions and performance indicators) should be clearly set at the outset and fully disseminated to all stakeholders. Indeed, having clear and consistent objectives at the outset may be positively harmful to a project in not allowing it to respond to changing stakeholder agendas and other contextual influences. In light of this, it is clear that all key stakeholders should be involved in setting project objectives - not merely consulted 'after the event'.

MUTP objectives should reflect the degree of interaction they are anticipated/expected to have with the areas they traverse and impact upon - such objectives should be accompanied by clear policy statements indicating the scope and nature of such impacts, using MUTPs as important agents of change.

Wherever possible, MUTP objectives should differentiate between those objectives that are:

- core/essential, and represent the fundamental reason why the project is being implemented, and;
- those that represent perhaps less certain but nevertheless desirable project outcomes.

Having such a categorisation will enable a fairer and more consistent approach to be adopted to project appraisal and evaluation.

Project objectives should be capable of being operationalised in such a way as to be meaningful to all stakeholders - OMEGA stakeholders expressed particular concern that objectives associated with both 'regeneration' and 'sustainability' are frequently meaningless as a result of being incapable of implementation in a direct and practical sense.

Projects like CTRL that have wider objectives which suggest they are more a service than a commodity and have potentially far-reaching impacts (and are likely to result in a commitment of significant public sector resources) *ought* to be debated and scrutinised at

the highest political level - this should be taken into account in setting (particularly) programme objectives.

Early cost, programme and quality data must be treated with caution - as should predictions about the beneficial nature of project impacts. In order to avoid not overly raising expectations of MUTP outcomes, project data should be released:

- only when key route and other specification details have been effectively 'frozen' and are thus reasonably 'certain';
- only when accompanied by a suitable cautionary note regarding its (in)accuracy.

Here it should be noted that there exists a classic civil service mantra regarding the handling of stakeholder expectations - 'under promise, over provide'.

When setting objectives regarding financing, funding and risk share, there is a need to ensure that an audit trail is established which is capable of tracking transactions that might otherwise become opaque as a result of so-called 'commercial sensitivity'. E.g. for CTRL, there is still lack of clarity regarding the full cost of the project in relation to the value of Railway Lands at KX and Stratford and post 1997/98 government guarantees.

Project objectives should acknowledge that the benefits/costs and impacts associated with MUTPs are:

- often very difficult to discern at the outset
- often only realised in the long-term
- often unexpected

Objectives for MUTPs should provide for the establishment of measurements and systems/processes that enable clear and transparent appraisal and post-project evaluation of performance on a consistent and accurate basis.

Test 2: MUTP Sustainable Development Challenges

The purpose of Test to is to analyse the CTRLs project achievements relative to:

- Test 2a: Policies and guidelines relating to Sustainable Development Visions (SDVs) that prevailed *at the time each Case Study project was planned and delivered*
- Test 2b: Policies and guidelines relating to SDV that *currently prevail*

Sustainability Development Visions and challenges as a policy framework were insufficiently developed during the formative years of the CTRL to justify inclusion in the project planning and appraisal process. It is consequently unreasonable to assess project achievements on this basis - except insofar as matters such as 'environmental concerns' were taken into account (such matters are included, as appropriate in the analysis). For the purposes of the UK Case Studies, Test 2 project achievements have been examined in relation to five dimensions of sustainability, as follows:

- General sustainable development principles
- Environmental sustainability
- Economic sustainability
- Social sustainability
- Institutional sustainability

The guiding principles of sustainability which have been used for Test 2b for UK projects have been drawn from a synthesis of the following sources:

- National Planning Policy Guidance (PPG1): General policy and principles (1997) (HMSO)

- The London Plan (Spatial Development Strategy for Greater London, February 2004) - Greater London Authority
- National Planning Policy Statement 1: Delivering Sustainable Development (31 January 2005) - Office of the Deputy Prime Minister (ODPM)
- Planning White Paper 'Planning for a sustainable future' May 2007 -HM Government
- Planning Policy Statement: Planning and Climate Change Supplement to Planning Policy Statement 1 - DCLG, December 2007
- Infrastructure Planning Commission: Implementation Route Map, July 2009 - DCLG
- Department for Communities and Local Government (2009) Infrastructure Planning Commission: Implementation Route Map, London, DCLG.

CTRLs performance against General Sustainability Principles:

General Sustainability Principle 1: Maximise re-use of brownfield sites in existing urban areas (particularly housing).

- From the early 1990s onwards CTRL was positioned as both a key spine for the Thames Gateway and a significant catalyst for the regeneration of:
  - former Railway Lands at King's Cross and Stratford
  - former quarry sites at Ebbsfleet
- Since the former Railway Lands (mainly commercial) and quarry sites at Ebbsfleet mainly housing) have attracted very significant investment in development that is expected to regenerate the areas in which they are located, it can be concluded that CTRL has functioned as an important catalyst for the re-use of brownfield sites.

General Sustainability Principle 2: Integrate transport programmes and land use policies

- Land use and development policies for King's Cross and Stratford seek to maximise the benefits associated with their high degree of public transport accessibility (including CTRL domestic services) - predominantly high density commercial development which is oriented around access to the stations.
- Similarly, development plans for Ebbsfleet seek to encourage the location of higher density components close to the international station. However, the achievement of this aim is somewhat frustrated by the existence of a very large (3000 space) surface car park provision which lies adjacent to the station - a legacy of the station's former status as a Parkway.

General Sustainability Principle 3: Maximise higher density development where appropriate (locations with good accessibility).

- High density commercial development has been encouraged via Planning Briefs at the most accessible locations - King's Cross and Stratford.

General Sustainability Principle 4: Develop sustainable and balanced airport capacity and new rail development - especially where this contributes to Thames Gateway regeneration.

- High speed domestic services (2009) link hubs at Stratford, Ebbsfleet and Ashford with Central London, thereby contributing to Thames Gateway regeneration.

General Sustainability Principle 5: Sustainability principles to be incorporated in development plans (social inclusion, protection and enhancement of the environment, prudent use of natural resources and economic development).

- Development at the King's Cross, Stratford and Ebbsfleet hubs all seek to minimise the use of scarce land resources by regenerating brownfield sites - see above.
- Under the London Plan, core sustainability principles have been incorporated in plans for King's Cross and Stratford (but see comments above concerning community displacement).
- Plans for Thames Gateway (including Ebbsfleet) seek to champion sustainability principles, however it is rather too early to conclude whether these have been/will be achieved.

In providing for the homes, jobs, services and infrastructure needed by communities, and in renewing and shaping the places where they live and work, secure the highest viable resource and energy efficiency and reduction in emissions.

- The generally 'suburban' low-density nature of development at Ebbsfleet may mitigate agains achievement of this objective.
- Both King's Cross and Stratford developments incorporate provision for resource and energy efficiency in terms of location relative to public transport, high density nature and inclusion of specific proposals for low energy use in building design.

CTRLs performance against Principles of Environmental Sustainability

CTRL was subject to considerable environmental scrutiny during the planning, appraisal and implementation process. Key features of this were:

- the CTRL Environmental Statement that accompanied the CTRL Bill set out how the full Environmental Impact was to be assessed and provided a baseline against which the project's final design and construction arrangements were judged;
- The CTRL Act was accompanied by a full *Environmental Impact Assessment (EIA)* that was considered by Parliament. The measures to preserve the environment along the CTRL route were detailed in the Environmental Minimum Requirement (EMRs). The promoter was obliged to adhere to the EMRs through the contract between the Government and LCR. The EMRs required the promoter to ensure that the environmental protection observed was no worse than the "baseline" standard set in the Environmental Statement. They cover landscape, ecological and heritage objectives, the control of noise and dust, minimisation of waste, protection of water and being a good neighbour during construction;
- the EMRs also provided for the establishment of a number of consultative forums including the annual High Level Forum, the Planning Forum and the Environment Forum;
- LCR's representatives were required produce an annual Environmental Report

Key environmental outcomes included:

- landscaping - 7,900,000 m3 of surplus excavated material re-used in landscape mitigation schemes.
- ecological mitigation - 1.2 million native trees planted, 230 ha of woodland created, 25 ha new woodland on translocated ancient woodland soils, 370 ha of grassland created, 80 ha of new wildflower meadow created, 40 km of hedgerows planted, 3 land bridges to act as wild-life corridors across the CTRL, 7 ponds created, 2 wetlands created
- ecology - ecological issues were integrated into the CTRL project from the outset (impacting both route selection and detailed design).
- cultural heritage - *t*he planning and construction of the CTRL had the largest archaeological investigation ever undertaken in the UK.
- n*oise, vibration and air quality - n*oise control was addressed through the use of earthworks or where this is not practicable, noise barriers. The monitoring of noise,

vibration and dust levels and requirement for contractors to obtain local authority consent for hours of work and construction methods were used to manage construction activities;
- c*ountryside restoration* - project commitment was to ensure that the 200 hectares of 'best and most versatile' agricultural land taken temporarily for construction was restored to its previous quality.
- countryside management schemes - in addition to agricultural restoration, two Countryside Management Schemes were established in CTRL Phase 1;

An analysis of the CTRL against principles of environmental sustainability conclude the following:

Environmental Sustainability Principle 1**:** Sustainable planning framework should conserve both the cultural heritage and natural resources, taking particular care to safeguard designations of national and international importance.

- CTRL planning and delivery made strenuous efforts to conserve natural and built heritage in both route planning and in relation to mitigation works.

Environmental Sustainability Principle 2: Reduce waste and environmental degradation:

- CTRL planning and delivery made strenuous efforts to minimise environmental degradation and to incorporate mitigation measures where this has occurred.

Environmental Sustainability Principle 3: Need for Parliamentary scrutiny and appraisal of sustainability (AoS), including strategic environmental assessment (SEA) - directed towards NPSs

- CTRL proposals (including EIA) were subject to parliamentary scrutiny and approval. However it is unclear whether CTRL has been subject to subsequent scrutiny and appraisal of sustainability (AoS), including strategic environmental assessment (SEA)

Environmental Sustainability Principle 4**:** The proposed provision for new development, its spatial distribution, location and design should be planned to limit carbon dioxide emissions

- the low-density nature of development at Ebbsfleet may mitigate against achievement of this objective. Since both King's Cross and Stratford developments incorporate energy efficiency in building and layout design it may be argued that this objective is being achieved. CTRL represents a more energy efficient and less polluting form of transport than road or air based modes. However, it can also be argued that:
  - the project effectively encourages more long distance (international) and commuter travel;
  - since the project retains a Parkway Station car park at Ebbsfleet, it may well encourage new car trips.
  - CTRL has had only limited impact on air traffic between London and continental Europe
  - CTRL has spawned/facilitated low-density development at Ebbsfleet through the inclusion of high speed domestic services.

Environmental Sustainability Principle 5: New development should be planned to minimise future vulnerability in a changing climate:

- Both CTRL and Thames Gateway could well be vulnerable to flood risk brought about by climate change: Both CTRL and Thames Gateway could well be vulnerable to flood risk brought about by climate change.

CTRLs performance against Principles of Economic Sustainability

Economic Sustainability Principle 1: Encourage economic development in a way that is compatible with environmental objectives

- A number of PHR and HLR interviewees note that the full economic (and other) benefits of CTRL have yet to be realised given:
  - the fact that hub developments associated with CTRL are still under development
  - high speed domestic services have yet to be implemented
- HLR respondents also note that the success of hub developments is not generally dependent upon the presence of CTRL (though domestic rather than international services are seen as a little more significant in this respect).
- concern expressed about the curtailing of international services at Ashford suggests that CTRL is seen as a catalyst for economic development.
- Linking CTRL with associated real estate at King's Cross, Stratford and Ebbsfleet has resulted in a significant inflow of private sector capital creating new jobs and floor space devoted to economic (commercial) uses.
- CTRL was positioned as a very significant means to stimulate economic development in the capital and Thames Gateway and thereby enhance/sustain London's position as the pre-eminent financial centre. The ability of CTRL to 'plug' the UK economy into that of the EU more firmly was consequently seen as a key factor in its initial promotion by government.
- Given that environmental matters were considered seriously at the route option appraisal stage (if not at the initial planning stage), as shown above, it may be argued that economic growth/development was encouraged to be broadly compatible with environmental objectives.

Economic Sustainability Principle 2: Economic growth to be supported by adequate public investment:

- CTRL was consistently positioned as a private sector-financed project. However, the 1997/98 rescue package by government committed significant public sector finances and risk to the project - indicating a willingness to provide adequate public investment. Public investment in Thames Gateway, however, appears both limited and poorly co-ordinated.

Economic Sustainability Principle 3: Need for speedier decisions on infrastructure projects that deliver key environmental, economic and social benefits:

The Royal Town Planning Institute (RTPI) Judging panel Observations on CTRL RTPI Planning Awards 2008: Planning approval process - adjudged to be a prime case of a major project which demonstrates the UK's ability to deliver on time and on budget. The government perceives there to be a significant problem in relation to the (slow) delivery of major infrastructure projects and proposes to address this through the preparation of National Policy Frameworks and establishment of the Infrastructure Planning Commisssion. Notwithstanding this, HLR and PHR interviewees note the importance of letting projects evolve in response to changing contextual influences - a 'time to breathe'.

CTRLs performance against Principles of Social Sustainability

Jobs associated with development stimulated by the Rail Link will largely represent a redistribution of economic activity in Kent and London rather than the creation of new economic activity. Interviewees suggest that efforts to alleviate project impacts were not focused on social issues – inclusion of mitigation requirements into CTRL Bill dealt mainly with successful landscaping and restoration – little to do with social impacts.

Social Sustainability Principle 1: Policies should seek to promote socially inclusive communities:

- Development proposals at King's Cross were criticised by some interviewees as effectively displacing local communities and businesses in favour of major new commercial development. At Ebbsfleet one of the major challenges (recognised by developers - PHR interviews) is the creation of an entirely new community that is seen to be socially inclusive in a fundamentally deprived area. Given that the development is still in the planning stage, it is clearly too early to tell whether social inclusion/cohesion is likely to be achieved. However, interviewees have understandably raised the concern that the occupants of new housing at Ebbsfleet are likely to be commuters who will have only limited engagement with the wider 'local' community.

Social Sustainability Principle 2: Policies should seek to secure access to jobs, housing, education, shopping, leisure and community facilities:

- CTRL is positioned as a significant catalyst for the regeneration of parts of London and the Thames Gateway and growth nodes in areas such as Ashford which in turn is intended to create significant new housing, employment, education, shopping and leisure/community facilities. These benefits are being realised at King's Cross and Stratford and are planned for Ebbsfleet. However, it is still too early to conclude that such initiatives will, in reality, secure access to such benefits. Note also comments above (PIEDA Report and HLR comments) regarding the marginal effectiveness of projects like CTRL to bring about real socio-economic benefits in the areas they serve.

Social Sustainability Principle 3: Need for improved public participation**:**

- More than 500 submissions were made to the planning authorities and environmental and highway agencies
- Formal and informal consultation, liaison with individual authorities, and a Planning Forum were set-up to reach route-wide agreement on key issues (an Environment Forum has performed a similar function for the environmental agencies).
- the CTRL sponsors provided a dedicated Community Relations team to provide a first point of contact with the public.
- RTPI Judging Panel Observations on CTRL - RTPI Planning Awards 2008 - Public engagement - the Judges concluded that public engagement had been successful for CTRL (especially that residents near St Pancras station had been brought into, and had influenced, decision making).
- early attempts at consultation in the mid-late 1980s were seen as naive and 'heavy handed' with the result that public reaction was universally hostile - the then project sponsors were seen to be ill-equipped to handle consultation;
- later consultation exercises were generally seen as much more 'professional' and useful, leading to rather less hostility on the part of the public. Both the promoters and affected local authorities played a key role in all consultation exercises - these groups consider that public consultation 'went well/smoothly'.

- However, the actual process must be seen against the background of the fact that both the sponsors and local authorities were already committed to backing the project by the time this later public consultation took place.
- There was general consensus amongst interviewees that there is a need to work more closely/build trust with stakeholders to keep them fully informed throughout the project - so as to identify/anticipate potential issues going forward that could otherwise jeopardize the planning and delivery process. However, there is little evidence to suggest that local communities were fully engaged, despite several comments suggest that stakeholders were kept well informed about progress on CTRL. There is an interesting comment from one consultant who noted that stakeholder/community concerns differed by location – i.e. NIMBYISM in Kent because of environmental concerns compared with ready acceptance of CTRL and associated developments in London because of their more benign

CTRLs performance against Principles of Institutional Sustainability

Streamlined procedures for infrastructure projects of national significance to be introduced, such as National Policy Statements (NPSs) and the Infrastructure Planning Commission (IPC): the organisational arrangements associated with the preparation, implementation and operation of the CTRL are highly complex, involving a large number of public and private sector interests. It may be argued that this was necessarily the case given the high profile/high risk nature of the project, the breadth and depth of sectoral interests involved and also the lengthy period required to plan and deliver the project. However, this multiplicity of stakeholder groups/bodies clearly posed significant organisational challenges and led to the project having to respond to different agendas at different stages in its evolution.

Post-project, there is little to suggest the availability of any one single organisation (or organisational structure) that has been established to consider how best to retrofit CTRL so as to serve the wider SDV agenda. Rather, the current situation seems to be that the railway operators have been left to run the railway so as to maximise returns. This would seem to parallel the current lack of a coherent organisational structure capable of effectively pursuing the 'sustainable' development of Thames Gateway.

PHR and HLR interviewees suggest:

- high staff turnover in all agencies associated with the project was seen as detrimental, whilst (conversely) continuity in key positions enables consistent and speedy decision-making;
- poor cross-functional sharing of appropriate information/data *and ideas* (silos) was identified both within and between organisations and networks; the project was impacted by too many institutions with unclear remits and responsibilities, resulting in a lack of focus and real purpose.

Lessons from Test 2 concerning Sustainable Development Challenges

SDVs as frameworks for the planning and appraisal of MUTPs: SDVs have the potential to provide a significantly better framework for judging the 'success' of MUTPs. However, at present SDVs are insufficiently developed as operationalised guidance to offer such a framework. Therefore, SDV frameworks for MUTPs need to be developed further so as to provide guidance that is:

- clear, consistent and applicable to all parties in MUTP planning and delivery (making clear all respective roles and responsibilities)

- capable of being operationalised by MUTP planning and delivery agents so as to influence decision-making more directly

SDVs require long-term evaluation cycles which must be supported by a sustainable institutional framework (it is questionable whether SDVs can expect to be delivered in the absence of institutions with well developed 'institutional memory'). Other barriers to the application of SDVs as planning and appraisal tools include:

- the fragmented nature of the institutional framework charged with the pursuit of sustainability at the local/regional level through major projects, policies, plans and programmes - in particular, the different aspects/dimensions of sustainability are currently being treated in isolation (and divorced from policy and spatial planning);
- professional silos and currently entrenched project management thinking - the multi-dimensional nature of 'sustainability' demands an holistic view of the complexities associated with MUTPs and the developments/initiatives with which they are associated the 'culture' of certain central government ministries (especially the Treasury - 'the Treasury does not do vision').

The role of sustainability concerns in the MUTP planning, appraisal and delivery process: Sustainability concerns should play a key role in the initial project conception, planning and appraisal process - i.e.:

- to determine the need and justification for the project
- to determine alignments, associated developments and technical specifications etc. that will enhance the sustainability profile of the project and the areas on which it impacts

Sustainability concerns associated with MUTPs should, by virtue of their size, cost and potential impact, be the subject of scrutiny at the highest level (in the UK, by parliament).

Retrofitting strategies: There would seem to be a distinct lack of clarity on the part of stakeholders as to how MUTPs and the development/regeneration projects they spawn might be planned and/or retrofitted so as to better achieve key sustainability objectives.

Regeneration & restructuring: MUTPs can clearly act as very significant catalysts and/or agents of change in relation to regeneration and restructuring. However, the mere introduction of an MUTP to a target area is unlikely to yield the full range of potential benefits. Thus, very careful thought needs to be given to the formulation of visions, plans, programmes and institutional frameworks that serve to provide a focus attention on the mutually beneficial/symbiotic nature of the MUTP and its associated developments - for example by providing a vision that offers a basis for broad cross-sector consensus or by tying the MUTP directly to the target area in a very direct and functional way (such as happened with CTRL).

Social sustainability: MUTPs that spawn significant new suburban development may not be a positive influence on social cohesion - though community building could never be justifiably a realistic objective for MUTPs. MUTPs that spawn significant new suburban development may not be a positive influence on social cohesion - though community building could never be justifiably a realistic objective for MUTPs.

Test 3: The Treatment of Risk, Uncertainty, Complexity and Context (RUCC) during MUTP decision making

The treatment of RUCC during the CTRL project is assessed against the background of specific themes drawn from the OMEGA 1 Project as follows:

- Theme 1: Importance of Context
- Theme 2: Strategy
- Theme 3: Projects as Closed/Open Systems
- Theme 4: Governance, Regulatory Frameworks and Enforcement
- Theme 5: Relevant Project Information
- Theme 6: Tools/Techniques for Coping with Risk, Uncertainty and Complexity
- Theme 7: Project Stakeholders
- Theme 8: Trust and Transparency
- Theme 9: Project Lesson Learning/Sharing

'Context' may be defined in two ways: the discourse that surrounds a language unit and helps to determine its interpretation, or the set of facts or circumstances that surround a situation or event; "the historical context". In the research investigation undertaken here we are primarily (but not exclusively) concerned with the latter, particularly the temporal, locational, cultural, institutional and political dimensions of this kind of context.

The analysis of the CTRLs treatment of Risk, Uncertainty and Complexity for Test 3 is extensive. Presented here is a selection of lessons derived from the analysis findings grouped under each of the 9 themes identified above.

Theme 1 - Context

Lesson 1.1: Changing contextual elements contribute to the evolving nature of MUTPs (this was especially illustrated in the case of the CTRL). The planning, appraisal and delivery process of such projects respond to the moulding/sometimes destabilising influences of changing contextual elements over time.

Lesson 1.2: This makes, context awareness and context sensitivity on the part of MUTP planning and delivery bodies especially significant if the projects that are ultimately delivered are to be deemed 'successful'. It is important to appreciate here that each context has its own set of accompanying values which may shift either gradually, or dramatically over time as new forces/knowledge come to light.

Lesson 1.3: Rarely, do all the contextual values moulding judgements remain constant. On this basis, we judge that:

- 'project success' can ultimately *only* realistically be judged in light of sound knowledge of the context that prevailed at the time the project was conceived, planned, appraised and implemented; and
- 'successful projects' are likely to be those that are characterised by planning, appraisal and delivery agents that possess acute awareness of the importance of context *throughout* different stages of the project lifecycle.
- the most significant generic contextual elements for MUTPs according to interviewee responses are: stakeholder perspectives/motives/agendas at the time of decision-making; political context; financial context

Lesson 1.4: The degree of political influence/support and commitment to a MUTP can become a key contextual factor that may ultimately determine whether or not it is launched.

- Political influence/support is often seen as the critical contextual factor in all aspects of MUTP planning, appraisal and delivery, and a clear pre-requisite to what is to be seen as the successful backing/ launch of a project. This is somewhat inevitable given that MUTPs are usually costly, require some form of central government backing, are

potentially controversial and have wide ranging impacts over a broad area etc.

- Political patronage in the form of a well respected and influential champion is also seen as a key asset for MUTP project sponsors, planners and delivery agents (particularity in the planning/appraisal stage). Champions fulfill a number of important roles as foci - including clarifying/setting/adjusting project objectives, establishing project credibility and mandate for project teams, consensus building and networking. However maintaining political champions throughout the life of the project is difficult to achieve due to the long planning/delivery times associated with MUTPs and the relatively short terms of office for politicians (in the UK anyway).

Lesson 1.5: The tendency towards 'short-term ism' on the part of politicians and many civil servants (as part of their 'real politik' practices) suggests an inability and lack of desire on their part to effectively scan future scenarios.

It has been suggested that the combined CTRL-Thames Gateway vision was seen as a vehicle in some instances to promote political agendas by (for example) encouraging the regeneration of areas certain areas rather than others, or having the route alignment avoiding certain areas as opposed to others with party political gain in mind.

Theme 2 - strategy

Lesson 2.1: MUTPs are always associated with tensions between 'vision' led outlooks and the political pragmatism of the day. Many politicians are uncomfortable with overtly backing an explicit project 'vision' on the basis that it may not be deliverable and thus backfire on their political careers. In the case of the CTRL, the vision was provided by the politicians (Heseltine and Prescott) across administrations, and prevailed over political pragmatism.

Lesson 2.2: It is *impossible* to identify every facet of a project that needs to be reflected in an overarching MUTP vision and strategy at the outset. However the CTRL demonstrates that having a shared vision about project objectives and deliverables *can* become a unifying force within and between actors that helps to address issues of uncertainty - inasmuch as this can become the basis for commitments by parties responsible for delivering key parts of the project/programme.

Lesson 2.3: National prestige associated with MUTPs can play a major role in their development. Early imperatives to deliver 'least-cost' solutions can ultimately be overridden by concerns over national prestige. This was definitely the case when the CTRL was unfavorably compared with its counterpart in France - where high speed TGVs were already operating.

Theme 3 - Projects as Open/Closed Systems

Lesson 3.1: While MUTPs need to be treated essentially as closed systems at the time of construction (delivery) they need to be seen as open systems at the time of planning, appraisal and monitoring: The CTRL was *initially* treated as a closed system for its financial (demand) modelling and appraisal as part of the business case assembly. It was *subsequently* treated as an open system in terms of later accommodating broader elements that were ultimately a major part of the justification of the project.

Theme 4 - Regulatory Frameworks and Governance

Lesson 4.1: Considerable risk and uncertainty regarding the extraction of benefits from MUTPs can be spawned by the present UK planning system, for

example:

- uneasy bargaining atmosphere initially in view of the many uncertainties at the start of a project
- a lack of flexibility on the part of the public sector in light of prevailing (planning) rules and regulations;
- a lack of consistency on the part of the public sector in application of these rules and regulations;
- applications to real estate projects which take a long period of time to complete (which in turn make it difficult to foresee future needs where 8.106 is being employed);
- an application to projects which span several local authority areas; and
- a clear need for mutual understanding of each parties' constraints and opportunities.

In the case of the CTRL, the last was seen as a must in moving relationships forward. The Hybrid Bill process was seen to reduce the risk of delays (rigorous and fast legal procedures were adopted - no local inquiry into CTRL meant objections were handled by a select committee) however the planning instruments/ processes are seen to be more-or-less adequate. The most critical factor is the bargaining skills of public sector representatives.

Theme 5 - Relevant Project Information

Lesson 5.1: The availability of high quality project information potentially assists in the ability to identify/anticipate moments in time in project planning and implementation when circumstances are ripe for key decisions to be made (often referred to as points in time when 'the planets are correctly aligned'). Such opportunities are not always easy to perceive and require constant scanning of existing and emergent contextual elements.

Lesson: 5.2: Regular and sustained monitoring of contextual matters that are likely to influence MUTP planning, appraisal and delivery is critical. This requires extensive oversight of all inter-related and inter- disciplinary matters associated with contextual influences and project impacts. Project planners and delivery agents, in particular, need to be aware that informal monitoring of contextual matters (notably politics) is often a key activity that takes place through well established (informal) relationships and networks as part of consensus building.

Theme 6 – Tools and techniques for Coping with RUC

Lesson 6.1: Current project appraisal tools, methods and processes are perceived to be *fundamentally flawed.* Therefore, dependence upon these alone is unlikely to deliver a successful MUTP.

The key issues/problems associated with the current appraisal and evaluation 'toolbox' include:

- the inability to identify, quantify and 'weight' all relevant factors that determine/influence project outcomes with any real degree of precision - e.g. 'costs' are perceived to be more tangible than (future) 'benefits';
- the lack of attention to future contextual elements/conditions that are likely to impact on project outcome (lack of scenario planning/testing)s;
- the need to understand that (particularly) political influence is likely to override the outputs from the use of traditional tools, methods and processes and that 'gut feeling' and the application of experience are perceived to be more important;
- the perception that decision-makers are often told 'what they want to hear' in terms of model outputs that purport to represent project achievements;

- the shortcomings associated with the current toolbox are not adequately explained to decision makers;
- the inconsistent treatment, mainly by sponsors/proponents of MUTPs such as CTRL, as projects that are both 'open and closed systems' and as both 'commodities and services' at different stages in their lifecycle - initially as closed systems and commodities so as to facilitate demand modelling and business case assembly and later as open systems and services when there is a need to include broader objectives capable of adequately justifying the project when faced with apparent criticism that demand forecasts ultimately prove to be incorrect.

Theme 7 - Project Stakeholders

Lesson 7.1: Stakeholder engagement presents opportunities to:

- identify those potential objections that can actually lead to improvements in project concept and design;
- produce decisions that are fast, transparent, inclusive, robust and defensible.

Lesson 7.2: Consensus building is seen as critically important at the project planning stage. This is particularly significant at the highest political levels given that the size/cost/potential impacts of MUTPs make it imperative that key formative decisions are taken at the heart of government.

Theme 8 - Trust, Consensus Building, Co-Operation And Lobbying

Lesson 8.1: The positioning of MUTPs as agents of change may well require both considerable faith and strong advocacy skills amongst key political decision makers.

Lesson 8.2: The value of 'working together' and the close relationship with networking and trust is seen as significant by MUTP stakeholders, particularly in regard to overcoming 'silo thinking'.

- stakeholders see consensus-building amongst key political and other influential decision-makers as critically important, especially at the project conception, planning and appraisal stages - i.e. before the project has gathered sufficient 'momentum' to have a life of its own.
- thereafter, consensus building may become less significant when the project moves into its implementation stages. However, even at these later stages in the project lifecycle, consensus-building can assume significance when new initiatives or other important changes to the overall specification or objectives of the project are being contemplated.
- consensus-building requires 'trust' and strong lobbying skills to demonstrate the reality of benefits accruing from mutual support. Trust and transparency are closely linked.
- the preparation and delivery of comprehensive, fully-integrated plans/programmes is highly dependent on transparency within and between involved agencies in regard to the availability of up-to-date, accurate input data. This requires a high degree of co-operation and trust.

Theme 9 - Project Lesson Learning/Sharing

Lesson 9.1: There is a critical need for institutional learning as a means to discern 'good practice' based on relevant project experience - always provided that this is applied

in a context sensitive manner.

Despite there being little evidence of institutional learning on the part of promoters and other stakeholders (notwithstanding the apparent abundance of relevant knowledge and experience amongst international consultants and responsible organisations in continental Europe), interviewees generally noted the critical need for such learning - always provided it is applied in a context sensitive manner.

CONCLUSION

The study of the CTRL project has yielded a number of key insights and lessons for decision makers concerning the planning, appraisal and delivery of MUTPS. The outputs from this paper must necessarily be considered as somewhat *tentative* however, in that they will reflect findings relating to just one of the 30 Case Studies being conducted. Additional inputs will clearly be required from other Case Studies before meaningful generic and context-specific lessons and guidelines can be properly formulated.

These additional inputs will be derived from full Case Study and Country-based syntheses of findings using the analysis and synthesis framework mentioned above. The OMEGA Centre is due to start the synthesis stage of the research project in the second half of 2010. This work had to be preceded by considerable methodology development not only in relation to the hypothesis-led research phase, but also in anticipation of the development of a comparative analysis and synthesis.

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