



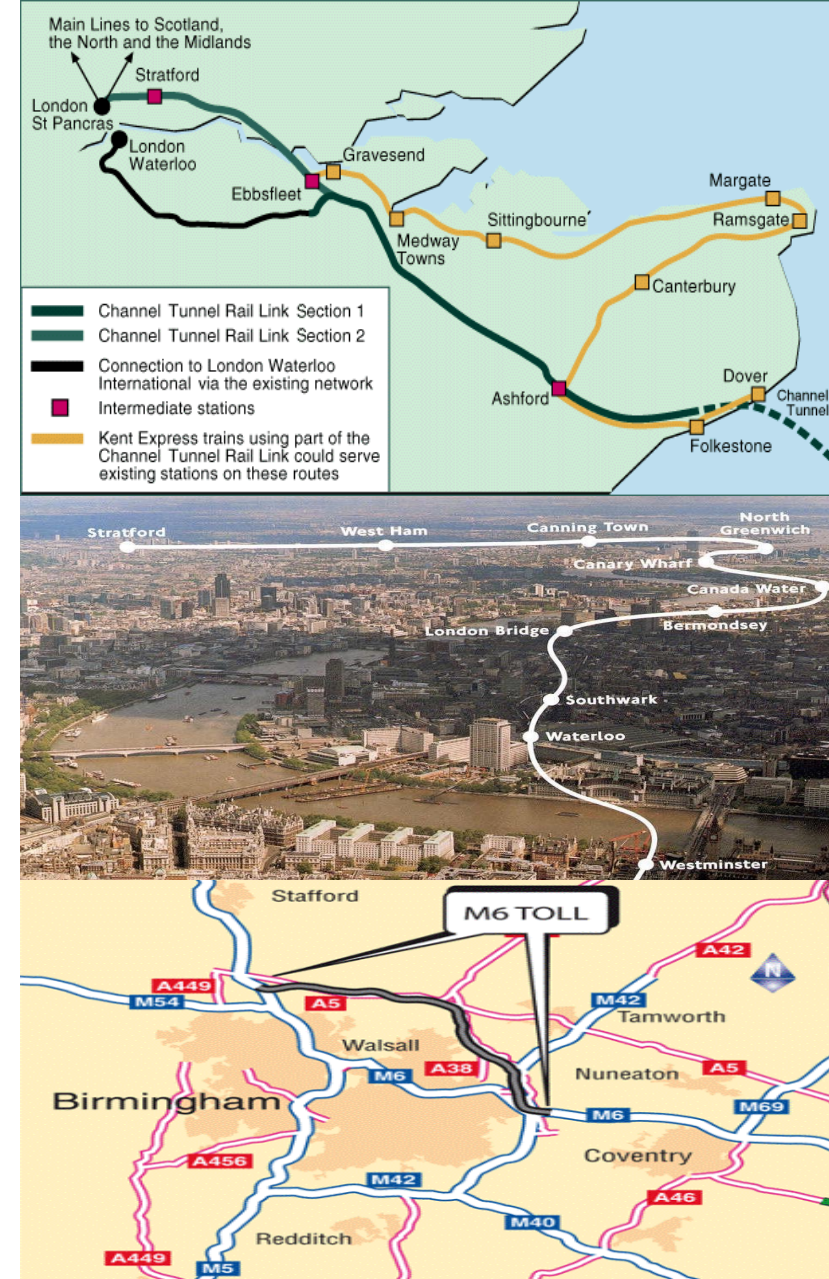
Decision Making in the Planning, Appraisal and Delivery of Mega Urban Transport Projects: OMEGA Research Programme Lessons from CTRL, JLE and Other International Rail Projects.

Harry T. Dimitriou, E. John Ward and Phil Wright
OMEGA Centre
University College London

Guest Lecture Series: 2012-13
Department of Real Estate and Construction
Faculty of Architecture
The University of Hong Kong
17th February 2012

1. Content

- **Overview of OMEGA Study aims, main research questions and study methodology**
- **Selected findings drawn from UK case studies – Channel Tunnel Rail Link (CTRL); Jubilee Line Extension (JLE); M6 Toll Road.**



2. 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

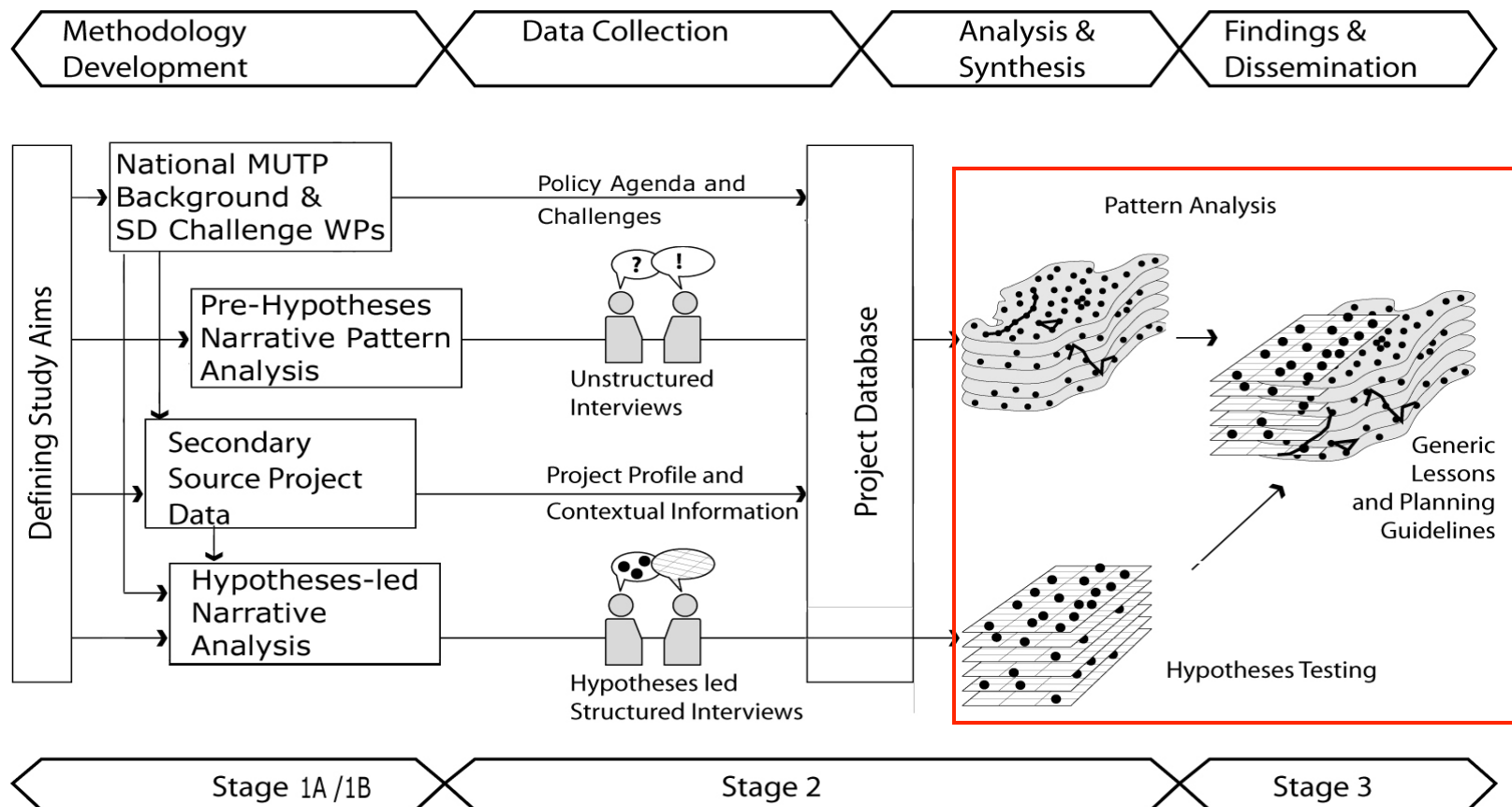
❑ Clarification questions:

- 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.

3. Key study outputs

- ☐ Appreciation of extent to which case study MUTPs meet planned objectives and contribute to sustainable development visions
- ☐ Provision of generic and context-specific insights into how and why these MUTPs perform as they do
- ☐ 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
- ☐ Insights into whether current planning, appraisal and evaluation methods in MUTP studies are suited to the demands of the 21st century
- ☐ 'Lessons' for key project stakeholders – with particular emphasis on decision-makers responsible for MUTP planning, appraisal and delivery.

4. Research study methodology



5. Case study research methods

❑ **Consistently applied to 30 Case Studies:**

- 18 in Europe (3 each in France, Germany, Greece, Holland, Sweden, UK),
- 6 in Asia (3 each in Japan and Hong Kong),
- 3 in Australia, and
- 3 in USA.

❑ **Three main data sources:**

- **Project Profiles** (secondary sources): key project characteristics and project timelines.
- **Pre-hypothesis investigations**: naïve face-to-face interviews with a diverse range of 10-15 key stakeholders, emphasis on 'experience-sharing' and employing Narrative Pattern Analysis.
- **Hypothesis-led investigations**: structured interviews with diverse range of 10-15 key stakeholders. Key research questions and CTRL-based hypotheses.

6. Key findings from UK case studies

- ❑ treatment of risk, uncertainty and complexity,
- ❑ importance of 'context',
- ❑ project appraisal approaches, tools and methods,
- ❑ treatment of sustainable development visions (SDVs), and
- ❑ project 'success' and project objectives.

7. Treatment of risk, uncertainty & complexity

□ Clarity of visions/objectives and RUC

- Relevance of availability of clear visions at the commencement of project planning and delivery is **not** *always* seen as being a means to mitigate risk
- Would clear and well articulated visions objectives at the outset have made matters simpler (CTRL)?

"No, because if there had been a vision it would have been counter-cultural and so the press and opposition would have undermined it. The vision would have affected more money, so it would have been open to criticism by the economists.....the Treasury would have briefed its friends. There would have been marginal seats affected, the opposition trying to win or hold these seats would have been against it. The media would have said 'its expensive and there is no payback, there are other ways' – so the whole thing would have been eaten into. Whatever this country does (in terms of visions) you can be sure the rats will get at it!"

□ Time to ‘breath’

- Many projects need to be given time to ‘evolve’ in response to changing contextual elements (e.g. CTRL & JLE), suggesting that fast-tracking of MUTPs is not always advisable.
- MUTPs found to be organic, evolving phenomena rather than merely mechanic static engineering structures.
- The ‘time to breathe’ requirement appears particularly pertinent for those ‘complex’ projects characterized by multiple interfaces with the areas they serve/traverse; and agglomeration/secondary objectives associated with territorial restructuring/regeneration etc.
- “Simpler’ projects with simpler objectives (e.g. M6 Toll Road) – possessing clear project objectives at the outset and are seen to require much less time to ‘evolve’ and offer effective means to mitigate risks from interplay between different stakeholder agendas & contexts.

□ Pace of Change

- Majority of interviewees considered 21st Century is characterized by a faster pace of change, resulting in significantly greater RUC in planning, appraisal and delivery tasks of MUTPs
- This suggests MUTPs require:
 - enhanced competencies *in the treatment of these fields*;
 - adoption of a broader holistic view to project planning, appraisal and delivery processes and enhanced political/tactical awareness;
 - better understanding of the potential influences associated with prevailing and emerging future *contexts*;
 - need to identify & plan for *contextual changes brought about by MUTPs*;
 - need to introduce planning and implementation strategies and programmes that are *robust and adaptable* in face of changing needs/ demands and contexts;
 - employment of scenario building and testing to discern impacts of future contextual influences on project planning and delivery; and
 - need for *greater and earlier stakeholder involvement* in the planning and delivery process and identification of emerging/changing stakeholder motives and agendas, with particular emphasis of introducing public consultation exercises at early planning phase of project.

❑ Role of politics

- **Project planning periods for MUTPs are often highly politicized** which can make them be seen as risky ventures:
 - **In case of CTRL:** project elements such as regeneration initiatives were 'bolted-on' in response to highly effective political lobbying;
 - **In case of M6 Toll Road:** the decision to pursue project as a PFI was hardly questioned as a result of prevailing political mantras; and
 - **In case of JLE:** politics made the project 'happen' sooner than technocrats would have otherwise delivered the project in face of imperatives to meet the Millennium Dome deadline (but at higher cost).
- **Consensus building** seen to be critically important at the project planning stage as a means to mitigate risk and share 'vision.'
- **Politician project champions** deemed to be highly advantageous. Such persons are typically very astute consensus builders and have a fine-tuned awareness of risk and context.

- **Quality of business/government networks and interfaces** seen to provide important (informal) bases for assessing risk:
 - **In case of CTRL:** 1997/98 government had little option but to transfer much of the financial risk associated with CTRL back to the public sector so as to ensure project would not 'fail' or stall. This was based on political risk considerations rather financial risk concerns - there was sufficient political consensus/momentum for this.
 - **In case of M6 Toll Road:** sufficient political will to seek to mitigate the risks associated with this flagship/prototype PFI was created by providing favourable financial conditions for the concession (including a very lengthy concession period of 50+ years).
 - **In case of JLE:** Government was keen to support the project which reinforced two of the Thatcher government's policies (namely: redevelopment and regeneration of Docklands and the promotion of private sector involvement in such public projects). These positions were sustained by the New Labour administrations which followed.

❑ Statutory processes & impact on risk and uncertainty

- **Statutory processes** *can* be means to mitigate and increase risk:
 - **In case of CTRL:** the Hybrid Bill process for its approval was seen to reduce risk of delays - rigorous and fast legal procedures were adopted and no local inquiry included into the project which meant that objections were handled by a select committee.
 - **In case of JLE:** the Bill was seen as a way to mitigate risks from project objectors.
 - **In case of M6 Toll Road:** the public inquiry system is seen as flawed by stakeholders. Here the perception was that most key decisions had *already* been taken by the time the PI took place; and/or the PI just prolonged the period of risk and uncertainty.

8. How important is context?

□ Contextual forces influencing pivotal decisions

- **In case of CTRL:**

- original decision to pursue project through private financing – was a product of the Thatcher Govt. determination not to have the project paid for by the public sector. It was a policy that translated into a myth by subsequent New Labour governments;
- decision to pursue dedicated high speed line – was a response to issues of national prestige (compared against continental, especially French successes) notion that CTRL could be used to promote regeneration;
- arrival of new political champion (Heseltine) and associated Thames Gateway vision subsequently carried on by Prescott but faltered when politician (Falkener) with lesser political clout given responsibility.

- **In case of M6 Toll Road:**

- government policy in relation to key economic drivers such as improved connectivity between regions represented a favourable context for project launch;
- nature of the stakeholder environment seen as 'simple' and straightforward (i.e. few competing stakeholder agendas to grapple with).

- **In case of JLE :**

- Conservative government's policy related to visions for the Docklands (via LDDC) and private sector contributions to public projects were both supportive of project;
- 1992 recession and the key private sector contributor going into liquidation, thereby violating one of the government's key policies supporting the project made rescue of project imperative;
- London Underground's desire to have a technological showcase contributed further to support for project.
- The Labour government's Millennium Dome (MD) celebrations and insistence that the JLE should be completed to enable dignitaries to travel by JLE to MD on day of opening.

- **Lessons overall for UK:**

- need to understand and manage the tensions between short-term political horizons and need for long-term planning;
- need to understand role of 'vision' to supplant an over-dependence upon optimism bias and techno-rationalist forecasting presented as objective estimates;
- need to be better aware of dangers (and opportunities) of PFI/PPP approaches to MTP planning and delivery, especially when public sector finances are at low;
- need to address currently fragmented and often poorly resources institutional context for MTP planning, appraisal & delivery; there is '.....especially a need for a (more) joined-up approach in terms of consultation and decision-making'; and
- need to inject into forecasting methodologies an ability to better take into account the forces of contextual change.

❑ Mega event impacts on risk & uncertainty

- **2012 London Olympics** is seen as an important contextual influence on CTRL that is considered *both* beneficial and problematic in terms:
 - fixed deadlines associated with MEs 'focus the mind' and help reduce risk - enable broad consensus on the need for/commitment to action to be reached quickly and for related infrastructure to be fast-tracked in light of such matters as national/political prestige; and
 - the downside of MEs is seen in terms of the diversion of attention/oversight and resources away from other important projects, thus increasing risk.
- **2000 Millennium** again is seen to spawn *both* beneficial & problematic:
 - private sector contributors finally had certainty in the form of a specific date for completion of the line; and
 - meeting deadline led to downgrading of JLE capacity, problems with industrial relations and spiralling costs.

9. Project appraisal

❑ Political will/ influence

- political will/imperative/pragmatism frequently overrides outputs from appraisal methodologies that apply 'traditional' tools/methods and criteria;
- *judgement and gut feeling* are seen as significant in the UK in determining whether (and in what form) a project should proceed as more formal appraisal methods;
- key decision-makers frequently do not rely on modelling exercises; and
- (financial) model outputs are often seen as a means to post-rationalize decisions and/or legitimize previously held positions.

"The thing is when you make a decision, what do you make that decision based on? The decision has got to be based on how much good it can provide and at what cost. It's basically a Cost Benefit Analysis. But if you look at a lot of projects that are currently being considered, the Cost Benefit Analysis, or the (CBA) ratio, is actually very poor, so you've got to conclude that they're being driven by political wish lists rather than the realities of life....."

❑ Techniques/tools/models

- current project appraisal/evaluation tools, methods and processes (especially manner in which they are utilised) are in many cases perceived to be *flawed* and/or too limited in scope for MUDP use; and
- there is a professional reluctance to acknowledge these shortcomings, except insofar as these can be marginally/incrementally improved upon by employing ever more 'sophisticated' techniques/enhancements.

10. Sustainable development visions

□ Role of sustainability in MUTP planning, appraisal & delivery

- Interviewees concede need for a broader range of appraisal criteria that emphasise 'sustainability'. They highlight need for criteria that are:
 - consistent criteria applicable to *all* parties in MUTP planning, appraisal & delivery;
 - capable of being operationalized; and
 - supported by a sustainable institutional frameworks.
- Sustainability appraisals should be a key part of the initial project conception, as well as planning and appraisal process:
 - to determine the need and justification for the project; and
 - 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 appraisals should *not* simply be used as a means to appraise the performance of different pre-determined options.

❑ **MUTPs and retrofitting**

- Despite the acknowledged evolutionary nature of many MUTPs, there is little apparent current thinking or debate in the UK as to how such projects might be better retrofitted so as to meet the future needs/requirements of the 21stC in relation to SDVs; and
- there is a distinct lack of clarity on the part of OMEGA interviewees as to how MUTPs and the development/regeneration projects they spawn might be planned and/or retrofitted so as to achieve key sustainability objectives.

11. Project success & project objectives

□ General observations

- to make sound judgements about a project's success/failure it is important to have a clear sense of the overriding context that prevailed at the time of project's conception and subsequent key development phases since this will impact on:
 - the fundamental objectives for the project when set; and
 - any revisions made to project objectives during the planning, appraisal and delivery period, including 'bolt-on' needs/desires associated with such matters as territorial restructuring, regeneration - frequently as a reflection of political imperatives or visions ('emergent objectives').
- project objectives for MUTPs typically evolved almost 'organically' over a period of time as a result of the interplay between many different stakeholder agendas which encompassed much broader expectations of these projects than was originally envisaged.

□ UK Observations

- **CTRL:**

- Basic project management objectives associated with time/cost/ specification were seemingly met - but *only* on the basis of the revised implementation programme established after the 1997/98 financial restructuring;
- Wider agglomeration objectives are still in the process of being met in light of development/regeneration initiatives currently underway at King's Cross, Stratford and Ebbsfleet (all private sector funded) but such developments are still years from completion – the full spectrum of agglomeration impacts will not therefore become apparent for many years

- **M6 Toll Road:**

- Basic project management objectives were met – i.e., completed on time and at minimal cost to public purse;
- However, there are clear differences in the way that the 'success/failure' of this project is perceived due to the lack of clarity about its principle intended function (congestion free alternative to M6 versus relief road); and
- Evidence suggests that the revised *stated* project objectives were *not* made abundantly clear to all stakeholders.

- **JLE:**

- This project was over budget and over time with ultimately a reduced capacity due to signalling system downgrade (currently now being improved); and
- Clear differences of views/positions exist as to the criteria of success/failure of the project exists, depending on different stakeholder perspectives:
 - Treasury thought it an enormous disaster;
 - Private sector see it as a success, although it concedes it could have been better planned/managed;
 - Planners, real estate interests and users see it as a ‘success’.

❑ Importance of early establishment of project goals & objectives

- Seen to be very helpful for those projects which are seen as straightforward (i.e. with limited roles/functions and functional/geographic interfaces):
 - beneficial both in reaching a firm understanding with stakeholders about anticipated project outcomes (especially in terms of managing stakeholder expectations); and
 - beneficial in providing a widely agreed basis for appraisal and evaluation.
- For other projects with multiple roles/functions and complex interfaces, however, these typically need to *evolve* in response to different, changing contextual influences – here, planning may even positively benefit from the interplay (tensions) between competing stakeholder agendas.
- These developments suggest a need for MUTP planning and delivery agents to take an *early view* on the degree of complexity likely to be associated with each MUTP- in discussion with key stakeholders - and to prepare appropriate consultation plans/programmes with this in mind.

- For ‘complex’ projects (especially those which are positioned as ‘strategic agents of change’) require *considerable* reflection and debate during which the interplay between different stakeholders and other policy agendas can be played out. However, for how long and who should be involved?

"..... basically you plan the project and then see what it can do in terms of delivering other benefits - but initially you concentrate on the project itself. This is not muddling through, it is just the way the system works whereby you have the project up front and then expose it to the system in which 'planning' plays the role of honest broker, hearing all stakeholder views....."

12. Lessons

- ☐ wherever possible, differentiate between those objectives that are:
 - core/essential, and represent the fundamental reason(s) why the project was planned and is being implemented, and;
 - those that represent perhaps less certain but nevertheless desirable outcomes.
- ☐ enable a more consistent and broader approach to project appraisal to be undertaken employing multi-criteria analysis.
- ☐
- ☐ provide for establishment of systems/processes and measurements (where applicable) that enable clear and transparent appraisal and post-project evaluation.
- ☐ be capable of being operationalized in such a way as to be meaningful to all important stakeholders.
- ☐ acknowledge that the benefits/costs/impacts associated with MUTPs are:
 - often very difficult to discern at the outset;
 - often only realised in the long-term;
 - often unexpected; but are nonetheless often critically important.

13. Selected international case study findings

Observations concerning:

- ☐ project 'success' & project objectives
- ☐ treatment of risk, uncertainty and complexity
- ☐ importance of 'context'
- ☐ project appraisal approaches, tools and methods
- ☐ treatment of sustainable development visions (SDVs)

Figure 1: Success from who's prospective?: Principal MUTP winners and losers

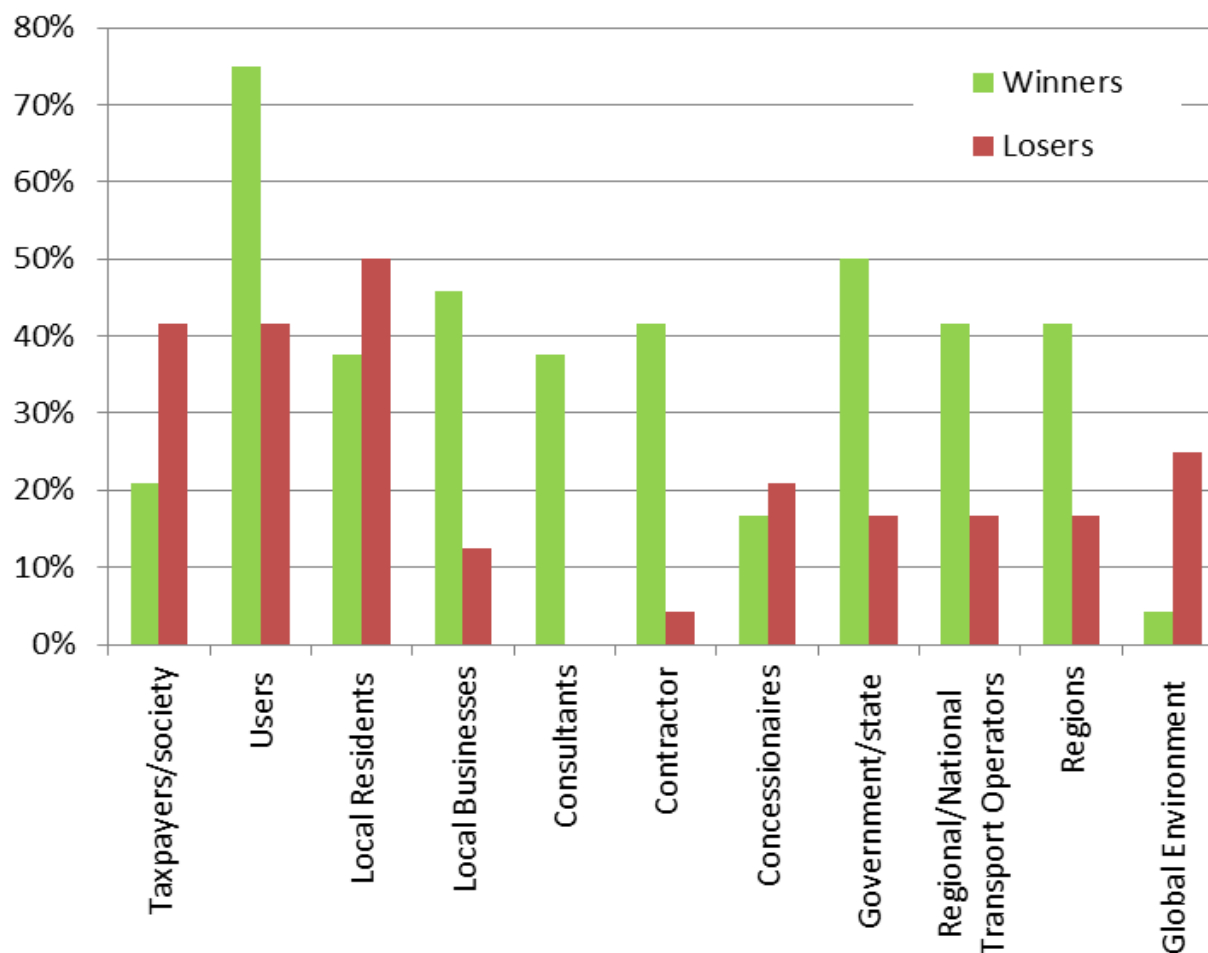


Figure 2: Success: What were the original principal project objectives?

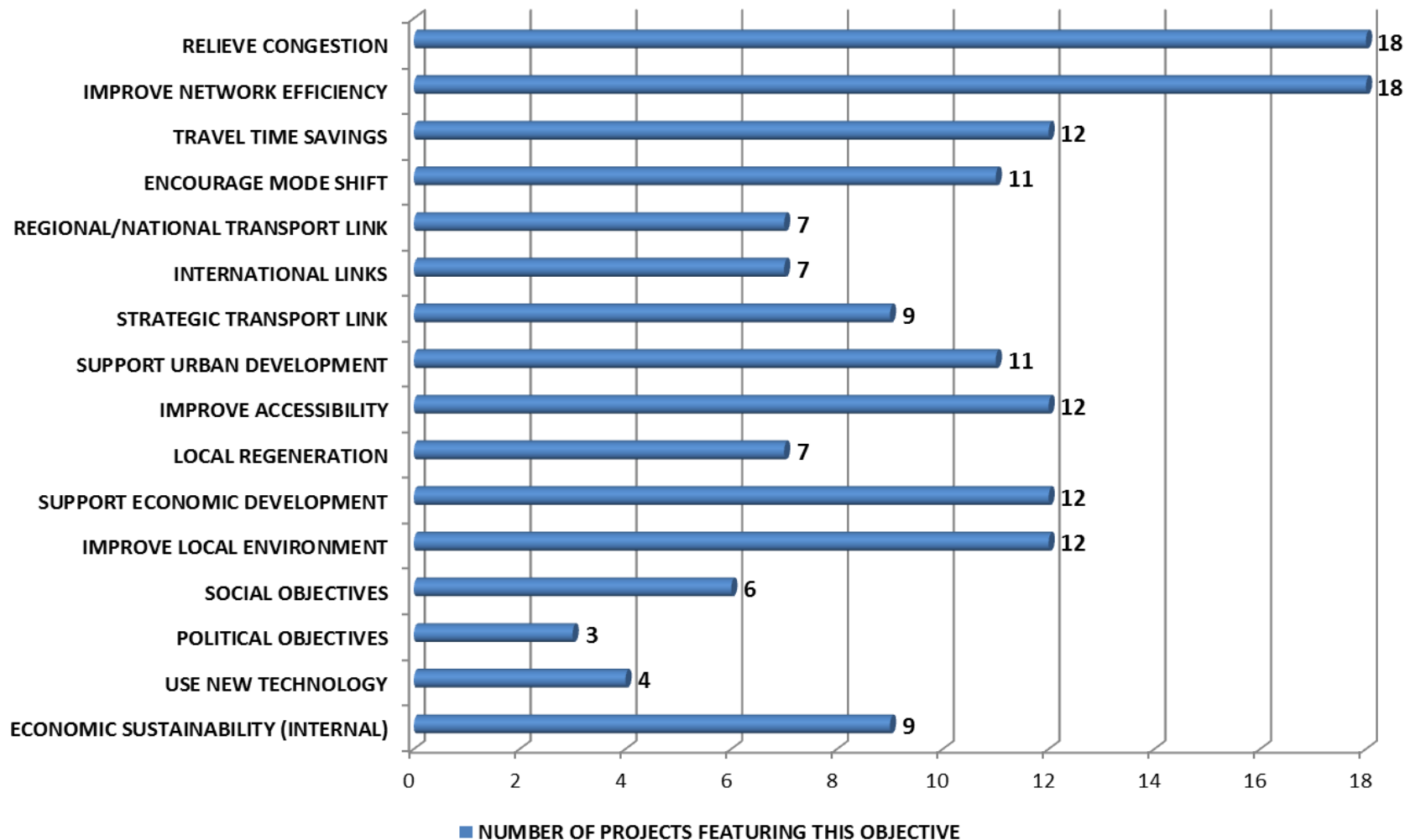


Figure 2b: Success: What were the original principal project objectives by project type?

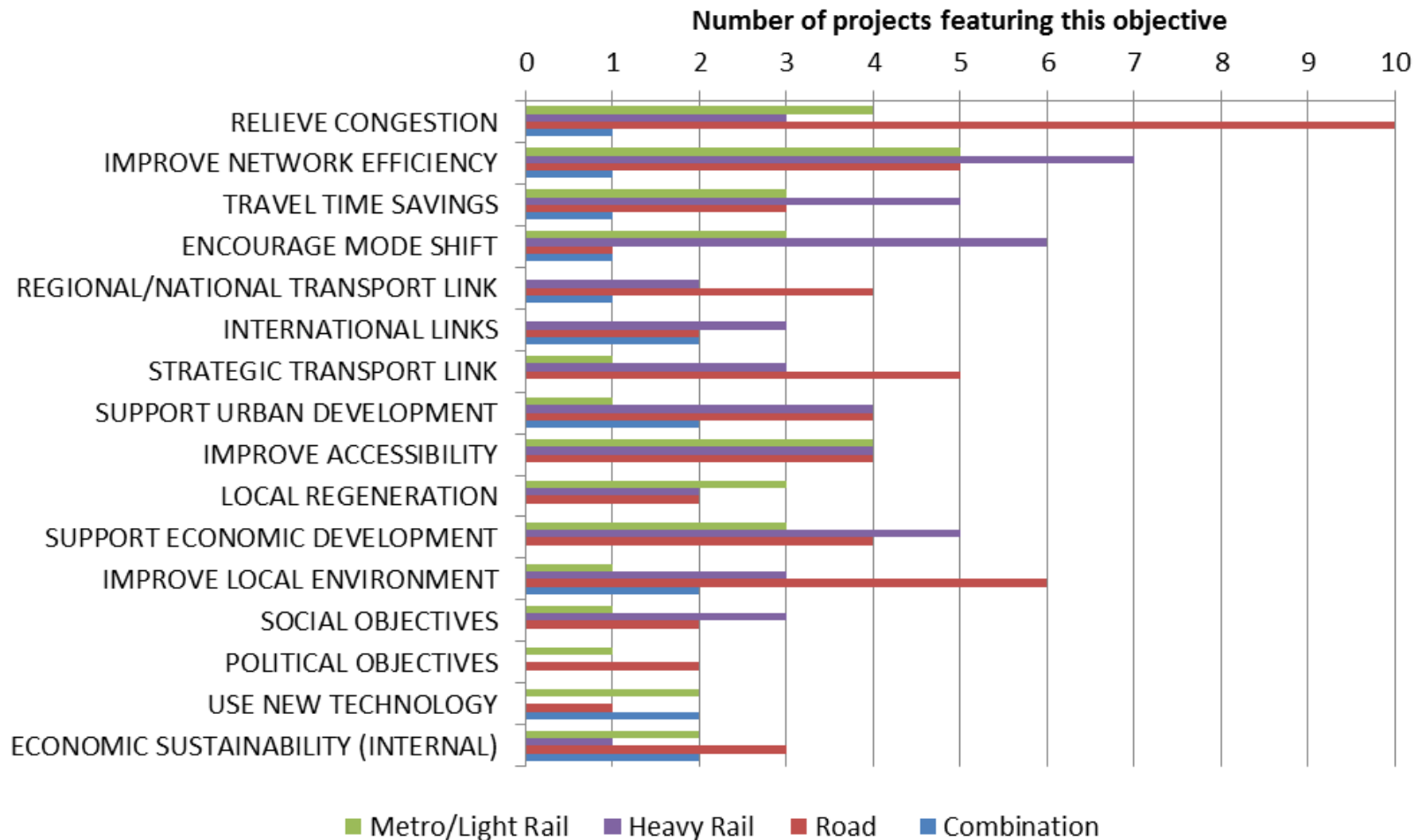


Figure 3: Success: Achievement of original principal project objectives

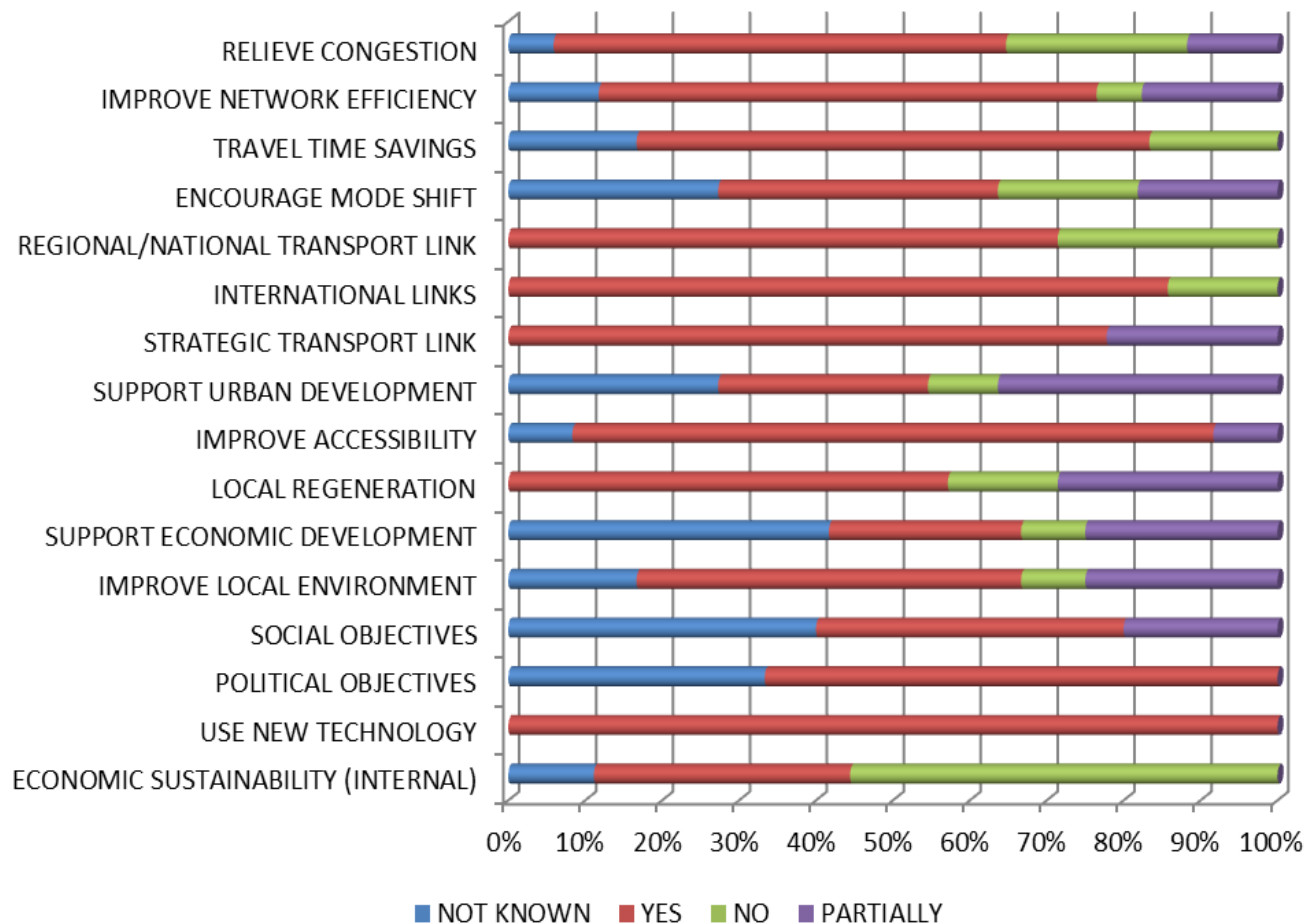


Figure 4: Extent strategic planning frameworks were adopted by projects

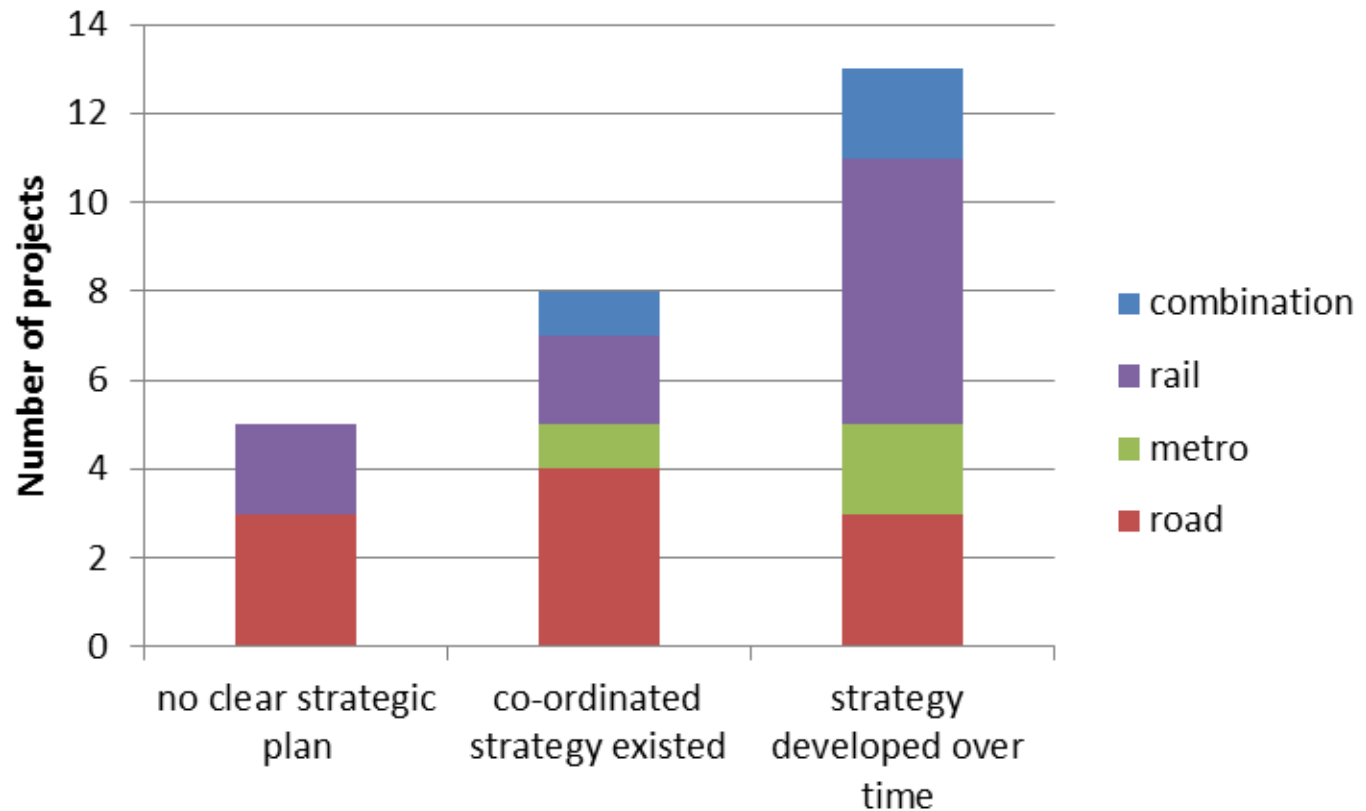


Figure 5: Risk, uncertainty & complexity themes related to MUTP stakeholders

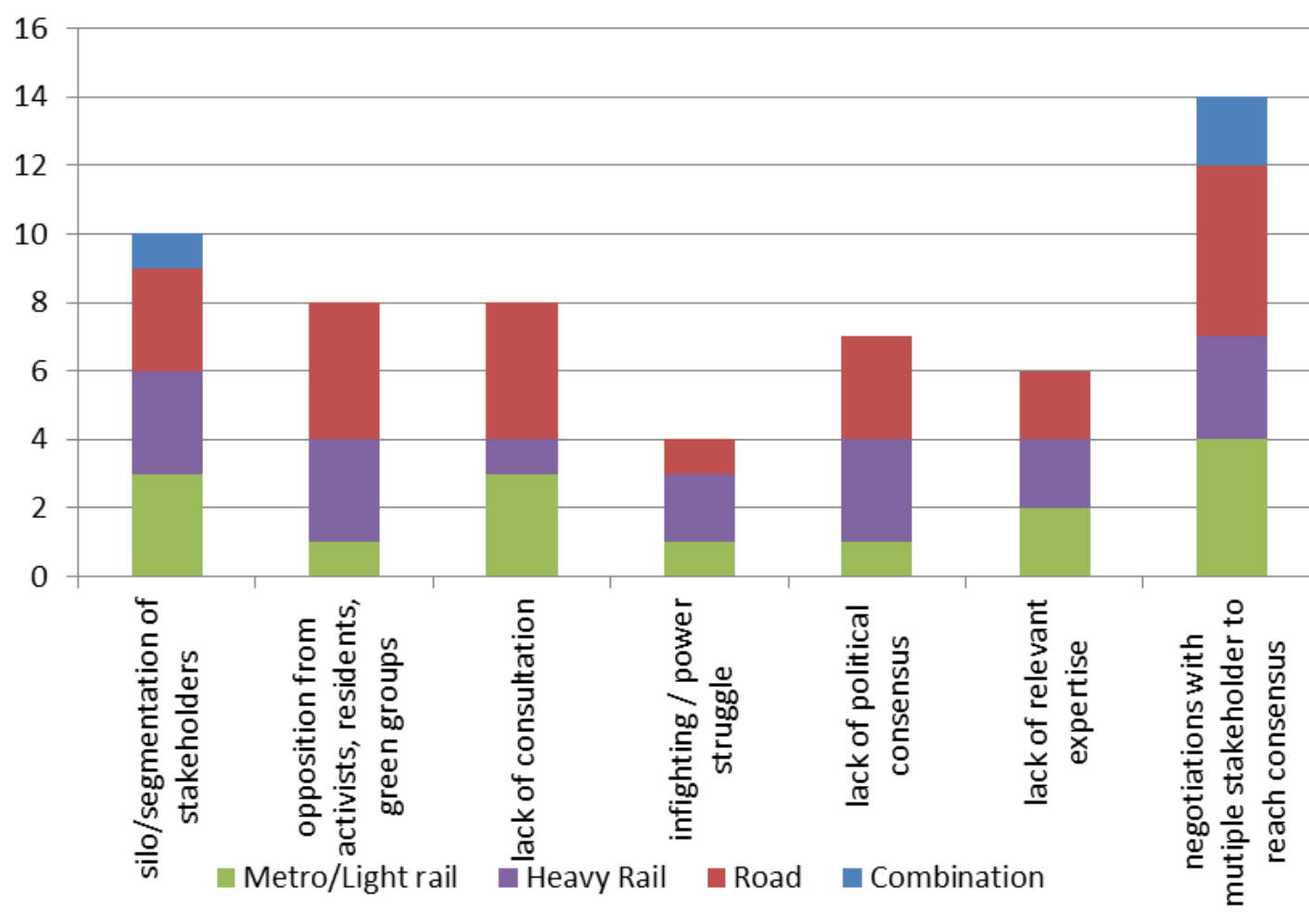


Figure 6: Major determinants of contexts?

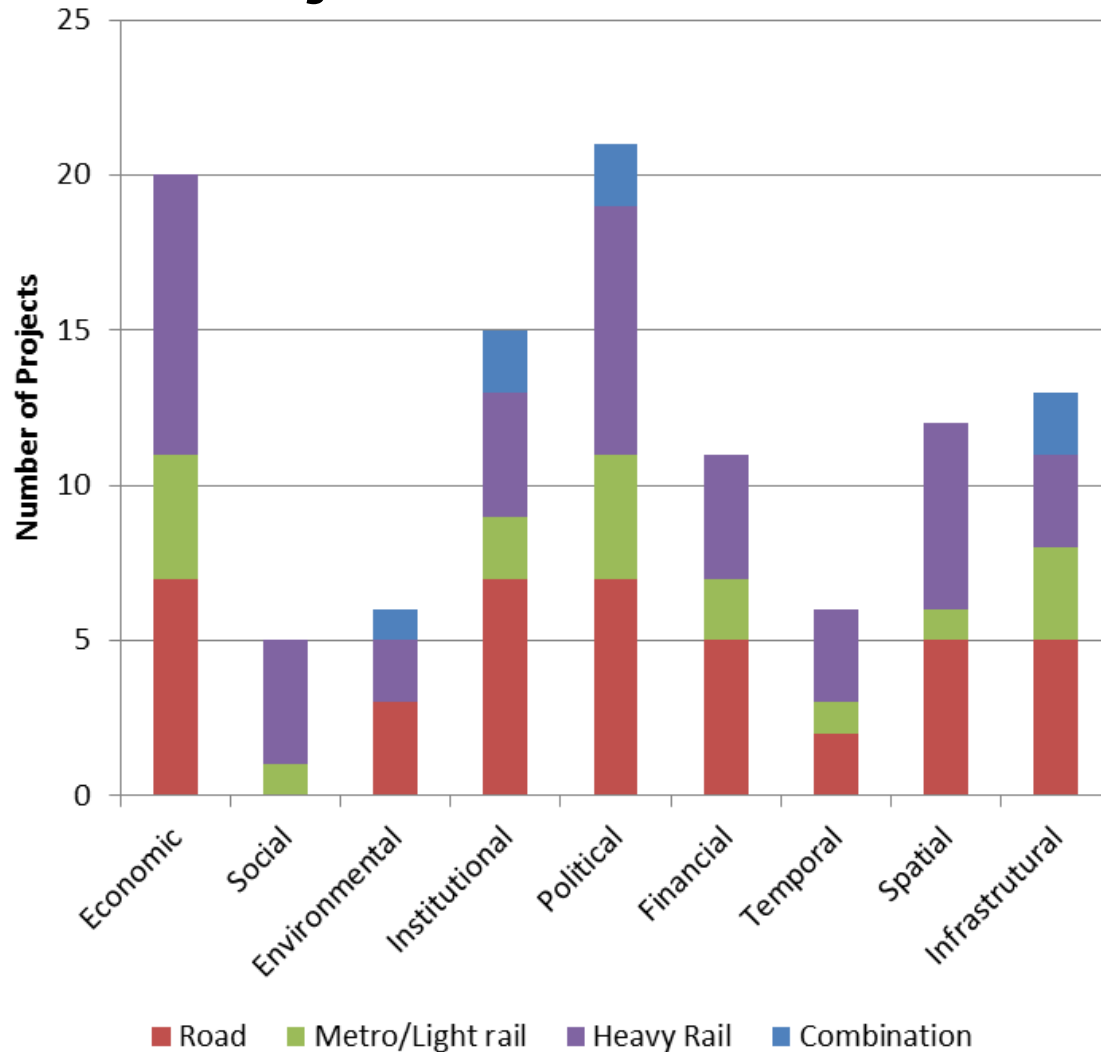


Figure 7: Project cost over-runs?

15 of the 30 OMEGA MUTPs studied were over budget by more than 10%,

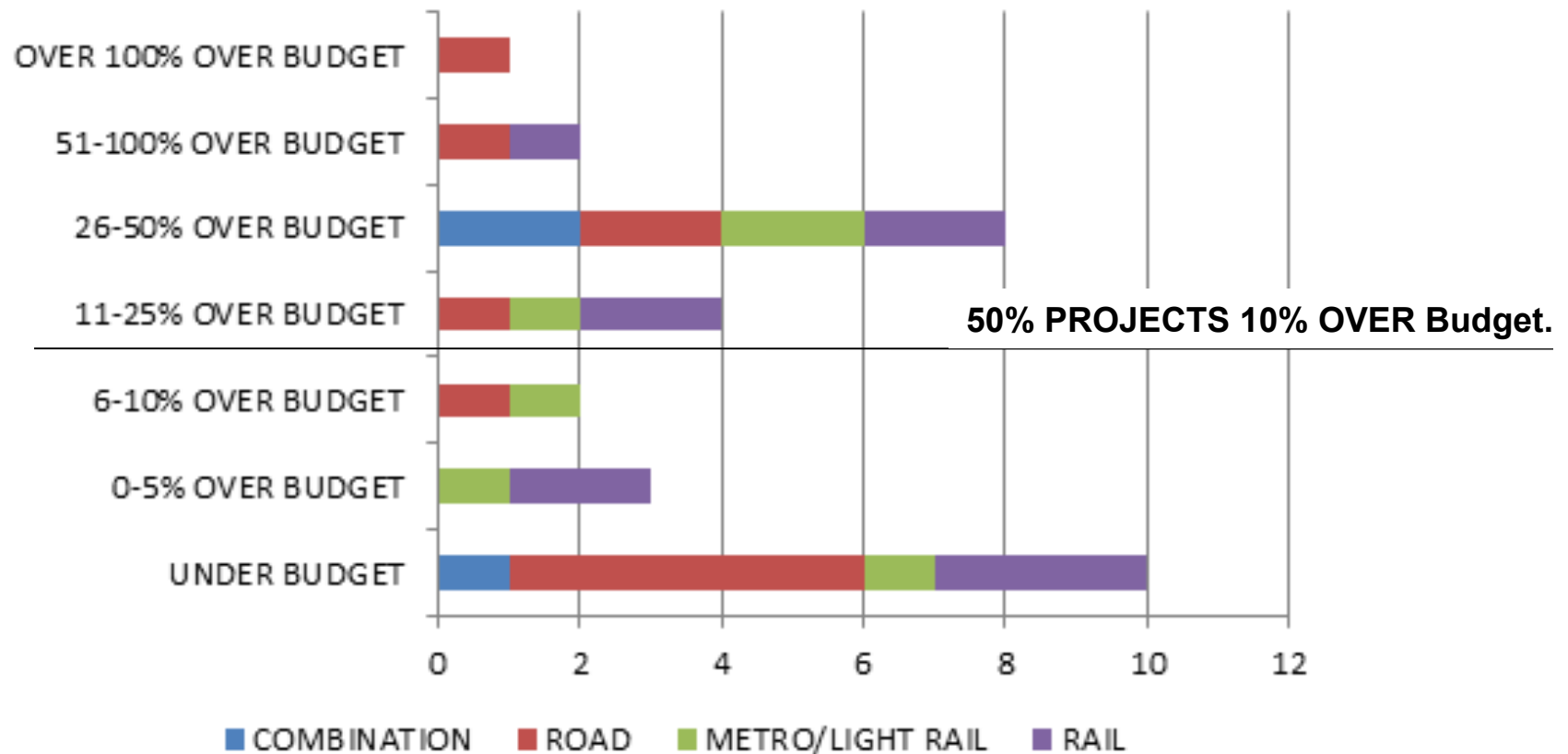


Figure 8: Reasons given for cost overruns?

It would appear for heavy-rail projects these are *most* sensitive to changes in project scope, stakeholder conflicts and environmental mitigation.

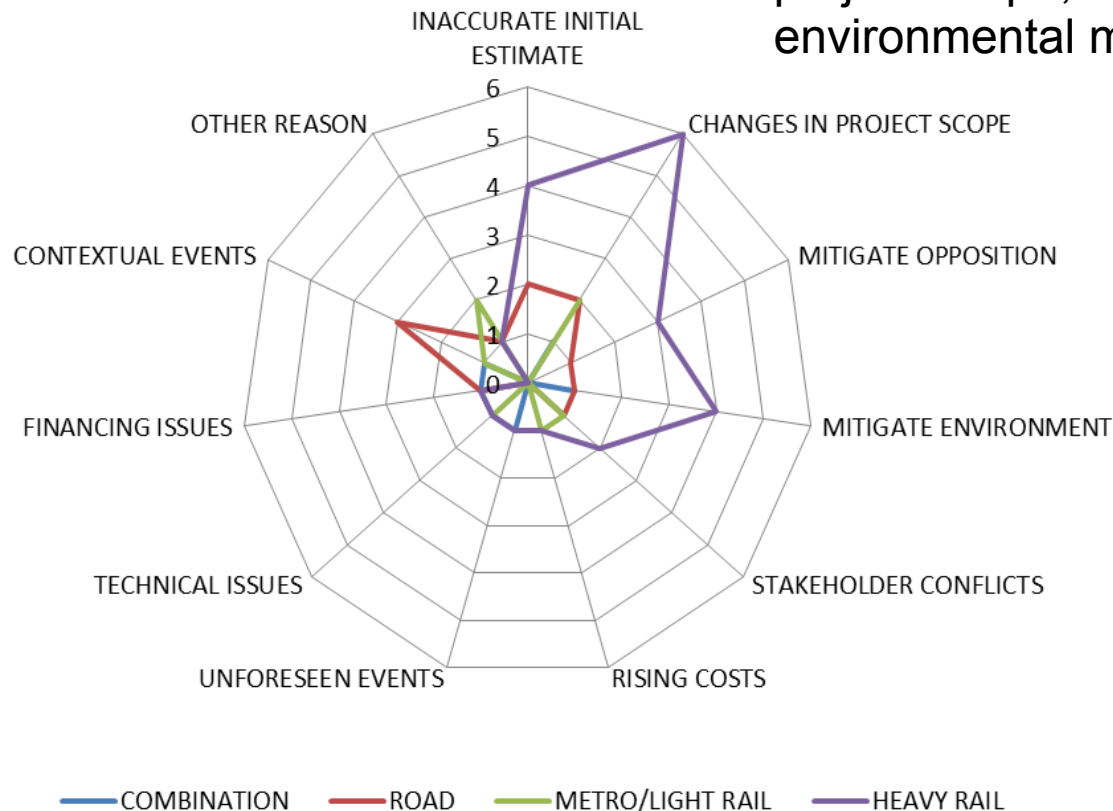
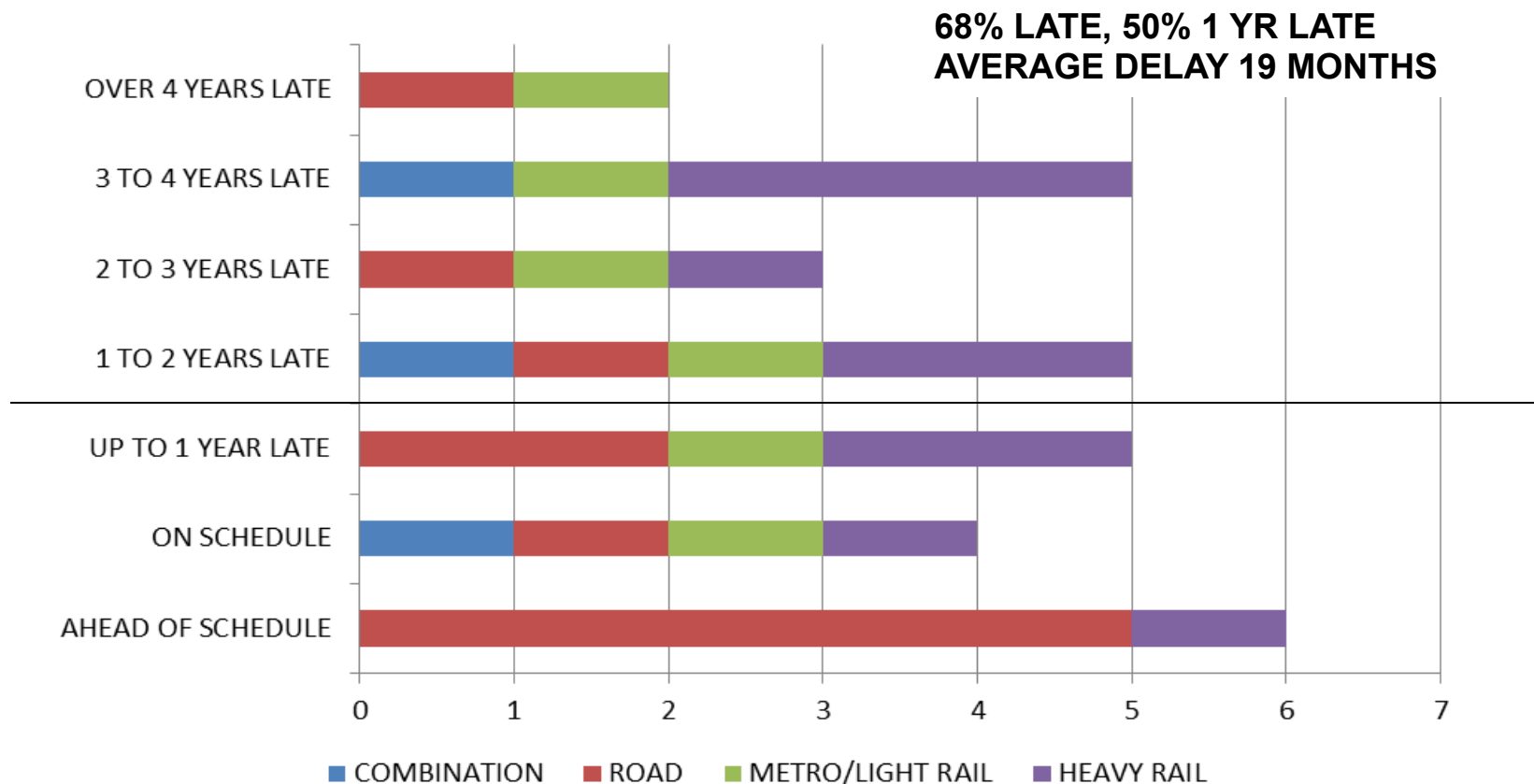
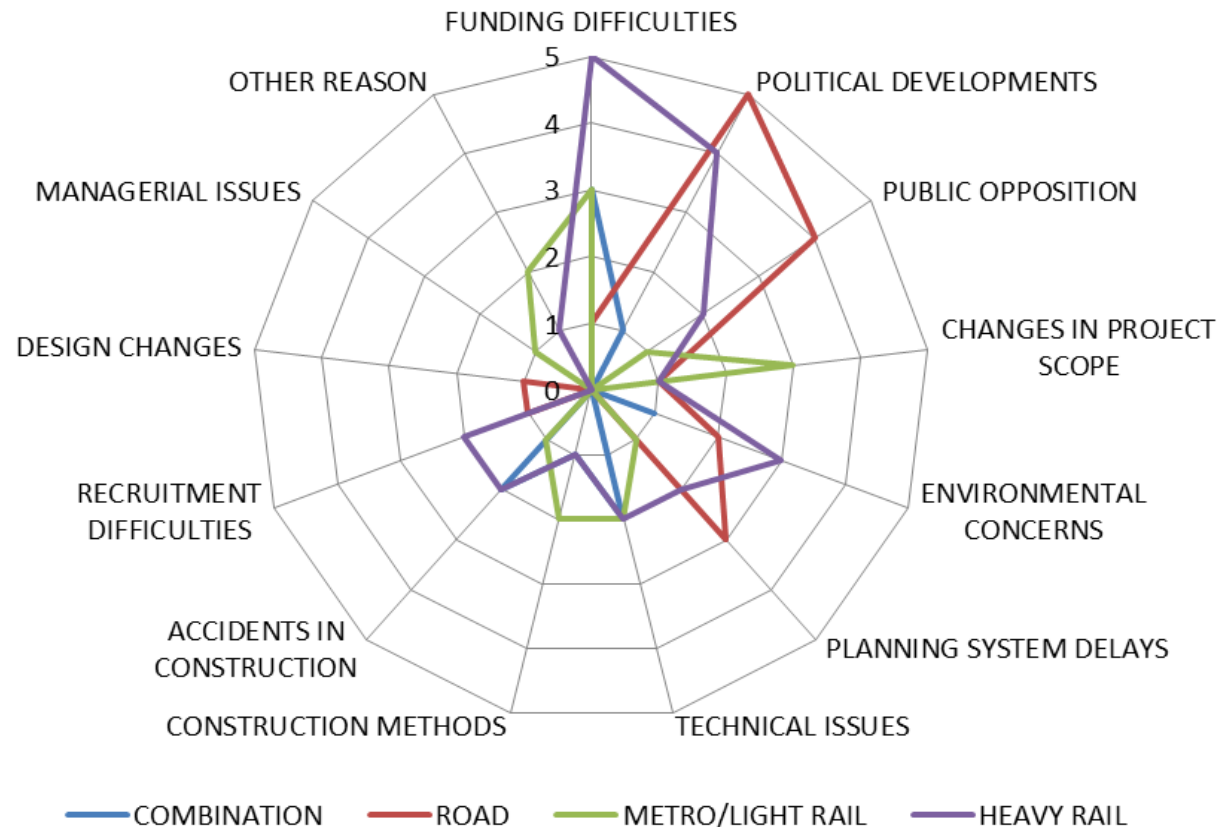


Figure 9: Percentage of projects on time?



Analysis of the occurrence of delays by MUDP typology shows a significant cluster of road projects completed *ahead* of schedule. Conversely, rail projects reviewed seem more likely to suffer longer delays

Figure 10: Reasons given for project delays?



Rail MUTPs are most likely to be delayed by funding difficulties and political developments; whereas road projects are more likely to be delayed by political developments and public opposition. For metro and light rail projects, funding difficulties and changes in project scope are the most common causes of delay

Figure 11: Adherence to principles of sustainability?

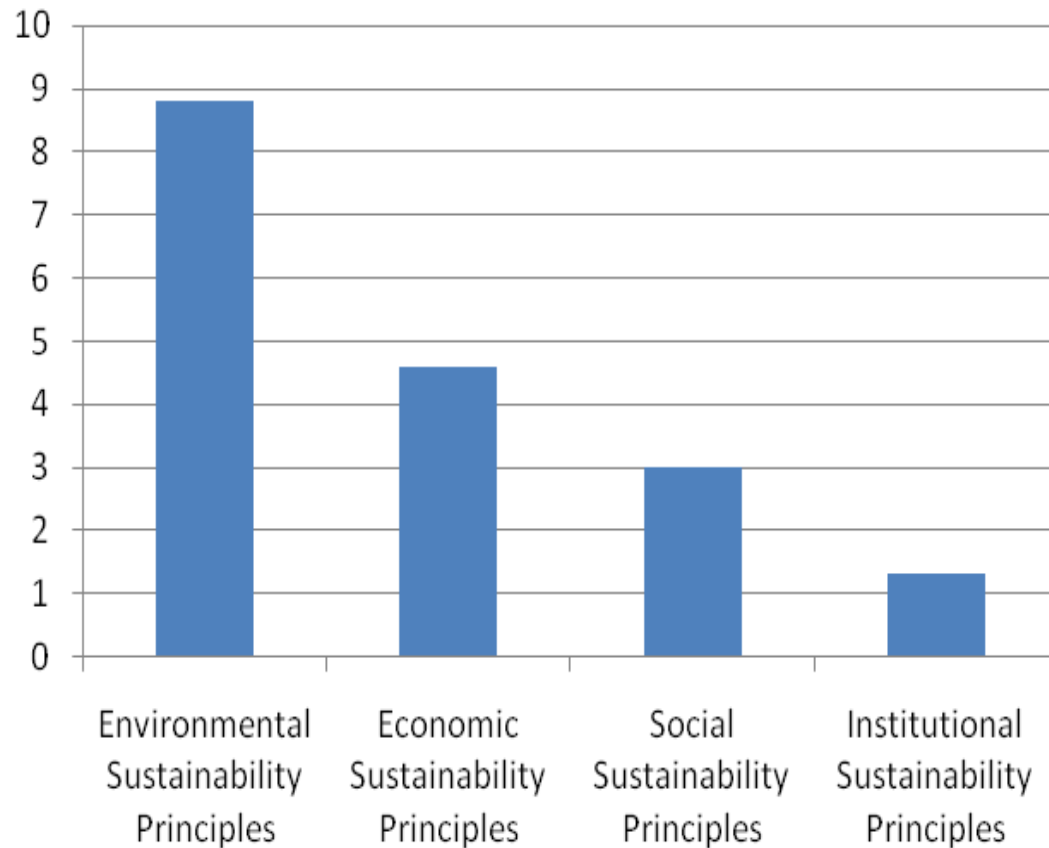
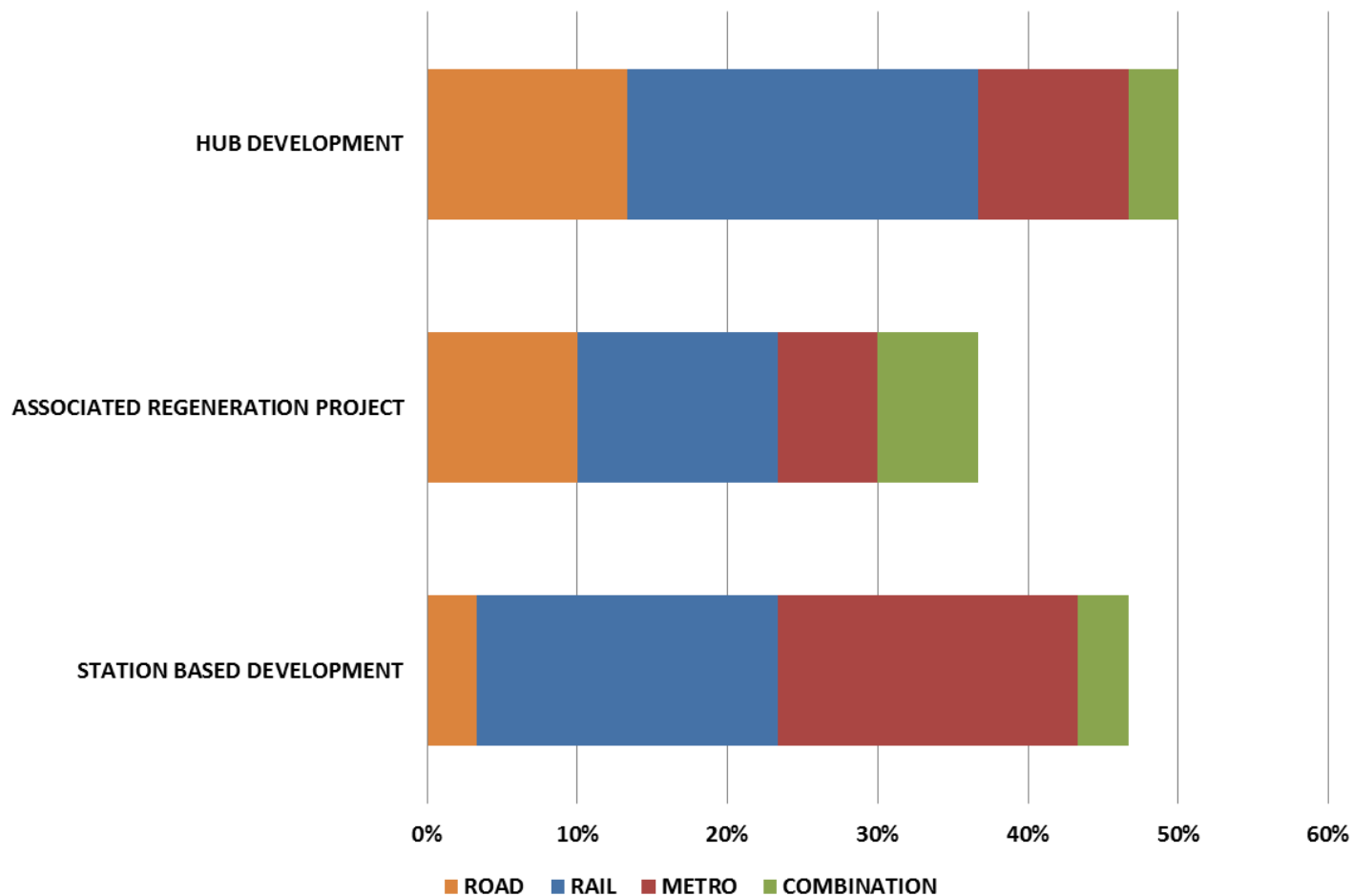


Figure 12 – MUTPs as agents of change



Thank you

