OMEGA Seminar Series

Megaprojects: the bigger picture.
A Preliminary Review of Selected Findings from the VREF Centre of Excellence Research Programme at the OMEGA Centre, UCL

Prof. Harry T. Dimitriou, Philip Wright and John Ward

omega centre
Centre for Mega Projects in Transport and Development

Contents

- Overview of OMEGA Study aims, main research questions and study methodology

- Presentation of a series of key observations and lessons against four selected principal findings from the OMEGA study:
    - Need to treat MUTPs as 'agents of change'
    - MUTPs should be treated as 'open systems'
    - MUTPs as 'organic' phenomena
    - Need for proper framing of MUTPs

omega centre
Centre for Mega Projects in Transport and Development

Study aims & main research questions

Overall research questions:

- Establish *what constitutes a 'successful' mega urban transport project* (MUTP)

- Ascertain how well *risk, uncertainty and complexity have been treated in the planning, appraisal and evaluation of such projects*

- Establish the *importance of context* in making judgements regarding above

Clarification questions:

- Decide what constitutes a MUTP - what are its boundaries and typologies?

- Establish which stakeholder perspectives are to be investigated & how

- Ascertain how one identifies generic & context-specific judgements of success and the lessons that can be drawn from this.

Key Study Outputs

- to understand the extent to which case study MUTPs meet planned objectives and contribute to sustainable development visions

- to provide generic and context-specific insights into how and why these MUTPs perform as they do

- to provide insights into the treatment of risk, uncertainty, complexity and context in policy-making, planning and management of MUTPs - and how these differ from one regional or national context to another

- to provide insights into whether current planning, appraisal and evaluation methods in MUTP studies are suited to the demands of the 21st century

- presented as 'lessons' for key stakeholders – with particular emphasis on decision-makers responsible for MUTP planning, appraisal and delivery.

Research programme study methodology
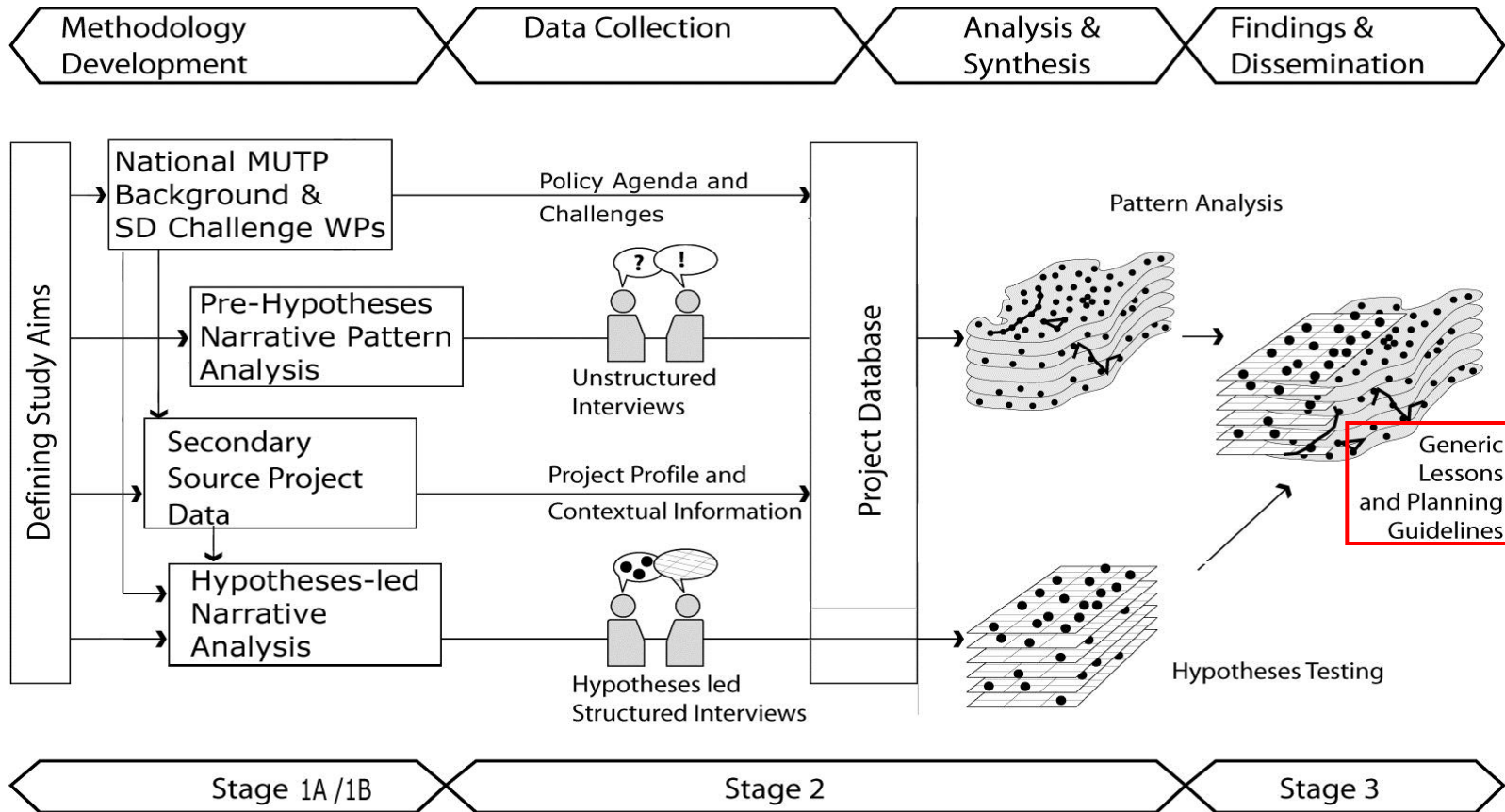
Partners and their Case Studies

Melbourne City Link (AUS)

Perth Metro Rail (AUS)

Sydney Harbour Tunnel (AUS)

L2 Marseille (FR)

Paris Meteor (FR)

Millau Viaduct (FR)

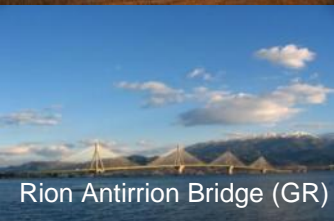TGV Mediterrannee (FR)

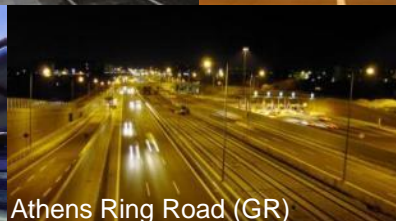Cologne-Frankfurt HST

Tiergarten Tunnel (DE)

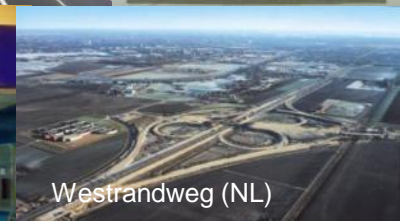BAB 20 Autobahn (DE)

CTRL (UK)

Rion Antirrion Bridge (GR)

Athens Metro (GR)

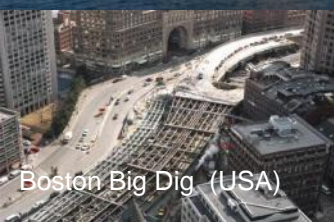Athens Ring Road (GR)

Hong Kong West Rail (HK)

Westrandweg (NL)

Boston Big Dig (USA)

Southern Link (SE)
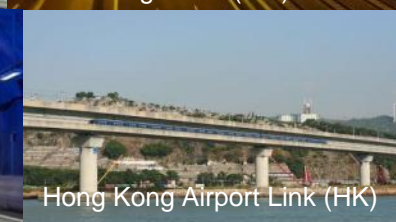
Hong Kong Airport Link (HK)

Shinkansen HSR (JP)

M6 Toll (UK)

Shuto Expressway (JP)

HSL – Zuid (NL)

Randstadrail (NL)

Linimo Aichi (JP)

Western HarbourTunnel (HK)

Jubilee Line Extension (UK)

Alameda Rail Corridor (USA)

New York Air Train (USA)

Stockholm Air Link (SE)

Øresund Link (SE)

Key observations and lessons

Presentation of a series of key observations and lessons against four selected principal findings from the OMEGA study:

- Need to treat MUTPs as 'agents of change'
- MUTPs should be treated as 'open systems'
- MUTPs as 'organic' phenomena
- Need for proper framing of MUTPs

Need to treat MUTPs as 'agents of change'

Overview of action required

> **There is a need for a change of mind-set concerning the way in which MUTPs are positioned, framed, planned**

- This is so because MUTPs frequently become (either by design or by virtue of the nature and extent of their impacts) 'strategic change agents' that have multiple spatial, economic, environmental and other implications.

- Indeed, we have observed that the potential for MUTPs to change the context into which they are placed is often under appreciated by decision-makers, and this can result in unexpected/unintended consequences which may be beneficial or problematic.

Need to treat MUTPs as 'agents of change'

Against this background it is clear that MUTP planning and delivery agents need to be clear about:

- whether an MUTP is expected to function as a 'strategic agent of change', and if so, in what way;

- what sort of territorial, sectoral or other type of change it is expected to achieve;

- which forces of change they are trying to influence or harness;

- the relationship between 'strategy' and forces of change affecting sustainable growth, especially economic growth ambitions;

- the timeframe over which such change might be expected given prevailing/forecast/scenario contextual conditions;

- the type of resources (financial, institutional, personnel, legal, etc.) and policy frameworks that are likely to be needed over what period; and

- what are the potential 'project' boundaries against which to judge the project's 'success'.

omega centre
Centre for Mega Projects in Transport and Development

Need to treat MUTPs as 'agents of change'

- It is here that it becomes **very** apparent that *many* such projects are *not* mega projects but 'meta projects' (i.e., programmes of a combination of mega projects) that culminate over time and different contexts as part of an emerging new strategy/plan as an 'agent of change'.

- Here, any new emergent 'vision' needs to be thoroughly stress-tested and future-proofed through scenario testing, involving key MUTP stakeholders, so as to postulate potential changes in contextual influences over different time periods.

MUTPs should be treated as 'open systems'

Overview of action required

Planning, appraisal and delivery agents need to recognise that MUTPs are phenomena that require 'open systems' treatment in light of their complex and fluid relationship with the areas/sectors that they impact upon.

- Such treatment needs to be reflected in the types of systems and processes that are established for the purposes of (particularly) MUTP planning and appraisal so as to enable their potential interaction with the context into which they are to be placed to be seen as somewhat exploratory – thereby allowing for unanticipated outcomes to be better discerned and accepted as part of an 'emergent order'.

omega centre
Centre for Mega Projects in Transport and Development

MUTPs should be treated as 'open systems'

- the above statement often means that there is a need to acknowledge that many aspects of MUTP planning, appraisal and delivery processes are difficult to identify precisely, much less quantify.

- This holds true **throughout** the project lifecycle because of the complexities associated with open systems treatment and the fact that MUTPs are themselves complex (often innovative) systems which interact in multiple ways over time with increasingly complex contexts.

- It is thus hardly surprising that potential MUTP impacts are difficult to identify at the outset and may only emerge over time.

MUTPs should be treated as 'open systems'

Against this background it is suggested that:

- an 'open system' approach is required for all aspects of planning and appraisal of those MUTPs considered to be complex and/or capable of significant 'agent of change' functions/impacts;

- important external contextual influences that can fundamentally impact on planning, appraisal, delivery need to be identified and incorporated within plans of action and strategies;

- a 'closed system' approach will be necessary for business case assembly but the fact that this has distinct limitations due to the existence of manifold (and changing) contextual influences needs to be appreciated;

- a 'closed system' approach will be needed once the project is deemed ready for implementation – this will require very careful scrutiny as once a project is 'frozen' (locked-in) for construction purposes the subsequent management of RUCC can be extremely problematical if significant changes are made which can make retrofitting extremely expensive; and

- effective and early stakeholder consultation represents an important aid to effective decision-making rather than a hindrance in taking account of perhaps unforeseen developments

omega centre
Centre for Mega Projects in Transport and Development

MUTPs as 'organic' phenomena

Overview of action required

> **MUTPs are seen to be 'organic' phenomena (rather than engineering artefacts) that often need 'time to breathe' (a period of reflection) in their preparation which can present special opportunities that need to be seized and exploited by key decision-makers.**

- Given the organic characteristics of MUTP developments and the 'time to breathe' they often require, the long gestation period that is commonly experienced is not necessarily bad, while fast-tracking can prove lethal if insufficient time has been allowed to absorb/deal with the numerous issues they need to address.

- It is most important, however, that this 'time to breathe' is well managed and not wasted so as to ensure a genuine re-examination of past decisions and future direction involving key MUTP stakeholders.

MUTPs as 'organic' phenomena

MUTP planning, appraisal and delivery agents need to acknowledge the evolutionary nature of many/most MUTPs (especially those with clear agent of change roles/functions and impacts), and in so doing:

- recognise that many MUTPs and the plans and programmes they spawn will often need to evolve in response to changing contextual influences that exert themselves over the (often lengthy) project lifecycle;

- this requires frequent, and very deliberate, opportunities to re-assess and debate the very raison d'etre of the project and its attendant plans and programmes in conjunction with all key stakeholders. Such re-assessments should encompass a re-examination (and monitoring) of all key project objectives and introduce the ability to more readily incorporate newly 'emerging objectives' that were hitherto unanticipated but which become the new yardsticks for assessing 'success';

- more carefully manage the 'time to breathe' periods (where they exist) in order to avoid the misuse of resources and missing potentially precious opportunities for beneficial change;

MUTPs as 'organic' phenomena

- acknowledge that such opportunities may present themselves when contextual influences are 'right' (i.e., when the 'planets are aligned') to take decisive action – thereby making constant context scanning of potential paramount importance.

- similarly, acknowledge that the ability to control every aspect of project planning and delivery is often fundamentally undermined by 'happenstance' (unforeseen circumstances) and that 'crisis management' in response to such circumstances is not only a highly laudable response it also has an expertise that warrants greater appreciation/respect; and

- prepare flexible, robust and adaptable strategies that are able to address and respond to the complexities that MUTPs pose, especially in relation to their interaction with the areas and sectors they impact upon.

- Such strategies need to acknowledge the seeming 'inevitability' of unexpected occurrences/decisions/outcomes arising from both within and outside the project.

omega centre
Centre for Mega Projects in Transport and Development

Need for proper framing of MUTPs

Overview of action required

> **The changing demands placed on MUTPs can make it excruciatingly difficult to judge their successes and failures. This makes it imperative to ensure proper project framing so as to enable their appraisal to be based upon a fair and transparent foundation.**

- At present, the most common criteria employed for judging project 'success' are those associated with completing projects on time/on budget/as per specifications commonly known as the 'iron triangle' criteria of project management.

- However, findings from the OMEGA research programme suggests that such criteria are capable of *only* providing a partial (albeit important) basis for such judgements with particular relevance to construction and particular stakeholders.

Need for proper framing of MUTPs

- Moreover, the research suggests that to make a sound judgement about a project's 'success' or 'failure' it is critically important to understand contextual influences that prevailed at the time the MUTP was conceived, planned, appraised and implemented.

- On top of this it is considered that because many/most projects evolve in some way over time, they need to be treated as dynamic phenomena whereby yesterday's 'failures' can in some instances become tomorrow's 'successes' (and vice versa).

- Proper project framing also requires careful thought to be given to the nature and clarity of MUTP visions, goals and objectives.

Need for proper framing of MUTPs

The lessons presented by the study suggest that (inter alia):

* there should be a clear early statement of MUTP roles, goals, objectives, key assumptions, appraisal criteria and anticipated impacts which need to be disseminated to (and thoroughly discussed with) impacted key stakeholders;

* however, it should be acknowledged that having such clarity may be positively harmful if this is accompanied by a resistance to change in the face of fluid contextual influences and the consequent need to accommodate emergent objectives; and

* MUTP objectives are often insufficiently developed at the outset in terms of reflecting the degree of spatial/ sectoral impact that they may have.

Need for proper framing of MUTPs

- In addition, OMEGA research programme findings suggest that MUTP stakeholders and stakeholder groups not only have fundamentally different expectations of the roles/functions and impacts of MUTPs (despite the publication of official project objectives) but also that their perceptions of 'success or failure' are frequently highly individual and may be based on a particular aspect/component of a project or an emotional responses to it.

- Yet, most stakeholders acknowledge that MUTP objectives (original and emergent) should provide a sound basis on which to appraise the performance and achievements of such projects in a holistic, clear and transparent manner.

Need for proper framing of MUTPs

In light of the above it is considered that there is a clear need to acknowledge that sound judgement about the 'success' of MUTP planning, appraisal and delivery is more likely to be achieved when projects are presented to key decision-makers in a manner that lays out all of the key financial and non-financial costs and benefits in a transparent way against a policy framework that assists the setting of priorities and makes trade-offs among different project objectives and stakeholder interests - simultaneously highlighting those aspects of the project and strategy that are:

- subject to considerable uncertainty - both now and over time - due to changing contextual influences;

- dependent upon the parallel implementation of attendant initiatives;

omega centre
Centre for Mega Projects in Transport and Development

Need for proper framing of MUTPs

- likely to require short-term decisions so as to 'fix' particularly fundamental strategy components. In parallel, there will be a need to identify those strategy components that may be allowed to evolve over time; and

- responses to particular MUTP stakeholder visions and/or lobbying.

As part of this process it should be acknowledged that the achievement of time, cost and specification of objectives, though important, does not necessarily represent the prime raison d'etre for undertaking the project.

Contact Details

Harry Dimitriou
h.dimitriou@ucl.ac.uk

Phil Wright
philip.wright@ucl.ac.uk

John Ward
Eric.ward@ucl.ac.uk