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How effective capacity building allows monitoring and evaluation to improve the delivery of sustainable urban mobility projects: Experience and lessons from the EU Metamorphosis project

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Abstract

Sustainable urban mobility is an established target of policy making and planning in Europe. It is associated with, among others, better air quality, less noise disturbance, increased safety and quality of public space. In this regard, one of the EU Commission's main tools to reach sustainable urban mobility, Sustainable Urban Mobility Plans (SUMP), require the explicit integration of Monitoring and Evaluation (M&E). Yet, European cities face common barriers when it comes to materialising M&E in practice. To avoid or overcome these barriers, this paper argues for integrating capacity building (CB). We draw this conclusion on the basis of experiences made during the M&E of the Horizon 2020 Project 'Metamorphosis'. We report our experiences, rating different monitoring indicators used for the evaluation of measures transforming car-oriented neighbourhoods into children-friendly neighbourhoods in seven European cities. We then give advice on how to design and integrate CB for a feasible M&E scheme.

Keywords: Monitoring and evaluation; Process and impact; Capacity building; Education and training; Active mobility; Child-friendly neighbourhoods

[Note: This document has four pages, not including this abstract page, notes and the references, as suggested by the Conference call for submission.]

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1. Introduction

Effective urban mobility is an important consideration in bringing about social change and improving people's quality of life, given an ever-growing share of the population in Europe and worldwide now live in cities (Koceva et al., 2016). However, the growing demand to connect people and places needs to be accompanied by, among other factors, improvements to air quality, reduced noise disturbance, increased road safety, a reduction in carbon emissions and energy consumption, and the effective deployment and use of public spaces (EU, 2013). To help address some of these issues, the EU and other policy makers have established practical sustainable urban mobility planning frameworks (e.g. ELTIS, 2015). These frameworks build on existing best practice, and are particularly useful for large-scale transport and mobility projects that involve multiple implementations, phases or work packages. However, by their nature, these projects tend to focus on creating impacts and ensuring the efficient deployment of resources (including time) in delivering outcomes, rather than engaging people who need to be involved. In particular, engaging people in capacity building, and the monitoring and evaluation of sustainable urban mobility projects can be problematic, given many different stakeholders may be involved, and there is a wide range of indicators and methods that could potentially be applied (Tafidis et al., 2017). Yet, capacity building as well as monitoring and evaluation are crucial in successfully establishing sustainable urban mobility through large-scale projects. This paper therefore seeks to provide real-world evidence and advice on capacity building, and the monitoring and evaluation of sustainable urban mobility projects, based on the findings of the EU Metamorphosis research project that involves 12 partners in implementing such schemes across seven European cities, namely Alba Iulia, Graz, Meran, Munich, Southampton, Tilburg and Zurich.

2. Method and concepts

In order to discuss the findings, a brief summary of the Metamorphosis project is presented below, along with an outline of the approach to capacity building and monitoring and evaluation. This will be followed by a discussion of the early results in the next section.

[Note this section is a summary, which will be expanded on, in the final paper.]

2.1. The Metamorphosis Project

Metamorphosis is an innovative sustainable urban mobility and social change project founded on the premise that when a neighbourhood has many children in its public spaces (Gehl, 1994), this is a major indicator that it is well-designed as a sustainable and people-oriented city district. It assumes that when city neighbourhoods are designed for the benefit and with the participation of children, one of its most vulnerable groups, other residents will also thrive. Indeed the definition of 'sustainable' is associated with endurance and continuity for ongoing survival, which in the human context is combined inseparably with children, as it implies a necessity to design for our future generations, and the long-term benefit of the community. The Metamorphosis Consortium (2017) therefore sought to transform the neighbourhoods of seven European cities in a child-friendly manner, away from the harmful effects of motor cars. The aim is to encourage active travel, particularly cycling, through a series of 'co-designed' innovative trials, as well as interventions that are more permanent and to increase the quality of life for all citizens. Over a period of three years from 2017 and to 2020, the 12 partners involved worked towards a common goal: to develop and implement bottom-up measures with children, to achieve lasting behavioural change that make neighbourhoods more inclusive, active, vibrant, and therefore more child-friendly. This involvement of children is also important because they help to develop positive emotions for a neighbourhood, and children can easily find a way to their parent's hearts, and through them, strengthen the support for the sustainable measures being undertaken through the project.

2.2. Capacity building

Although the potential benefits of major research projects such as Metamorphosis is large, it is crucial to communicate the project messages and build capacity among all the stakeholders. Capacity building (CB) is the process of providing training and information on quality, relevance and effectiveness of knowledge and results of particular measures to a desired target group. In this sense, it is the process of establishing what has been proven successful through monitoring and evaluation efforts. However, CB is equally important for monitoring and evaluation itself. In this sense, it is the process of establishing what has been proven successful "for", as opposed

to "through", monitoring and evaluation. The target groups for CB within Metamorphosis are principally: cities that want to become child friendlier, local practitioners and policymakers in transport and related fields, researchers and educational institutes, as well as people in the communities, especially local children. All of these stakeholders can benefit both from CB for as well as from monitoring and evaluation.

2.3. Monitoring and Evaluation

Monitoring and evaluation (M&E) is a well-known discipline in project management that helps to reach predefined goals of project measures by generating the information needed for an iterative adjustment of procedures within the project as well as for improvements in future projects. The successful achievement of sustainable urban mobility schemes requires appropriate measures to be implemented at the right leverage points in the socio-technical system of urban transportation. However, what are the appropriate measures? When do we know an implementation has been successful? And where are the right leverage points? These answers are only obtained if the impact of the implemented measures is monitored and evaluated against a scale derived from targets set within (for example) frameworks such as sustainable urban mobility planning (SUMP). Furthermore, it is important that M&E activities are integrated into the wider planning and management process, and that process evaluation is conducted to help improve measures during the implementation phase, e.g. to refine the method or avoid mistakes from reoccurring (Dziekan et al., 2013). Metamorphosis follows this approach by combining M&E with CB.

As Metamorphosis is based on experimenting with innovative planning ideas, the success of single implementations cannot be guaranteed in advance. At this stage, the role of M&E is to differentiate between a successful *trial* and (unsuccessful) *error*, although even then, lessons can be learnt. In this sense, M&E functions as a filter that selects the right building material for future CB. Together, they can thus be conceptualised as elements of an iterative and interdependent process, increasing the quality of sustainable urban planning projects over time (Figure 1).
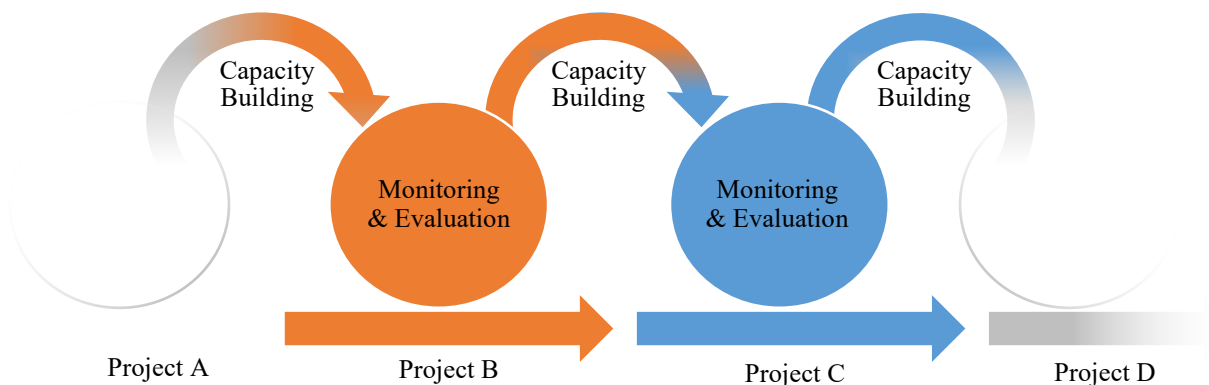

Fig. 1 Conceptualisation of the interplay between CB and M&E

This paper seeks to demonstrate the benefits of a combined M&E and CB approach starting with our experiences made with a set of indicators from the Metamorphosis M&E plan. Our real-world evidence suggests that some indicators are more feasible for M&E than others. However, these indicators that are difficult to measure might yield very valuable information. In this sense, their problem is proportionality: they are too difficult to measure for the turnout they promise. It is the role of CB to increase the proportionality of those indicators deemed unfeasible or largely unfeasible by building the capacity to handle the difficulties attached to the indicators, allowing them to materialise, and be used effectively (Table 1). Yet, what needs to be kept in mind is, if the materiality of an indicator is not given, the proportionality will never justify its use. Revisiting the distinction between the two ways to differentiate CB made in chapter 2.2, the following chapters discuss the use of CB for M&E (as opposed to CB through M&E).

Table 1: Definition of the three overarching properties of indicators in Metamorphosis.

Feasibility	Materiality	Proportionality
Describes the effort needed to use an indicator. Feasibility includes e.g., whether the indicator is measurable or whether it demands many resources. A 'non-feasible' indicator will not yield any (useful) information.	Describes the significance or relevance of an indicator. Materiality is case specific and includes e.g., whether the indicator is aligned with the expected goals of a measure. A 'non-material' indicator does not yield useful information for the case.	Describes the relationship between Feasibility and Materiality. Good proportionality is given, when an indicator is both feasible and has potential to materialise.

3. Early Findings and Discussion

Within the first phase of the Metamorphosis project, an M&E plan was made in accordance with the expected impacts of the project and compatible with the transformative measures developed in participatory processes for the cities. This plan entailed a list of more than 100 different measure-specific indicators of process and impact performance. These indicators were selected by the Consortium partners in conjunction with city and community representatives, including children. 50 different types of measures are being implemented across the seven cities, and in total, over 300 specific measures have been implemented so far.

The cities then rated the data collection process required for M&E for each implementation. The overall assessment for this was positive, which showed that data collection of the planned indicators was relatively easy in 80 percent of the implementations – see trend in Table 2. However, our experiences to date from the Metamorphosis project also showed that data collection suffered from some indicators that were difficult to use or even unfeasible to collect data and results on. In other words, their proportionality (of benefit versus effort required) for the M&E of sustainable urban mobility measures is relatively low. Using the cities rating of the data collection process. Including Commentaries, Using the cities rating of the data collection process on Likert scales and commentaries as well as information from informal and formal bilateral talks and group discussions, we gave each indicator a 'feasibility'-rank from very easy to very difficult (Table 2). For example, one of the indicators with a low proportionality is modal split. Several cities had implemented measures that included the modal split as an indicator to measure impact, i.e. for mode shift. However, during data collection, common difficulties emerged, according to the partners and cities. One of the main reasons for the difficulty is the effective engagement of children (in people-oriented schemes) in collecting the modal split travel data, other than through schools or kindergartens, i.e. for travel to/from school. Even then, data collection is heavily dependent on the support of the schools' principals, teachers and parents, and a great deal of preparation as well as engagement throughout is needed. Nonetheless, it was possible to collect data in some cases, a positive example being the experience of school classes who participated in the *Walking Bus*[†]. Information on the modal split of the classes for home-to-school trips was collected at the end of the every walk, to compare those who walked and those who did not. Every child in the classes were given stickers of different colours, to represent the specific modes of transport they used to get to school. These where then pinned on a poster to colourise a tree. [Further examples of indicators with different feasibility levels will be given in the full paper.]

Table 2: Selection of measure-specific indicators and their feasibility rating from -- (very difficult) to ++ (very easy). [A complete overview of all indicators will be given in the full paper.]

Indicator	Measures to which the indicator is applied	Data collection method	Feasibility
Average time spent and type of people's interaction in public space	• Temporary street closures • Interventions in public space (e.g. transformation of parking spots, hybrid zones)	Silent observation	+
Area temporarily transformed (e.g. m² new green areas, parking areas replaced)	• Crystallisation points (urban gardening) • Interventions in public space (e.g. transformation of parking spots, hybrid zones)	Measurement area transformed	++
Acceptance/ satisfaction with the measure	All measures	Survey	+

[†] A walking bus is a group of pupils walking to school along a set route accompanied by a supervising adult. Among other things, it increases safety as well as physical activity during travel to and from school.

Indicator	• Measures to which the indicator is applied	Data collection method	Feasibility
No. of children in public space	• Temporary street closures • Interventions in public space (e.g. transformation of parking spots, hybrid zones, public breakfasts)	Counting, silent observation	+
No. of participants or users	• All measures	Registrations	++
Modal split (no. of children walking or biking to school, home-to-school car trips)	• Measures to empower active mobility: workshops, trainings, mobility games • Crystallisation points (mobility share points)	Self-survey of children)	-
Perception of safety, noise and air pollution	• Temporary street closures • Interventions in public space • Measures to empower active mobility: workshops (walking bus), school environmental analysis	Survey	-
Attractiveness of the school surrounding/ school way	• Temporary street closures • Interventions in public space • Measures to empower active mobility: workshops, school environmental analysis	Survey	-

As part of the project delivery, Metamorphosis also undertook a series of CB activities ranging from briefings, internal trainings and training for city planners, to international CB. Initially, city officials were trained in how to plan, implement and evaluate measures through workshops covering different 'activity fields', which separated the sustainable mobility measures into categories that included: street closures; citizen empowerment workshops; educational innovation tools; interventions in public space, living labs as well as hybrid zones; and social 'crystallisation' points such as urban gardening projects. The experiences from these works shops are also useful to build up capacity for data collection, including the capacity to cope with potential difficulties of certain indicators, and finding solution to those specific difficulties. The lessons learnt from these workshops will be transferred to the M&E of upcoming measures within the project or to other projects through CB (Figure 1). The consortium's academic partners also embedded this experience into their educational and teaching programmes, ensuring that the knowledge gained from the project is spread wider, and that future students are presented with real case studies as well as practical knowledge for addressing challenges in the M&E of sustainable mobility measures and projects. This way, CB provides a way of spreading knowledge about the feasibility/proportionality of useful indicators by, on the one hand, highlighting those that are sometimes more problematic to obtain data for, and, on the other hand, providing the knowledge of how some of these difficulties may be overcome.

4. Early conclusions

The preliminary results of our CB and M&E research lead to some valuable insights regarding the differences in feasibility and thus proportionality of indicators for M&E. This includes there being a strong chance that sustainable mobility planning measures will fail to live up to their impact expectations due to an unfeasible monitoring and evaluation approach. Indictors, and the overall M&E approach, need to be selected through an understanding of the materiality, feasibility and proportionality of different indictors. Otherwise, the M&E approach can be dismissed in its entirety. What needs to be changed in order to increase the chances for sustainable urban mobility measures to benefit from M&E is the proportionality of the indicators deemed too difficult to use. This is done by enabling the use of difficult indicators that have the potential to materialise . We suggest using CB for M&E as a promising approach to achieve this empowerment and understanding of feasibility of different indicators, and how CB should be organised to benefit M&E will be elaborated on further in the final paper.

Acknowledgements

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