Decision-Making in Sustainable Urban Mobility Planning: Common Practice and Future Directions

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1 Introduction

The key characteristic of sustainable transport planning is a holistic approach to urban mobility of people and goods that aims to balance economic, social and environmental objectives. This perspective covers all transport modes and aims to shift the focus away from pure provision of infrastructure to a more integrated and active approach to manage demand. It goes far beyond 'traditional' transport planning, which is frequently criticised for looking at transport modes in silos (i.e. separate and distinct from another), and for the lack of evaluation of its measures (Hutton 2013; Wefering et al. 2013).

The European Commission aims to foster sustainable local transport systems through the concept of "Sustainable Urban Mobility Plans" (SUMPs), which it introduced in its Action Plan on Urban Mobility in 2009 by advising the take-up of SUMPs in Europe. In June 2010, the Council confirmed the Commission's support for SUMPs (EC 2009; Council of the EU 2010). The SUMP guidelines contain recommendations for all stages of local transport planning, from preparation to goal setting, through to the subsequent implementation of the plan. An emphasis of the guidelines is the development of effective packages of measures, which are considered to be vital to deliver on the objectives outlined in the SUMP. The measures should ensure value for money, and thus their selection and appraisal is considered an 'important milestone' of a SUMP (Wefering et al. 2013, 58). Accordingly, the guidelines also refer to appraisal methods and tools which can be used.

Decision-making processes in many countries are still heavily influenced by mainstream economic theory, with project appraisal processes helping public bodies make choices in terms of economic, transport and mobility goals that can be expressed in monetary values. Transport projects compete for limited public funding; the projects chosen should therefore provide sufficient value for money.

As one of the main ambitions of the SUMP concept is to support the implementation of value for money measures, part of the SUMP process is decision-makers discussing how mobility initiatives should be appraised, and within that, how value for money is defined.

This paper is intended as a think piece. It highlights the challenges for cities in selecting sustainable and cost-effective transport and mobility measures. Thereby it shall provoke thought on the implications for decision-making resulting from SUMPs.

Firstly, an understanding of the challenges of determining a transport project's viability will be conveyed. Secondly, the paper presents five case studies of sustainable urban mobility planning and the role of project appraisal in those policy-making processes.

In discussing the challenges of traditional project-appraisal and examining actual local decision-making, the paper finds some crucial challenges in the appraisal of small-scale sustainable transport activities. It concludes by highlighting potential implications of these.

2 Common practice and challenges in transport project appraisal

The concept of evidence-based decision-making is intended to help policy makers maximise the return on their investment by basing decisions on ex-ante assessment of measures' potential effects, ideally across all relevant sectors. Cost-benefit analyses (CBAs) define a measure's viability by its relevant direct and indirect impacts in monetary terms only. They are widely used to assess transport projects or measures, especially large-scale infrastructure projects or other politically sensitive projects (e.g. congestion charges) (Hüging et al. 2014). Odgaard (2006), in a survey of 26 European countries, found that all use CBAs in road project appraisal.

The UK's and the Netherlands' guidelines for the appraisal of transport projects require CBAs for major transport projects (Geurs et al., 2009). In the Netherlands, national funding for local and regional spatial infrastructure plans is contingent on the completion of CBAs for the plans (Beukers et al. 2012).

In contrast to CBA, Multi-Criteria Analysis (MCA) allows appraisal of non-monetary impacts, and may be used to compliment or in conjunction with a CBA (Bristow and Nellthorp 2000; Odgaard et al. 2006). For example, the WebTAG tool in the UK allows for qualitative considerations by including five 'cases' that make up the overall 'Business Case' (strategic, economic, commercial, financial and management case) (Geurs et al. 2009)[1].

However, due to CBA's comprehensiveness and seeming clarity due to its reducing many socio-economic factors into a few numbers, the method, and figures derived from it (e.g. benefit-to-cost Ratio [BCR] and Net Present Value [NPV]), are very powerful in decision-making processes. At the same time, project appraisal approaches in general, and CBAs in particular, are heavily criticised for not adequately reflecting reality or not responding to the necessities of practice. The following sections summarise key aspects of this criticism.

Travel time dominates CBA results
Travel time savings often dominate CBAs, but appear to be of minor relevance in practice. Time savings are usually an accumulation of a great number of small savings which may be too small even to be noticeable by the individual travellers (e.g. 1-2 minutes per trip, for 500,000 travellers per day). Travel-time values (e.g. €/minute) are often assigned homogeneously to all travellers[2], although different travellers assign different values to their time. Furthermore, travel time reliability – i.e. accurately predicting trip durations – might be more valued by (some) travellers than average savings (Van Wee et al. 2006; Metz 2008; Raux et al. 2012). Hutton (2013, 221) demonstrates the nonsensicality of the significance afforded time savings by pointing out that in a CBA, "a time saving of just one minute by each car driver … has roughly the same value as somebody's death". Furthermore, the time savings could be considered needless as in the long run, as the savings are "consumed as extra distance [travelled] so that a constant time budget is maintained" (Whitelegg 2013, see also Schafer and Victor 2000).

CBA does not encapsulate the full range of externalities
Conventional CBAs often fail to appropriately incorporate wider social, environmental and economic costs and benefits. Several non-monetary effects relevant to transport projects are rather difficult to quantify and monetise, for which reason these might not be properly reflected in a CBA or MCA (Browne and Ryan 2011).

Many effects, such as noise or air pollution associated with a transport project or measure, are difficult to measure in precise economic terms, but are nevertheless valued highly by individuals and society as a whole. Including these effects in a CBA requires their (often elaborate) monetisation; this can be done by, for example, assessing citizens' 'willingness-to-pay' for the benefit. However, such effects may be simply excluded because of the excessive effort required to include them, especially for small-scale projects.

Project appraisal is overly optimistic
CBAs may be compulsory for projects or plans in order to qualify for funding. Beukers et al. (2012) found that if a CBA is necessary to obtain funding, often overly optimistic assumptions are used in the assessment to ensure a favourable BCR.

Flyvbjerg (2012, 764) points out that differences between estimated and actual costs and benefits in project appraisal methods are "best explained by political and organizational pressures … to present business cases as favourably as possible,

1 WebTAG includes a flow diagram in its first section. This shall guide the user (e.g. a local authority) to select the best performing option. However, the challenge is to clearly define a problem, and to scope and evaluate all possible solutions in a rigorous way.

2 In the UK, the labour cost is used for time 'lost' in the course of work, and ranges therefore from about €10-50 per hour. Commuting is valued about €7.50 per hour and all other travel about €6-7 per hour, based on empirical willingness to pay studies.

that is, with low costs and high benefits, in order to beat the competition"[3]. James (2010) points to an example for obvious manipulation of data in a CBA for a link road in Lancaster, UK (Heysham M6 Link Road, HM6L), concluding that the "HM6L should be scrapped rather than deferred" (James 2010, 31).

Additionally, there is often a risk that CBA enters the planning process too late to play any meaningful role (Mackie et al. 2014).

Accurate project appraisal requires considerable data

Among the disadvantages of the CBA method are its extensive data requirements and complexity (Browne and Ryan 2011). Conducting a CBA ex-ante is often only approved if the implementation of the measure in question is already likely. Data collection for potential alternatives may be deemed too expensive, and funding rules do not necessarily require a comparison of alternatives. In this case, a CBA is sometimes used to 'confirm' the benefits of a measure and to justify its implementation. As such, the CBA's outcome might be preordained, increasing the risk of bias (e.g. negative indicators are not included). Many local (sustainable) transport measures are low-cost compared to large-scale infrastructure projects. The data and work required to conduct a CBA – including a wide range of externalities – are excessive in comparison with the costs of the measure itself.

General criticism of project appraisal

Many appraisal techniques attempt to quantify and compare disparate effects, in order to allow the best (or least bad) trade-off to be found; a laudable attempt to move away from normative decision-making with increased (motorised) transport as the goal or accepted consequence. However, this approach can be seen to implicitly assume that the various effects mitigate each other, which they probably do not, and to support the commodification (or even worse, the ignoring or exclusion) of environmental and social issues (Ackerman and Heinzerling 2002). For example, an appraisal may find that the negative effects of a project on the environment and/or vulnerable or marginal groups are outweighed by the positive effects (probably enjoyed by other groups); i.e. the project's benefit is essentially being bought with the negative effects on the environment (borne by society at large and/or future generations) or vulnerable/marginal groups. Appraisal methods which apply a weighting to the various effects (may) go some way to addressing these criticisms, but the basic principle remains the same. Rather than giving economic aspects (sole) primacy, transport policy-making should acknowledge that ever-increasing transport is not (and is unlikely to become) affordable in environmental terms and therefore that society must look for other ways to enhance their economies (Banister, 2011), and that social implications of transport must be considered, irrespective of whether they are quantifiable or not (Tingvall and Haworth, 1999). In other words, a shift to a new normative position is necessary, wherein environmental and social aspects (along with economics) are given primacy in transport policy-making.

Summary

Project appraisal was developed and is mainly conducted in order to assess major transport projects, e.g. highway schemes. It requires the collection of considerable data and the application of elaborate quantitative and/or qualitative methods. Project appraisal may not be appropriate for a range of small-scale, local measures due to the expense. Moreover, as project appraisal was developed for infrastructure schemes, appropriate methods to assess other types of measures are still being developed. Even if appropriate methods were available, they could still be prone to optimism bias.

3 The role of project appraisal in local decision-making

Sustainable urban mobility measures include, for example, interventions in the areas of clean vehicles and fuels, urban freight, demand management strategies, mobility management, collective passenger transport, transport telematics, and strategies to reduce dependency in cars.

Where attempts have been made to assess the BCR of such measures, the results are often positive (Raux et al. 2012, Cavill et al. 2008). Jacobs Consultancy (2011)

3 Funding procedures may include an 'optimism bias' factor to address this.

compiled a database of close to 150 small scale public transport schemes in the UK obtained from local authority bodies. The results suggest that such projects can be at least as cost effective, if not more, as larger capital projects. Moreover, in many cities it has been demonstrated that 'hard measures' such as infrastructure improvements, and 'soft measures' such as travel plans and campaigns[4] complement each other in contributing to transforming the transport system toward sustainability (Kolbenstvedt 2014, Brög et al. 2009). However, ex-ante appraisal of (packages of) such measures is rare, as is information about cities' actual rationale for their decisions.

In the following, SUMP planning processes in five European cities (Munich in Germany, Bristol in the UK, Utrecht in the Netherlands, Kaunas in Lithuania, and Piran in Slovenia) are examined, focussing on the process of measure selection and appraisal. The cases represent the different level of SUMP maturity throughout Europe[5].

Munich's Transport Development Plan

The German city of Munich and its outlying districts are experiencing a phase of rapid economic growth, resulting in more jobs and population growth. The Munich Transport Development Plan (TDP) was developed in response. The TDP lays down the city's (major) policies and measures to shape local personal and goods transport, including specific commitments for each transport mode (City of Munich 2006).

A transport demand forecast for the year 2015 laid the groundwork for the TDP, including three 'test scenarios'. The measures which were finally stipulated were built on the information the scenarios had delivered. The TDP included provisions for all modes, for mobility management as well as infrastructure expansion. A particular focus was on soft and integrative measures (ibid.).

As a result of previous CBAs for rail infrastructure schemes, the TDP stipulates tramways rather than underground railways. As the city of Munich already has a dense public transport network, any benefits from of network expansion/upgrades would be marginal according to the standardised appraisal procedure (Interview, Koppen).

The decision-making process within TDP development did not include CBAs beyond the aforementioned (obligatory) assessments, as this would have been too expensive and time-consuming. However, Munich's council would not endorse any policy or measure that has not undergone any kind of project appraisal. Most of the SUMP's soft policies and measures were appraised based on internal estimates and qualitative impact assessments. Moreover, experience from previous projects and ongoing initiatives was an important part of the decision-making process. Over the last decades, the city has conducted CBAs for selected policies and measures, e.g. for introducing parking fees, which generated a good BCR. Since then the city assumes these sorts of policies and measures generally provide good value for money.

As can be seen in the previous paragraph, the few project appraisal methods performed, such as the CBA, are not a decisive factor for transport project approval. Instead, the TDP's policies and measures had to follow the city's overall concept (including goals such as avoiding transportation and shifting away from motorised transport), approved by the city council and developed by city officials. In addition, the TDP and its measures were discussed in public participation processes, and the budgets passed by the city council. Thus, sustainable transport is first of all a result of political commitment.

Munich's TDP

Reasons to conduct project appraisal:

- To access funds
- To compare alternatives

Reasons for measure selection:

- To achieve local (sustainable) transport goals
- Value for money

4 Travel plans can be defined as a long-term mobility management strategy for an organisation and its various sites or business park. Awareness raising and marketing campaings typically focus on different aspects, e.g. active travel or traffic safety, and target groups, e.g. pupils or commuters.

5 A comprehensive discussion about quality of life and Sustainable Urban Mobility Planning can be found in Whitelegg (2013).

West of England's Joint Local Transport Plan

The West of England brings together the Cities of Bristol and Bath and their immediate surroundings for the purposes of a range of plans and strategies.

Local government in England uses a planning approach known as Local Transport Plans (LTP) to respond to transport issues and needs. In the case of the West of England, four authorities have cooperated on a Joint Local Transport Plan (JLTP), with the current implementation covering the period 2011-2026 (referred to as LTP3 as it is the third cycle of LTP planning since it came into being in 2001). The LTP underpins transport strategy, and gives direction to investment in transport resources. It has, though, been supplemented over recent years by a series of competitive funding streams from central government on specific (sustainable) transport initiatives. These have included the Local Sustainable Transport Fund (LSTF) 2013-2015 and the Cycle City Ambition Grants (awarded in 2013 for spending by 2015). Bristol and the West of England grouping have successfully bid to both of these latter funding schemes.

The West of England JLTP sets five key transport goals and a number of corresponding 'shift' and 'improve' measures for both passenger transport and freight. Some measures were also designed to respond to the specific goals in the LSTF funding bid. The bid for Cycle City Ambition Fund monies looked to build on the burgeoning 'cycling culture' resulting from earlier cycling programmes. Measures focused on (strategic) cycle routes connecting commuters with employment areas in Bristol city centre and on the urban fringe to the north of the city, whilst in the neighbouring city of Bath the investment was at the heart of the urban cycle network – where multiple routes converged.

Project appraisal needs to comply with Department of Transport (DfT) guidance (WebTAG) and use an 'approved' transport model to provide outputs on expected outcomes from interventions. WebTAG applies to all transport measures for which funding is sought and includes a CBA assessment and a table of non-monetised factors. The final decision is therefore a qualitative one, although the BCR carries considerable weight and must always be greater than 1:1[6].

The JLTP is primarily seen as a strategy document, incorporating a range of proposed and desired interventions that will aid more sustainable mobility in the plan area. Some of these interventions may be more likely to be implemented than others. As a consequence, it is not a requirement to submit a cost benefit analysis with the JLTP itself, although the subsequent funding requests to implement measures will follow the approach described above. This will include CBA as well as 'non-monetised' factors, and results will be presented in a combined format in a one-page Appraisal Summary Table.

The projects included in the LSTF bid by the West of England were first 'health checked' and refined using the *Early Assessment and Sifting Tool* (EAST[7]) also developed by the DfT. This spreadsheet-based tool looks to provide a uniform format for assessing the costs and impacts of all transport-related options. It provides a mechanism aimed to identify – at a high level – the nature and extent of all the economic, environmental and social impacts of options, and in addition the distributional effects of many of them. Economic factors considered by the tool include: will journeys get shorter, quicker and/or cheaper, and will the measure impact on the day to day variability in journey times or the average minutes of lateness? The EAST process includes CBA using WebTAG methods. In the case of the LSTF, the assessments required by EAST were further developed as supporting justification for the proposed projects in the Business Case of the bid.

In addition, the *Health Economic Assessment Tool* (HEAT, another form of CBA), developed by the WHO, was used to assess the physical activity impact of measures. Cycle measures were also appraised

6 Expectations are normally higher for a scheme to be supported. National treasury recommends 1.4 as the normal minimum.

7 EAST is a DfT approved decision support tool that has been developed to quickly summarise and present evidence on options in a clear and consistent format. It provides relevant, high level, information to help decision-makers form an early view of how options perform and compare. For example options may be compared within modes or across modes, geographical areas and networks.

based on an approach modelling a 'mode shift' to cycling against traffic levels and public transport use. A similar approach was taken for the assessment in the Cycle City Ambition Fund bid process (Halcrow 2013).

Utrecht Bereikbaar

Bristol's LTP
Reasons to conduct project appraisal:
- To access funds
- To compare alternatives

Reasons for measure selection:
- To achieve local (sustainable) transport goals

Utrecht is one of the four largest cities of the Netherlands and, due to its central geographic location, it is a crucial national transport node. In 2008, major road construction works were initiated on the A2, the biggest motorway in the Utrecht region. To prevent significant nuisance, different mobility management initiatives were implemented, most of them within the framework of Utrecht Bereikbaar (Utrecht Accessible). Though the main aim of Utrecht Bereikbaar is to keep the city accessible during road construction, the measures applied have a much broader scope and objectives. An important element of Utrecht Bereikbaar is the Utrecht Bereikbaar Pass, a card that provides access to bus, tram, train, public bicycles, internet hotspots, express coaches, and Park and Ride facilities.

The main objective of ensuring accessibility during the road works fitted very well with Utrecht's general objective of developing a more sustainable transport system and stimulating non-car transport modes. The target was 2,000-4,000 fewer cars on the road during peak hours during the road construction. Results show that 40% of the passholders had previously travelled by car, leading to a reduction in car traffic of approximately 5,000 cars per day (EPOMM 2013).

Moreover, another objective was to build a central station ready for growing transport flows and to develop cycling as primary mode of transport in the city (Utrecht 2012). As the building of the central station is a large infrastructural project, national law [OEI guidelines] demanded a CBA. The results of CBAs are considered in the decision-making process, but not binding. In the Utrecht case, CBAs have been carried out for various parts of the infrastructural developments. One CBA, carried out by the Ministry of Transport, was not carried out before the project, counter to normal procedure. This CBA focussed on the number of 'spitsmijdingen' (fewer cars on the road during peak hours) on the main highways, considered to be the main benefit by the Ministry of Transport, which is responsible for the highway network (ibid.) and was used to contribute to the discussion on whether or not to continue with the Utrecht Bereikbar pass (Interview, Degenaar). As the CBA showed high costs compared to the benefits of the pass, the government decided to stop funding it (although it continued on a private basis).

Utrecht Bereikbar
Reason to conduct project appraisal:
- To justify the measure's cost-effectiveness

Reasons for measure selection:
- To ensure accessibility during road works
- To achieve (sustainable) transport goals

Kaunas Master Plan

Kaunas is the second largest city in Lithuania with a population of approx. 307,000 covering 157 km2 and with a population density of 1,955 inhabitants per km^2. Kaunas is a main logistics hub for Lithuania and the wider Baltic States region. The city faces some challenging issues relating to urban development, traffic congestion and public-transport improvements.

Implementation of a SUMP in the city has yet to start. It will be based around already established city planning processes and closely linked to a municipal *Master Plan* for the period 2013-2023. The Ministry for Transport and Communication provides some incentive to encourage SUMP implementation by providing funding for sustainable transport activities.

Stakeholders in Kaunas have been actively contributing to EU transport and mobility projects since 2002. Many of these projects have helped the city to develop a participatory process and have contributed to the availability of information. The development of the final City Master Plan (2013-2023) will help to form the main priority areas for future SUMP development.

The main goals of the SUMP will be to reduce private car usage, to increase the quality and quantity of public transport journeys, a substantial expansion of and improvement in the city's cycling infrastructure, and a revival of the historic old town. Consequently, it is expected that these goals will provide the city with a higher quality of life along with emissions reductions (in line with EU and national targets). A revival of the historic old town is also expected to include a rethink on car parking. This is in line with a newly approved city *Special Plan* on car parking, which aims to reduce congestion and decrease noise, and NOx and particulate emissions. However, a large part of a pedestrian boulevard, which is currently being renovated at a cost of €20m, will be redeveloped for car parking. None of these envisaged measures have been appraised. Many of the transport initiatives are based on EU regulations governing clean air and clean vehicles. Some periodical surveys related to public transport include travel patterns and contribute to the decision-making of public transport operators. Also Kaunas Technical University (one of the biggest in the Baltic States) has recently produced Lithuania's first *University Mobility Plan*. It is expected that this will play a role in determining specific area parking demands as well as determining how and where to improve pedestrian and cycling routes.

Kaunas Master Plan
Reasons to conduct project appraisal:
- None conducted

Reasons for future measure selection:
- To achieve (sustainable) transport goals
- To embed sustainable mobility as a way of life in the city
- To access funds

Piran's SUMP
The municipality of Piran is one of three coastal municipalities in the Republic of Slovenia. It has around 17,000 inhabitants and covers almost 45 km^2. It has long been active in the field of sustainable mobility; as a tourist town with very specific geography of the historic centre it has had to react to a worsening transport and accessibility situation. The city of Piran is unique in Slovenia and beyond: it has a dense, historic layout, is situated on a peninsula, has many spatial limitations on access, very concentrated population and a strong tourism sector. All of these elements are a great challenge for transport planning in the area.

SUMP is a new topic in Slovenia and its preparation process doesn't normally include CBAs. National guidelines on SUMPs suggest use of simple appraisal of possible measures against the objectives as part of measure selection process. However, CBA may be used later in the implementation process, on the measure level, and it is formally requested for bigger infrastructural projects.

The SUMP for the Municipality of Piran was prepared in 2012 within the *Adria. MOVE IT!* Project, itself part of the IPA *Adriatic Cross-Border Cooperation Programme*. Some of the measures defined in the SUMP had been financed through the Adria.MOVE IT! project already. Development of the SUMP was based on a number of previous transport plans and is also well coordinated within the *Strategic Spatial Plan* (2010).

The objectives of Piran's SUMP have been set for the next 5 years: first and foremost the reduction in the share of personal motorised traffic. The implementation of SUMP measures in Piran are planned in several steps. Firstly, the measures developed within the Adria.MOVE IT! project, the implementation of which started in 2012 and finished in 2013. In the second phase, new organisational and other measures are planned with a focus on walking and cycling. Implementation of measures in this group will start after the formal approval of the SUMP. Measures in the third phase are investment measures to assure the appropriate number of parking spaces

for inhabitants and visitors of Piran. Implementation of these measures depends on assuring the needed funding (public or private) and spatial planning procedures.
CBAs have been completed for the measures in the first phase (improvements of accessibility of bus connection, a bike sharing scheme and a logistic platform with electric vehicle for goods delivery) after the selection of measures (Občina Piran 2012). Their purpose was primarily to show the predicted effects of the measures and thereby support implementation of the measures. Measures in the following two phases of SUMP were not subject to project appraisal.

Piran's SUMP
Reason to conduct project appraisal:
- To justify measures' cost-effectiveness

Reasons for measure selection:
- To achieve local (sustainable) transport goals
- To access funds

4 Findings

The case studies illustrate contemporary decision-making. Table 1 lists the appraisal methods used in the cities' decision-making processes and the basis for measure selection. Four out of the five cities used CBA in their decision-making processes. The main rationale of Munich and Bristol in conducting CBAs was to access funding for some of the measures which their SUMPs had stipulated. In Utrecht and Piran, CBAs were used to determine the measures' cost-effectiveness, but not to compare alternatives. In Utrecht, CBA results led to the termination of public funding, but the measure in question was continued on a private basis regardless.

Measure selection in all five cases was mainly based on the political agenda or as a response to looming problems in the city. The projects were discussed in public participation processes and approved by politicians. In the cases of Munich, Bristol and Utrecht, CBAs did not play a significant role for decision-making, but project appraisal had been conducted for other reasons regardless. However, as the case of Piran shows, the main purpose of conducting a CBA may also be to verify already envisaged effects rather than to fulfil funding requirements.

None of the cities conducted CBAs or similar project appraisal methods for schemes not requiring investment. In these cases, the cities mainly relied on rough self-estimates. It appears to be too expensive to apply traditional appraisal methods for small-scale measures. If cities want to ensure that the SUMP measures they implement are both sustainable and provide value for money, they must rely on methods which were initially designed to appraise large-scale schemes which may skew the results. But equally, politicians' pre-conceived ideas and pet-projects are not necessarily sustainable, or cost-effective.

In two of the five case studies (Munich and Bristol), a combination of appraisal techniques and rough estimates was used to test the performance of alternative measures. Thus, decision-making embedded in SUMPs may foster testing of alternatives, which may in turn increase the value for money of measures implemented. But such testing could also be misleading, if, for example, project appraisal techniques are stipulated by dedicated infrastructure

<table>
<tr><th></th><th>Munich</th><th>Bristol</th><th>Utrecht</th><th>Piran</th><th>Kaunas</th></tr>
<tr><td rowspan="2">Main reason(s) for project appraisal</td><td colspan="2">Access to funds</td><td colspan="2" rowspan="2">Justification of measures' cost-effectiveness</td><td rowspan="2">No project appraisal</td></tr>
<tr><td colspan="2">Comparison of alternatives</td></tr>
<tr><td rowspan="2">Main reasoning for measure selection</td><td colspan="5">Achievement of local (sustainable) transport goals</td></tr>
<tr><td colspan="3">Other reasons</td><td>Access to funds</td></tr>
</table>

Table 1. Rationale in applying project appraisal and measure selection.

funding streams.

An important part of a SUMP is to implement packages of measure which mutually reinforce each other. But appraisal of packages seems to go beyond the capabilities of current appraisal practice.

In conclusion, there appears to be a fundamental contradiction in the need for assessments to be well founded, and yet not cost too much to perform. Additionally, policy-makers should appraise alternatives to increase overall value for money and to effectively address looming problems in the city. In order to limit undue expenses, they should try to simplify appraisal techniques and adapt existing methods to local circumstances. But they should also discuss whether the steps taken to simplify performing assessments (e.g. replacing verifiable data with assumptions or judgements) detract from the results to the point of making the assessment (politically) unusable. . There may be a 'happy medium' which would have to be locally defined according to the characteristics of the measures in question. In any case, the assessment process and the underling assumptions should be transparent and all relevant environmental, social and economic impacts should be included. Assessing indicators in a simple or qualitative manner will encourage cities to at least consider wider sustainability effects, which are often neglected in traditional appraisals.

Assuming assessments are simplified by replacing solid data with assumptions and judgements, policy-makers should also discuss what could be done to prevent these being manipulated to tailor the results to confirm already-made decisions, as is sometimes the case with CBA currently.

A core question is to what extent the results of project appraisals influence decision-making processes. It is possible that the public may care more for rhetoric than calculations. Especially if there is no workable solution for project appraisal, sustainable urban mobility measures may be better served by increasing awareness among local decision-makers of their benefits. A holistic, even only descriptive, overview of the benefits and costs of sustainable policies might strengthen policy-makers' ability to convince their electorates of such policies' merits. This would not necessarily lead to best value for money, but at least favour sustainable over unsustainable transport schemes.

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References:

Ackermann, F., Heinzerling, L., 2002. Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection. University of Pennsylvania Law Review 150, Issue 5, 1553-1584.

Banister, D., 2011. Cities, mobility and climate change. In Journal of Transport Geography, 19 (6), 1538–1546

Beukers, E., Bertolini, L., Te Brömmelstroet, M., 2012. Why Cost Benefit Analysis is perceived as a problematic tool for assessment of transport plans: A process perspective. Transportation Research Part A: Policy and Practice 46, 68–78.

Bristow, A.L., Nellthorp, J., 2000. Transport project appraisal in the European Union. Transp. Policy 7, 51–60.

Brög, W., Erl, E., Ker, I., Ryle, J. Wall, R., 2009. Evaluation of voluntary travel behaviour change: Experiences from three continents. Transport Policy 16, 281–292.

Browne, D., Ryan, L., 2011. Comparative analysis of evaluation techniques for transport policies. Environmental Impact

Assessment Review 31, 226–233.

Cavill, N., Kahlmeier, S., Rutter, H., Racioppi, F., Oja, P., 2008. Economic analyses of transport infrastructure and policies including health effects related to cycling and walking: A systematic review. Transport Policy 15, 291–304.

Council of the EU (European Union), 2010: Council conclusions on Action Plan on Urban Mobility, 3024th Transport, Telecommunications and Energy Council meeting, Luxembourg, 24 June 2010. http://ec.europa.eu/transport/themes/urban/urban_mobility/doc/2010_06_24_apum_council_conclusions.pdf

City of Munich, 2006: Transport Development Plan. http://www.muenchen.de/rathaus/dms/Home/Stadtverwaltung/Referat-fuer-Stadtplanung-und- Bauordnung/Publikationen/ vep06_kurz_eng.pdf

EC (European Commission), 2009. Action Plan on Urban Mobility COM (2009) 490/5. http://ec.europa.eu/transport/themes/urban/urban_mobility/action_plan_en.htm

EPOMM, 2013. Mobility management: The smart way to sustainable mobility in European countries, regions and cities.

Flyvbjerg, B., 2012: Quality control and due dilligence in project management: Getting decisions right by taking the outside view. International Journal of Project Management, Volume 31, Issue 5, 760–774.

Geurs, K.T., Boon, W., Van Wee, B., 2009. Social impacts of transport: literature review and the state of the practice of transport appraisal in the Netherlands and the United Kingdom. Transport reviews 29, 69–90.

Hüging, H., Glensor, K., Lah, O., 2014. Need for a holistic assessment of urban mobility measures – Review of existing methods and design of a simplified approach. Transport Research Procedia. " Volume 4, 3-13.

Halcrow, 2013. West of England Cycle Transformation: Cycle City Ambition Grant Funding Bid. Scheme economic appraisal report. Version 2.

Hutton, B., 2013. Planning sustainable transport. London and New York: Earthscan

James, A., 2010. Heysham M6 Link Road. Review and Proposal. Report to Transport Solutions for Lancaster and Morecambe (TSLM). http://btckstorage.blob.core.windows.net/site5295/Documents/Full%20Alan%20James%20report.pdf

Kolbenstvedt, M., 2014. Increasing active transport among children - what effects do campaigns have?. Transportøkonomisk institutt (TØI).

Interview with Georg-Friedrich Koppen, Transport Unit Head, Munich Department of Urban Planning and Building Regulation, 9-09-2014.

Interview with Hans Degenaar, Rijkswaterstaat (RWS), 29-09-2014.

Jacobs Consultancy, 2011. Value for money and appraisal of small scale public transport schemes. Final Report.

Mackie, P., Worsley, T., Eliasson, J., 2014. Transport appraisal revisited. In Research in Transportation Economics 47, 3-18.

Marsden, G., Frick, K.T., May, A.D., Deakin, E., 2011. How do cities approach policy innovation and policy learning? A study of 30 policies in Northern Europe and North America. Transp. Policy 18, 501–512.

Metz, D., 2008. The myth of travel time saving. Transport Reviews, 28(3), 321-336.

Odgaard, T., Kelly, C.E., Laird, J., 2006. Current practice in project appraisal in Europe.

Občina Piran, 2012. Priprava študij in načrta mobilnosti za občino Piran v okviru projekta ADRIA.MOVE IT!. Končno poročilo.

Raux, C., Souche, S., Pons, D., 2012. The efficiency of congestion charging: Some lessons from cost–benefit analyses. Research in Transportation Economics 36,

85–92.

Schafer, A., Victor, D., 2000. The future mobility of the world population. Transportation Research Part A: Policy and Practice 34 (3), 171–205.

Tingvall, C., Haworth, N., 1999. Vision Zero - An ethical approach to safety and mobility. Monash University Accident Research Centre. Paper presented to the 6th ITE International Conference Road Safety & Traffic Enforcement: Beyond 2000, Melbourne, 6-7 September 1999.

Utrecht, 2012. Ambitiedocument. Available at: http://www.utrecht.nl/fileadmin/ fileshare/images/DSO/verkeer/AantrekkelijkBereikbaar/Ambitiedocument_201 2_01.pdf

Van Wee, B., Rietveld, P., Meurs, H., 2006. Is average daily travel time expenditure constant? In search of explanations for an increase in average travel time. Journal of Transport Geography 14, 109–122.

Wefering, F., Rupprecht, S., Bührmann, S., Böhler-Baedeker, S. (2013). Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan. December 2013. Available at: http://mobilityplans.eu/docs/file/guidelines_developing- and-implementing-asump_final_december_2013.pdf

Whitelegg, J., 2013. Quality of Life and Public Management. Redefining development in the local environment. Milton Park: Routledge