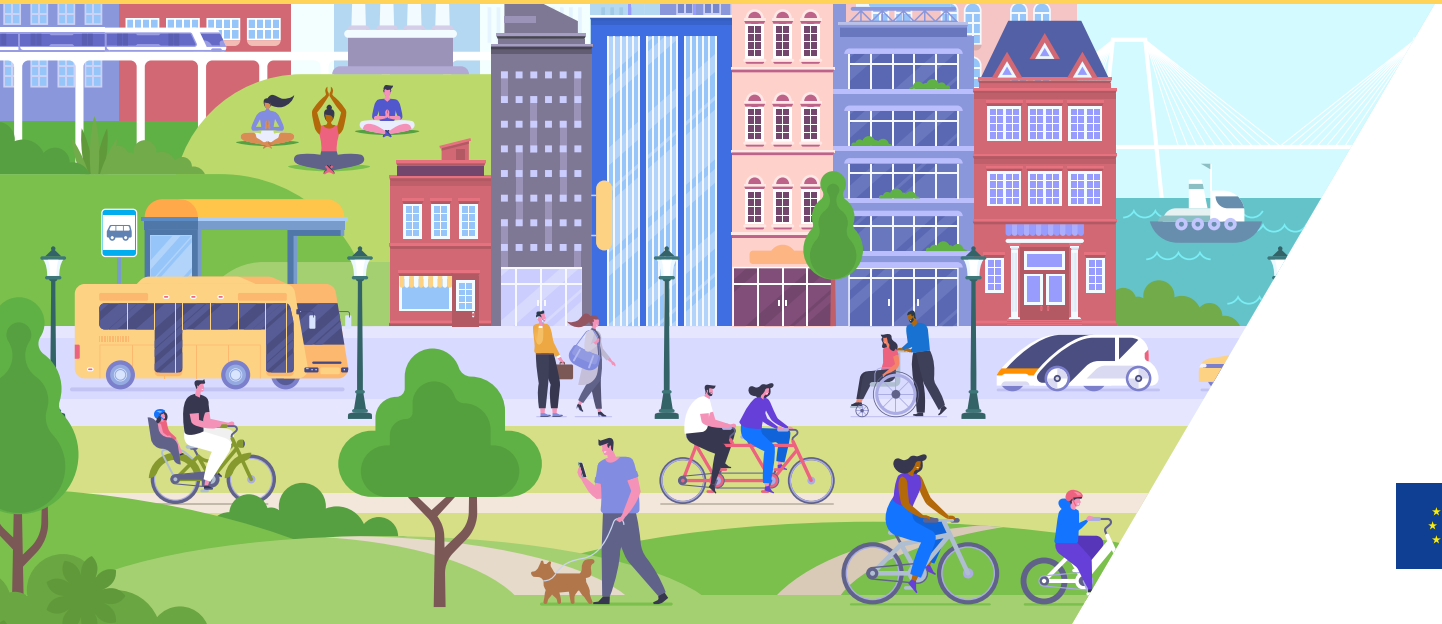
European Platform on Sustainable Urban Mobility Plans

PRACTITIONER BRIEFING

SOCIAL IMPACT ASSESSMENT: TOOLS, METHODS AND APPROACHES



Imprint

About:
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Title:
Social Impact Assessment: Tools, Methods and Approaches

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Contents

Guide to the reader

This document provides guidance on Social Impact Assessment (SIA) in the context of Sustainable Urban Mobility Planning (SUMP). SUMP is outlined by the European Commission's Urban Mobility Package[1] and described in detail in the European SUMP Guidelines (second edition)[2]. SIA is a well-recognised approach which has been used in several domains outside of transport. It can be conducted as part of the SUMP cycle, or with respect to individual transport measures.

In brief, Sustainable Urban Mobility Planning is a strategic and integrated approach for dealing with the complexity of urban transport. Its core goal is to improve accessibility and quality of life by achieving a shift towards sustainable mobility. It provides an opportunity to ensure that future transport systems are inclusive. SUMP advocates for fact-based decision making guided by a long-term vision for sustainable mobility. It requires a thorough assessment of the current situation and future trends, a widely supported common vision with strategic objectives, and an integrated set of regulatory, promotional, financial, technical and infrastructure measures to deliver the objectives. Implementation should be accompanied by reliable monitoring and evaluation. In contrast to traditional planning approaches, SUMP places particular emphasis on the involvement of citizens and stakeholders, the coordination of policies between sectors (transport, land use, environment, economic development, social policy, health, safety, energy, etc.), and a broad co-operation across different layers of government and with private actors.

This document is part of a *compendium of guides and briefings* that complement the second edition of the SUMP Guidelines. Such documents elaborate unfamiliar or difficult aspects of planning in more detail, provide guidance on specific contexts, or focus on important policy fields. Two types of documents exist: 'Topic Guides' provide comprehensive planning recommendations on established topics, 'Practitioner Briefings' are less elaborate documents addressing emerging topics with a higher level of uncertainty. These documents form part of a growing knowledge base of documents which can be found in the 'Mobility Plans' section of the European Commission's urban mobility portal Eltis (*www.eltis.org*).

[1] Annex 1 of COM (2013) 91 2 Rupprecht Consult - Forschung & Beratung GmbH (editor), 2019 Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, Second Edition.

[2] Rupprecht Consult - Forschung & Beratung GmbH (editor), 2019 Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, Second Edition.

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1. Executive summary

This Practitioner Briefing introduces the concept of Social Impact Assessment (SIA). SIA can be used as a means of considering and improving transport justice or equity (Martens, 2017), encouraging citizen engagement and taking account of the needs of vulnerable users. Vulnerable road users are defined in the European Union Intelligent Transport Systems Directive as "non-motorised road users, such as pedestrians and cyclists as well as motorcyclists and persons with disabilities or reduced mobility and orientation" (Eltis: *https://www.eltis.org/glossary/vulnerable-road-users*).

Following an introduction to Social Impact Assessment, an overview of methods and tools is provided, which practitioners could use to plan and implement gender- and diversity-sensitive transport measures, with examples of how these methods have been applied in practice. Social Impact Assessment is introduced as an approach to improving inclusiveness in the design and operationalisation of sustainable transport measures, to ensure the voices of all stakeholders are heard and given equal value in the planning of mobility services. Traditionally, impact assessment has focused on quantifiable parameters and prioritised journeys undertaken by (mostly male) car owners or for commuting purposes. This has led to inequalities in transport provision which reinforce other inequalities leading to multiple levels of deprivation, reduction in opportunities (e.g. to access resources such as health, education, employment and recreational facilities) and poorer quality of life.

Within SIA, transport is assessed in relation to the extent to which it enables a good quality of life to be achieved. For example, by providing citizens with equal opportunities to access resources and opportunities. Within such a framework, it is not sufficient to measure transport simply in terms of its performance, but also as an enabler of, or barrier to, a good quality of life for all members of society, regardless of their physical abilities, age, sex, gender, ethnic origin etc.

Conducting SIA's throughout the urban mobility planning process helps to ensure that plans meet the needs of all citizens and that no group is disadvantaged by new mobility measures.

2. Introduction

In any sustainable urban planning process, it is important to consult with, and meet the needs of, vulnerable groups and others who have been traditionally disadvantaged and disenfranchised. It has been shown that transport planners and others involved in transport and mobility planning find it difficult to engage with members of 'hard to reach groups', (the METPEX project (part of EC FP7 funding programme 2007-2013), (Tovey, Woodcock and Osmond, 2016). This has led to a systemic under-representation of these groups' needs. Without this engagement, future transport provision will not serve all citizens and may lead to greater inequalities. The purpose of this Practitioner Briefing is to encourage local authorities and those engaged at all stages of SUMP development, or the implementation of new transport measures, to increase the diversity of the groups and stakeholders consulted. We wish to encourage them to move away from impact assessments based purely on quantification of performance to understand how transport-related measures affect mobility and quality of life.

To increase the usefulness of this document, material and case studies have been included with links to source material to allow readers to follow-up and discuss with field experts, if they wish.

3. Gender and diversity mainstreaming in SUMP processes

The SUMP planning cycle is shown in Figure 1. The decision to prepare a SUMP should start with a commitment to improve accessibility and mobility for all, to enhance citizens' quality of life and social equity (p32, SUMP guidelines[3]). Prerequisites for this are an awareness of the current status of the population (e.g. in terms of access to key resources such as health, education and employment), a desired target and a means of evaluating the outcome against the target. This may require new ways of working to create opportunities for inclusivity in the teams and a more 'intersectional' perspective: which recognises how people's social and political identities can combine and create different and unique modes of discrimination and/or privileges.

SUMP integrates eight crucial principles, in which citizen engagement, co-operation, integration and evaluation are key areas in a sustainable planning process (Figure 2). Each area needs to take into account the need for inclusiveness and the design of transport systems that meet the needs of all citizens – including the young, old, those from diverse ethnic and gender groups, those with disabilities or reduced mobility and from lower socio-economic groups. SIA enables the analysis of the effects that planned transport and mobility measures may have on different sectors of society, thus helping to ensure that the key SUMP principles of citizen engagement and inclusion are planned, implemented and evaluated.

Figure 1: SUMP Planning Cycle[4]

[3] *https://www.eltis.org/sites/default/files/sump_guidelines_2019_interactive_document_1.pdf*

[4] *https://www.eltis.org/mobility-plans/sump-process*

SIA prioritises the need to recognise and look at intersectional effects of transport, and how transport plans may significantly affect people's quality of life, according to their different circumstances. For example, a new dual carriageway may speed up flow of traffic into and out of a city, improving the journey time of commuters, but it may sever local communities from each other and from facilities, thus significantly reducing the quality of life for those in the immediate vicinity.

The starting point for SIA is to engage a wide range of public diversity in the planning process. This should include diversity in terms of gender, ethnicity, income, age, disability and other groups, depending on the city or region.

It is also important to have gender balance and diversity in the core planning team, when developing a SUMP. This is crucial to ensuring that inclusiveness and accessibility remain central to planning, and that the voice of disadvantaged and vulnerable groups is not lost. As Smeds et al. (2020) explain:

"Decision-making and knowledge production is typically dominated by white men in technocratic professions, while it is clear … that there are disadvantages suffered by women, non-white and lower-income people" (Smeds et al. (2020), p3)

Diverse teams bring more creativity, depth of knowledge, a wider range of skills and experience increasing the likelihood that inclusive and accessible actions and instruments will be developed. To assist in this, the European Institute for Gender Equality (EIGE) provides gender *equality training* that public administration employees can undertake during Phase 1 of the SUMP process (*https://eige.europa.eu/gender-mainstreaming/toolkits/gender-equality-training*). The *TInnGO project* also provides a roadmap and series of tools to support gender action planning, (*www.tinngo.eu*).

Gender and diversity mainstreaming methods and tools can be used to monitor and direct equality policies and programmes and inform new strategies. The *EIGE* distinguishes three common methods for ensuring equality:

- **Sex-disaggregated data and intersectional analysis** as strategic ways to identify major problems and opportunities related to urban mobility. Identifying changes in variables such as gender, cultural dynamics and demography can inform decisions and include people's realities in policy development. However, such data is not systematically collected or openly shared. The SUMP process may provide an opportunity to unlock and merge different data sets, find gaps and redesign/standardise data collection procedures so that additional data can be used to understand mobility patterns to enable more accurate picture to be constructed from which new plans and priorities can be developed. SIA, along with 'Gender and Impact Assessment' and 'Equality Impact Assessment' mentioned below, can be used to collect such data and perform intersectional analysis.
- **Gender and Impact Assessment (GIA) and Equality Impact Assessment (EIA)** estimate the effects (positive, negative or neutral) of policies, legislations, actions, etc., which could be used during SUMP Phase 2. Social Impact Assessment could be used to screen proposals and be used in the monitoring and evaluation activities in SUMP Phase 4. These can show whether a transport measure may have a negative impact on certain locations or groups (e.g. people seeking employment or living in certain neighbourhoods) and how negative effects could be lessened.
- **The use of Gender and Equality/Diversity Action Plans** to organise, systematise and operationalise goals. Equality Action Plans consider gender, disability, age, ethnic background and other social markers. These are essential for setting targets, saying how the targets will be met, monitoring progress against targets and setting new ones.

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3.1 Best practice examples of using gender and diversity mainstreaming

Eskilstuna, Sweden The administration is integrating Gender Mainstreaming into their operations through staff training and improvements to increase safety in the city e.g. through lighting, art installations and the review of public transport. Such methods combine to make the city more attractive, safer and bring a wider diversity of people into public spaces. They found that including a gender perspective early in the process along with gender balanced teams widened perspectives. Having found a shortage of gender disaggregated statistics to inform planning decisions, they have taken the initiative to include a gender perspective in all their surveys and observations.

Cordoba, Spain The Gender Equality Department in Cordoba was concerned that women had limited mobility compared to men. Their survey showed that women could not move as freely as men: they did not have a car or a driving licence and therefore depended more on public transport. They concluded that 'transport policies seemed to be designed to fit men's habits and needs, giving priority to individual cars and to commuting.' As a result, the province is integrating gender mainstreaming into its urban transport policies and will analyse women's needs and habits in terms of transportation, to identify why mobility policy is discriminatory and designing policies that more efficiently ensure gender equality.

Barcelona, Spain Barcelona's 'Department for Gender Mainstreaming' aims to ensure that gender equality is a central focus for the city council. The city government's plans now include actions targeted at improving gender equality in schools, prevention of sexual harassment and gender-based violence, together with promotion of women's political and social participation through measures such as the "Plan for Gender Justice" and a "Strategic Plan Against Sexism in the City".

Vienna, Austria has been working towards gender mainstreaming since 1991, with over 60 gender mainstreaming planning projects. In the mobility sector, these include gender sensitive park design, and traffic plans focussed on increasing accessibility, safety and feelings of safety for all vulnerable users.

3.2 Resources to inform the development of Gender and Diversity Mainstreaming

- Allen, H., 2018, *Approaches for Gender Responsive Urban Mobility. Sustainable Transport: A Sourcebook for Policy - makers in Developing Cities Module*;
- Asian Development Bank, 2013, *Preparing a Project Gender Action Plan*;
- Canadian International Development Agency,1997, *Guide to Gender-Sensitive Indicators*, Quebec;
- UNESCO. Division for Gender Equality, 2011, *Priority Gender Equality Guidelines*;
- Gendered Innovations, 2011-2018, *Public Transportation: Rethinking Concepts and Theories*;
- *Observatory: European Charter for Equality of Women and Men in Local life*, 2006-2020, good practices and an overview of methods;
- *TInnGO: Transport Innovation Gender Observatory*, 2018, working across 10 EU hubs in fields of gender and diversity smart mobility;
- European Institute for Gender Equality, 2017, *Gender Impact Assessment Toolkit*.

4. Social Impact Assessment (SIA)

Social impacts relate to the direct and indirect impacts of any policy or intervention on people. The social impacts of transport can be defined as:

"...changes in transport sources that (might) positively or negatively influence the preferences, well-being, behaviour or perception of individuals, groups, social categories and society in general (in the future)." (Guers et al. 2009).

Such impacts may be spread over time and place. Discrimination in access to transport or in the use of transport, may be cumulative and additive leading to multiple levels of impact and disadvantage, such that some groups benefit from greater mobility more than others.

4.1 SIA in SUMP

The overall aim of an SIA is to evaluate and assess the social impact of transport and mobility measures in order to ensure that they are accessible to all and provide all citizens with access to the range of services and facilities they need for a good quality of life. Applying SIA throughout the SUMP process (as indicated in Figure 2) ensures that no one group is favoured above others (horizontal equity) and that groups which may be at a disadvantage (e.g. with respect to social class, income or disability etc.) receive more opportunities and resources (vertical equity).

SIA is predicated on the notion that decision makers should fully understand the likely consequences of their decisions before they act, and that people likely to be affected should be notified and have an opportunity to participate in the design of their future urban planning (IOCPGSIA 2003:248). The benefits of conducting a SIA include identifying affected groups, allaying fears and winning trust, avoiding adverse impacts whilst at the same time enhancing positive impacts such as reducing costs, getting faster approval from city authorities and stakeholders.

Figure 2: SIA in the SUMP planning cycle

Looking at this in more detail, the starting point for SIA is to embed diversity in the planning process and engage with a wide range of citizens and other stakeholders. Consultation should include diversity in terms of gender, culture and ethnicity, income, disability etc. depending on the city or region.

Pre-planning stage – needs and requirements

The development of transport measures should be participatory. The preparation and analysis phase requires mapping and understanding the socio-demographics of those likely to be affected by new transport measures, and using this to plan stakeholder and citizen involvement throughout the process, either through looking at census returns or conducting surveys and co-creation activities such as interviews and diary studies with those likely to be affected. It is crucial that the information is understood, used and championed by diverse planning teams sensitive to the needs of all users.

Strategy Development

During the strategy development phase, discussions and consultation should be held with citizens and stakeholders to build and assess potential future scenarios, develop a common vision, agree objectives and address key problems. Measurable targets and indicators should be agreed, considering the needs and requirements of diverse stakeholders, such as women, people with disabilities and vulnerable groups. In these activities, SIA can be an important tool for evaluating priorities and scenarios and ensuring that all viewpoints are considered in the development of inclusive strategies to benefit all citizens and maximise improvements in quality of life for previously disadvantaged groups.

Measure Planning

Co-creation activities continue through the measure planning phase. SIA can be used in assessing the list of measures in terms of their impact on sustainability and quality of life. SIA should be included as part of monitoring and evaluation during and post implementation, for example as part of public procurement and calculation of whole lifecycle costs. Affordability and accessibility influence the take-up of measures among disadvantaged and vulnerable groups, which will have implications for the social impact of measures as well as their overall take-up and general impact.

Implementation and Monitoring

Where SIA has been included in earlier phases of the SUMP, it will feed into implementation and monitoring, revealing the successes and failures post implementation. Continuing the dialogue with citizen and stakeholder groups enables results and lessons to be shared and used to consider emerging challenges and solutions from a societal perspective.

4.2 Factors to be included in social and distributional impact assessments

It is customary to group the social impacts arising from transport interventions into five broad, interconnected categories (Jones and Lucas, 2012):

1. Accessibility (potential)
2. Movement and activity (realised)
3. Health-related outcomes (road casualties and injuries, air quality, noise, physical activity, intrinsic value, mental health)
4. Finance related (affordability)
5. Community related (social interactions, personal safety and fear of crime and harassment, forced relocation).

The many interconnections make it difficult to measure the impact of individual transport measures, especially as these have distributional, time and group effects. For example, a change in accessibility brought about by a change in the operation of a bus line, might have an immediate impact on movement and activity. Some effects may be harmful (e.g. in terms of finances and time), whilst at the same time having beneficial effects (e.g. if it leads to an increase in walking or cycling). These effects will vary according to different groups and their ability to access or make use of the measure. Figure 3 (Martens et al. 2019, in Curl et al. 2020, p24) illustrates how transport-related resources translate into opportunities or risks and ultimately social outcomes and wellbeing.

Figure 3: The relationship between transport related resources and subjective well being

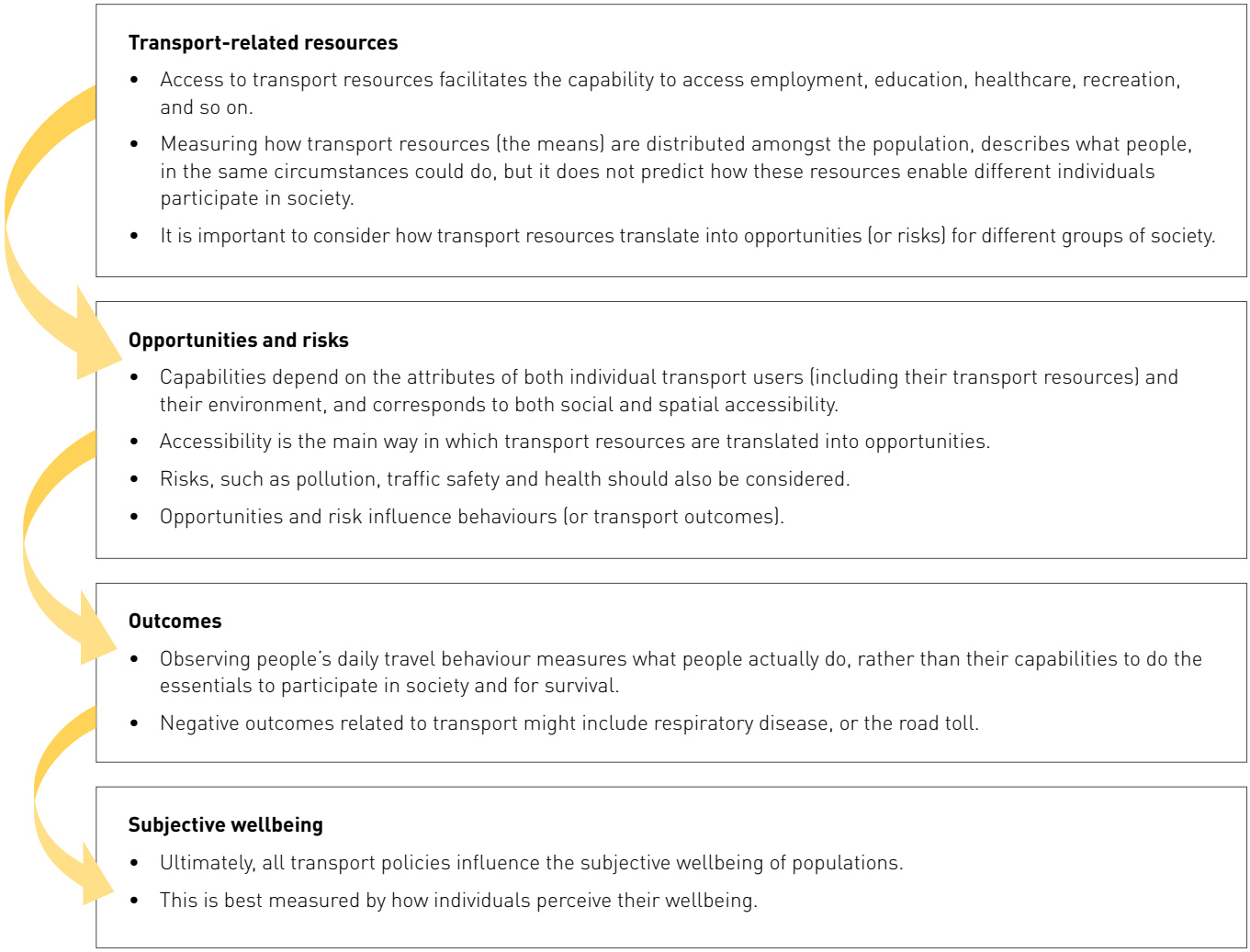

Table 1 provides an illustration of some of the factors that could be included in a SIA, based on the *H2020 CIVITAS SUITS* SIA survey (Woodcock, 2018). The above factors reflect the categories used in traditional transport impact assessments and are familiar to practitioners. Other categorisations are possible. For example, the INCLUSION project (Torvaas 2020) identifies eight categories: empowerment, empathy, accessibility, affordability, gender equity, safety, convenience, and efficiency.

Consideration of social impact should be embedded in the transport planning process as part of increasing inclusiveness and accessibility, along with assessments of environmental, health, social and economic factors and new procurement regulations.

Table 1: Illustration of factors that should be considered in a SIA

Issue	Factors
Quality of life/liveability issues	Improved accessibility of education, health, employment and other services, ability to take advantage of opportunities
	Overall community and personal satisfaction
	Visual aesthetics of the public realm, streetscape/journey ambience, landscape, effects on historical and heritage resources, property values
	Effects of travel
	Journey quality, transport choice/option value, affordability, travel time, accessibility
	Community cohesion and severance, imposition on physical activity
	Safety and security, casualties and injuries
	Distribution of impacts/amenities among vulnerable populations
Environmental issues	Overall quality of the public realm
	Noise, air, soil and visual pollution
Accessibility	Availability and physical accessibility of transport
	Safety and security
	Level of service provided
	Access to spatially distributed services
	Effects of structural issues on pedestrians
	Transportation choice and option values
Economic issues	Connectivity
	Reduction in travel time
	Equity of economic benefits
Social cohesion	Effects caused by reduced/increased opportunities for interaction
	Social isolation and exclusion vs inclusiveness
	Lack of access to essential services
	(Forced) relocation
Provider and process-based issues	Range and quality of engagement during and after planning
	Poor maintenance and neglect of schemes

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4.3 'Vulnerable and traditionally hard to reach groups' to be considered

Socially vulnerable groups need special consideration. The *EMPOWER* project defined these as:

"social groups which are disadvantaged in the transport system in general. Generally, this will mean people outside the group of physically and intellectually fit and able employed adults traveling to and from a single workplace on weekdays" (Glensor 2018).

The Covid crisis has shown how these might change with circumstances and location. For example, the mobility of persons with long term illnesses, the elderly and persons with respiratory problems was curtailed leading to social isolation of these persons[5]. To reduce the spread of the disease, initially the whole country and later, certain parts of it, went into lockdown. As the crisis persisted, key workers were considered vulnerable, and then young people's mobility was curtailed in efforts to stop the rate of infection (with curfews, social distancing and restrictions on the number of people one could mix with). Different EU Member States adopted different practices. The effects of enforced reduced mobility had a number of significant, distributional effects on lifestyle, health and wellbeing.[6]

The following groups are the ones most frequently considered vulnerable. With SIA and more intersectional approaches it is not enough just to regard these as disconnected sociodemographic groups. A more nuanced, empathic approach is needed to look at how transport planning affects mobility and how transport changes affect everyday lives. Factors combine to create levels of multiple deprivation.

- Persons from **low-income groups living** in **socially deprived urban areas**. Rates of low car ownership can be detrimental to finding employment; poor access to public transport makes it difficult to attend interviews, constrains choice of employment location and makes it harder to maintain employment, long commuter journeys for these groups may also lead to depression; districts suffering social deprivation may also have a deprived and unsafe urban environment and be exposed to high levels of pollution.
- Persons living in **rural or peripheral urban areas** with poor access to public transport may suffer from time, accessibility and affordability poverty. Longer commutes are also detrimental to wellbeing and mood.
- Little data has been collected on **ethnicity** and transport equity. For 'minority groups', including black and minority ethnic groups (BAME), public transportation can be a hostile environment. A quarter of young people from black and minority ethnic groups experienced harassment due to their colour, race or religion, on public transport (DfT, 2012). These groups also experience more traffic casualties and injuries than other groups. When compounded with low incomes and gender inequalities, transport poverty ensues.
- **Gender and diversity**. Research over the last two decades has demonstrated that females' travel patterns are different to males. Women's mobility is influenced by age, culture and house care duties. All this affects their access to healthcare, employment, education and recreational facilities. Recognition of the needs of the LGBTQI+ community is of central importance here as well.

[5] *World Health Organisation Communication*, 18 March 2020 (WHO reference number: WHO/2019-nCoV/MentalHealth/2020.1)

[6] Direct and indirect impacts of COVID-19 on health and wellbeing, Rapid evidence review July 2020 (Version 2) Produced on behalf of the Health & Equity in Recovery Plans Working Group under the remit of the Champs Intelligence & Evidence Service (*https://www.ljmu.ac.uk/~/media/phi-reports/2020-07-direct-and-indirect-impacts-of-covid19-on-health-and-wellbeing.pdf*)

- Individuals with a **mobility reduction or (hidden) disabilities** (e.g. communication, cognitive or social skills) make fewer trips. Transport is a big challenge owing to the design of vehicles, systems, the urban environment and the attitude of drivers, other passengers and road users (Wilkin 2020). Barriers to travel may include cost (e.g. if special taxis have to be hired to accommodate wheelchairs), design of public transport (in terms of accessibility), road infrastructure such as lighting and signage, increasing mixed use of pavements (e.g. illegal use by cycles or e-scooters), increased burdens of trip planning, time taken for trips and concerns about safety, control and uncertainty.

However, these groups need to be defined systematically for each SIA, based on a thorough analysis of the populations likely to be affected by a transport measure, e.g. using census returns and/or surveys. Special attention should be placed on intersectionality. For example, people with lower incomes may experience poorer health, have lower levels of literacy and may not live in zones supported by regular transport services.

H2020 CiViTAS SUITS advocates a user-centred, consultative approach to ensure vulnerable users' representation in the planning and construction of new measures and the development of SUMPs. The principles of gender and diversity sensitive mainstreaming, mentioned previously, should guide consultation and discussion to ensure true representation. Engagement and activities supporting SIA can be achieved through local events, in the community, at a time and place convenient for residents or transport users and active listening/recording of views and follow-ups.

4.4 Best practice example

Curl, A., Watkins, A., McKerchar, C. Exeter, D. and Macmillan, A. (2020) *Social impact assessment of mode shift*. Waka Kotahi NZ Transport Agency Research Report.

This example has been drawn from New Zealand, a predominantly car-oriented society. It includes an international literature review and analysis of three mode-shift policy levers to encourage cycling, in terms of potential social and distributional impacts. Appendices include a wider list of transport impacts, transport indicators.

4.5 Approaches to conducting SIA of sustainable urban transport and mobility measures

There has been a lack of standardisation in methods used to monitor and evaluate transport measures, at regional, national and EU level. This applies to SIA. In larger transport measures SIA may form an integral part of the planning process. In such cases, Cost Benefit Analysis (CBA), Multi Criteria Analysis (MCA) or a combination of the two have been used. These are described in brief, but both have serious shortcomings when used in this context.

Cost Benefit Analysis (CBA) can be used to quantify the costs and benefits of a project (over a certain period), and those of its alternatives, usually in monetary terms, in order to have a single scale of comparison. The economic viability of a project can be assessed and expressed by viability indicators such as benefit to cost ratio (BCR), internal rate of return (IRR) or net present value (NPV). Where environmental and social issues can be monetized, they are also included. However, communication and prioritization of results can be dominated by a few, easily monetizable indicators and focus on direct benefits such as measures of reliability and reductions in travel times. The benefits derived from sustainable transport in terms of social equity, urban regeneration and improvements in visual quality require more qualitative approaches, and as such may be overlooked. As such, CBA on its own is not suitable as a means of performing SIA.

Multi Criteria Analysis (MCA) enables the simultaneous quantitative and qualitative measurement of impact, not necessarily in monetary terms. It is more participatory and holistic but can be subjective leading to bias.

Socio-economic Impact Assessment (SEIA)[7] provides a measure of the expected benefits and costs to different groups. This approach shows the impact of accessibility and mobility on socio-economic well-being of the urban poor. It uses household survey data to derive indicators of accessibility, mobility and socio-economic well-being. The indicators are then aggregated into indices of accessibility, mobility and socio-economic well-being. The change in indicators and indices in before and after project scenarios is used to assess the significance of the impact of the project on the urban poor (See Section 4.3.3 for further details).

[7] PhD dissertation: Anvita Arora, "Socio-Economic Impact Assessment (SEIA) Methodology for Urban Transport Projects: Case Study Delhi Metro"

4.5.1 Resources to inform impact assessment (CBA and MCA)

A wide range of support tools can be found on the ELTIS web site (*https://www.eltis.org/resources/tools*) including:

- *SUMP Monitoring and Evaluation Toolkit* (2016) designed to support mobility practitioners in assessing the impact of measures and evaluating the mobility planning process;
- *SUMP Participation Kit* (April 2016) provides practical advice and examples on how to engage citizens and stakeholders in the SUMP process, integrate participation into the transport planning process and prepare, manage and evaluate involvement activities;
- *HEAT – assessing health benefits of walking and cycling* (2014) for planning new infrastructure for cyclists or pedestrians, considering economic and health impact assessments;
- *CIVITAS Guide for evaluating urban mobility measures* (2013) guides users through all the steps in the evaluation process to draw meaningful conclusions from their findings.

For CBA and MCA approaches:

- *CIVITAS DYN@MO cost-benefit analysis tool* (2015) is a spreadsheet-based calculator for carrying out a simple CBA taking into account time, operating cost and changes in air quality and noise;
- *DG Regio, 2015, Guide to Cost - Benefit Analysis of Investment Projects*: Economic appraisal tool for Cohesion Policy 2014-2020;
- *Evidence project (2014)* discussion of project appraisals (most commonly CBAs) in decision making at urban level;
- *Multi Actor Multi Criteria Analysis (MAMCA)* developed out of the *Nisto project*. MAMCA is a decision-making model to enabling the simultaneous evaluation of alternative policy measures, scenarios, technologies and different stakeholder voices to be heard;
- *WebTAG* is a comprehensive, mainly CBA approach used in the UK which provides advice on how to set objectives and identify problems, develop potential solutions, create a transport model for the appraisal of the alternative solutions, how to conduct an appraisal which meets the department's requirements. This includes *social and distributional impacts worksheets*. The system has been widely used to appraise transport measures.

4.5.2 Best practice examples and case studies (in EU)

Kronoberg, Sweden provides tools for considering social perspectives in transport planning, looking at:

- different groups' need for infrastructure, public transport and target points;
- accessibility by various groups to infrastructure, public transport and target points;
- consequences for different groups of decisions related to transport planning;
- different groups' ability to participate in planning processes linked to transport;
- facilitating meetings between people and supporting active life.

Tools were developed in close collaboration with a number of stakeholders, forming a working group, which had expertise in infrastructure and public transportation planning, but also in public health, gender equity, human rights and environmental issues. They commented:

"To do a social impact assessment takes time and requires knowledge and insight into other people's living conditions, needs and attitudes. Such knowledge requires a culture of ongoing dialogue that can lay the foundation for a nuanced situation assessment highlighting conditions and needs of different groups in society. The infrastructure and public transport planners are usually not used to working with high participation from different groups, nor at working with statistics broken down to a group level (as gender, age, background)."

Jyväskylä City, Finland has used SIA in urban planning since 1995 which fitted in well with its image as "human wellness technology city", "attractive little big city" and "city in the lap of nature". Situated at the heart of an iterative planning process, the team used SIA to provide answers to questions: what will change, what will happen as a result, are there other options, what will be gained, what will be lost, who will benefit, who will suffer.

Public involvement (or public participation) and social impact assessment are conducted through interviews, surveys, workshops, etc. to study effects on local social structures.

Importantly, SIA is recognised as a tool for community empowerment, development and social sustainability by:

- building on local knowledge and using participatory processes;
- raising consciousness and the level of understanding of the community. This puts residents in a better position to understand the broader implications of proposed actions;
- developing social capital: social networks and trust;
- increasing knowledge on the part of the project proponent and the impacted community.

London, UK Although not within the transport domain, this 2017 report by the Bartlett Development Planning Unit illustrates student led social impact assessment of four areas in London, conducted with local people as a means to catalogue existing uses; recognise the importance of community assets; and ascribe value to local needs and social sustainability. In their conclusions, the authors underline key principles guiding the development of SIAs – that they are participatory, pluralistic, co-produced, independent, inclusive and accessible, and meaningful.

4.5.3 Guidelines to conduct a Socio-Economic Impact Assessment

The EC provides a comprehensive toolbox for Impact Assessment in general, the 'Better Regulation Toolbox' which practitioners may already be aware of, and which contains a description of MCA. (*EC, Better Regulation Toolbox*). These general principles should be applied to SIA.

A comprehensive and worked example of conducting a *Socio-Economic Impact Assessment* for Delhi (2007) funded by Sida and ADB through the Sustainable Urban Mobility in Asia (SUMA) program. This provides a detailed account of the steps that the transport consultants undertook couched within an intersectional framework. This provides transferable definitions and indicators.

This section has been extracted from the SEIA handbook by Arora and Tiwari (2007)[8] and the associated document produced by Thynell et al. (2009)[9]. These are highly recommended as comprehensive guides for practitioners, providing indicators, equations and a worked example using a case study the effects on the urban poor of introducing a metro in Dehli. The approach and the material contained can be configured to other transport schemes, and disadvantaged groups. It is also possible to see how more qualitative approaches could be used in this, using the factors shown in the previous section, and the methods in Section 4.6.

In these examples (Thynell et al. p23, 2009) consider:

Accessibility is a description of the proximity of destinations of choice and the facilitation offered by the transport systems (including public transport and non-motorized modes) to reach them.

Mobility is both the ability to travel to destinations of choice and the amount of movement necessary to do so.

Socio-economic well-being is defined as the status of a household where the basic social and economic needs for survival are fulfilled and the household has the capacity to improve its quality of life, (sometimes referred to as SEWB).

Arora and Tiwari (2007) present SEIA as an 8-stage process. These stages are summarised below for completeness. Thynell et al (2009) document their work as consultants as far as level V after which they start to define steps they need to complete their work on SIA from a consultant's perspective.

Step I: Problem formulation in terms of theoretical foundations and key hypotheses, such as the introduction of a new transport system changes the accessibility for a certain target group (in the SEIA example, this was the urban poor), and a change in accessibility changes the mobility profile and the socio-economic well-being of the group in question. Any intervention made in the transport system will have direct and indirect impact on the socio-economic wellbeing of the group in question.

Step II: Project description including planning history, justification, demand assessment, financial plan, expected usage, expected benefits as an identified externality.

Step III: Identifying the target group including, for example, geographic location, time and resource allocation and the population characteristics.

Step IV: Data collection to profile the target group in order to generate a base understanding of the issues to estimate values for the indicators or accessibility, mobility and socio-economic well-being. This represents a point of departure from more traditional and quantitative methods. CBA and more traditional techniques have used census data and secondary data sources. Understanding of impact requires a more detailed understanding which can be gained from more qualitative methods such as observational studies and face surveys (also see section 6). Such methods are mentioned in the SUMP2.0 as ways of engaging citizens. Understanding the effects of intersectionality, through the use of, for example, gender disaggregated data, provide greater insights into how mobility and quality of life may be affected by new transport measures. Indicators for accessibility, mobility and health are defined, for example in (Arora and Tiwari, 2007, Unit 2, p24-27). Specimen questionnaires are also included in the Appendices or the reader is referred to those used in WebTAG.

Step V: Profiling the target group. Collate and analyse results from Step IV to understand the issues and trends shown by the data. This data is used to develop indicators of accessibility, mobility and socio-economic well-being.

[8] Arora A. and Tiwari G. (2007), A Handbook for Socio-economic Impact Assessment (SEIA) of Future Urban Transport (FUT) Projects, Transportation Research and Injury Prevention Program (TRIPP), Indian Institute of Technology, New Delhi, Downloaded from *https://www.researchgate.net/publication/316881853_A_Handbook_for_Socio-Economic_Impact_Assessment_SEIA_Methodology_for_Future_Urban_Transport_FUT_Projects*

[9] Thynell, M., Arora, A., Punte, S. (2009) Social Impact Assessment of Public Transport in Cities: An approach for people involved in the planning, design, and implementation of public

For example, socio-demographic profile of households (e.g. number, age, ethnicity, income, work participation rate, car ownership); accessibility of different forms of transport; travel profile.

Changes in accessibility and travel profiles can then be calculated for the introduction of new transport measures. For example: calculating what proportion of the target group will be advantaged/disadvantaged by the rerouting or retiming of a bus service; the effects this may have on their daily activities; and other consequences this might have. Changes to the timetable of bus services may lead to longer waiting times, which may leave women more vulnerable to attack, rerouting services may mean that older people may no longer be able to access services (and go to shops) as they have further to walk. Putting in a new carriageway may cut a community in half, leaving some without access to health care, shops or friendship groups.

Step VI: Estimating the indicators of accessibility, mobility and socio-economic well-being. The values for accessibility, mobility and socio-economic well-being are calculated using the data collected, these are compared to the values of the indicators due to the projects, enabling a testing of the initial hypotheses. The change in the indicators is the first step towards quantifying the impact of the project.

Step VII: Combining the indicators into indices. In this stage the indicators of accessibility, mobility and socio-economic well-being are aggregated using the Principal Component Analysis (PCA) technique to develop indices of accessibility, mobility and socio-economic well-being (Worked examples and equations are given in Arora and Tiwari, 2007, Unit 3, p51-65). Conducting this step will show how each indicator contributes to accessibility, mobility and socio-economic well-being.

Step VIII: Developing the SEIA model. Working at this level will show how changes in accessibility and mobility has changed the socio-economic well-being. Again this is beyond the remit of this Practitioner Briefing and the interested reader is referred to (Arora and Tiwari, 2007, Unit 3, p66 – 72) for the whole story.

Steps I to V, were used by Thynell and Arora (2009) as a basis for their final consultants' report, and map on to Steps 1 and 2. For them, SIA breaks down into the following stages.

Step 1: Scoping
a) Define the public transport project
b) Identify relevant government policies and plans
c) Prepare terms of reference for the SIA

Step 2: Assessment
a) Determine profile of key interest groups
b) Identify and prioritise key social issues
c) Determine indicators for selecting social issues
d) Collect data for predicting the impacts
e) Analyse results

Step 3: Mitigation
a) Identify possible mitigation measures
b) Determine the feasibility of mitigation measures
c) Prioritise and select proposed mitigation measures
d) Propose compensation measures

Step 4: Reporting
a) Prepare draft report
b) Review and discussion of the draft report
c) Prepare final draft report

Step 5: Decision-making
a) Send final report to authorized decision-makers
b) Discuss report and make amendments if needed
c) Take decisions and make public announcements

Step 6. Monitoring and managing
a) Implement the monitoring and management plan
b) Conduct an Independent evaluation

Step 7: Public Consultation (cutting across all other steps)
a) Identify potential beneficiaries and other affected groups
b) Decide the approach for public consultation including assessment methods
c) Hold the public consultation
d) Revise the report based on feedback received

Focussing more on issues around social impact, Stage 2b, considered the transport and poverty discourse, efficiency vs equity, access and livelihood of the urban poor, gender bias and health impacts of transport (air and noise pollution, road safety, security and crime), and land use.

In Stage 2c, Socio-Economic Well-being Indicators related to social well-being which included indicators of literacy, status of women, infrastructural facilities available, and tenure available to upgrade quality of life: Economic Well Being (WB_E) included indicators of employment, income and assets.

4.5.4 Tools and Methods for conducting SIAs

The Council for Social Development (2010) considered that the basic objectives of a SIA are to provide:

- baseline information about the social and economic conditions in the project area;
- information on potential impacts of the project and the characteristic of the impacts, magnitude, distribution, and their duration;
- information on who will be the affected group, positively or negatively;
- information on perceptions of the affected people about the project and its impact;
- information on potential mitigation measures to minimize the impact;
- information on institutional capacity to implement mitigation measures.

The principles which need to be followed when conducting an SIA include:

- diverse public involvement;
- analysis of impact equity, focusing on the most significant social impacts;
- transparency in methods, assumptions and definitions of significance;
- providing feedback in timely and appropriate manner to transport planners so that negative impacts can be mitigated, and positive impacts enhanced;
- use of trained practitioners;
- establishing of monitoring and mitigation programmes;
- identifying data sources and planning for gaps in data.

Areas of potential citizen engagement within the SUMP process are shown in Figure 4. SIA relies on both secondary and primary data sources, as shown in the examples in the previous sections.

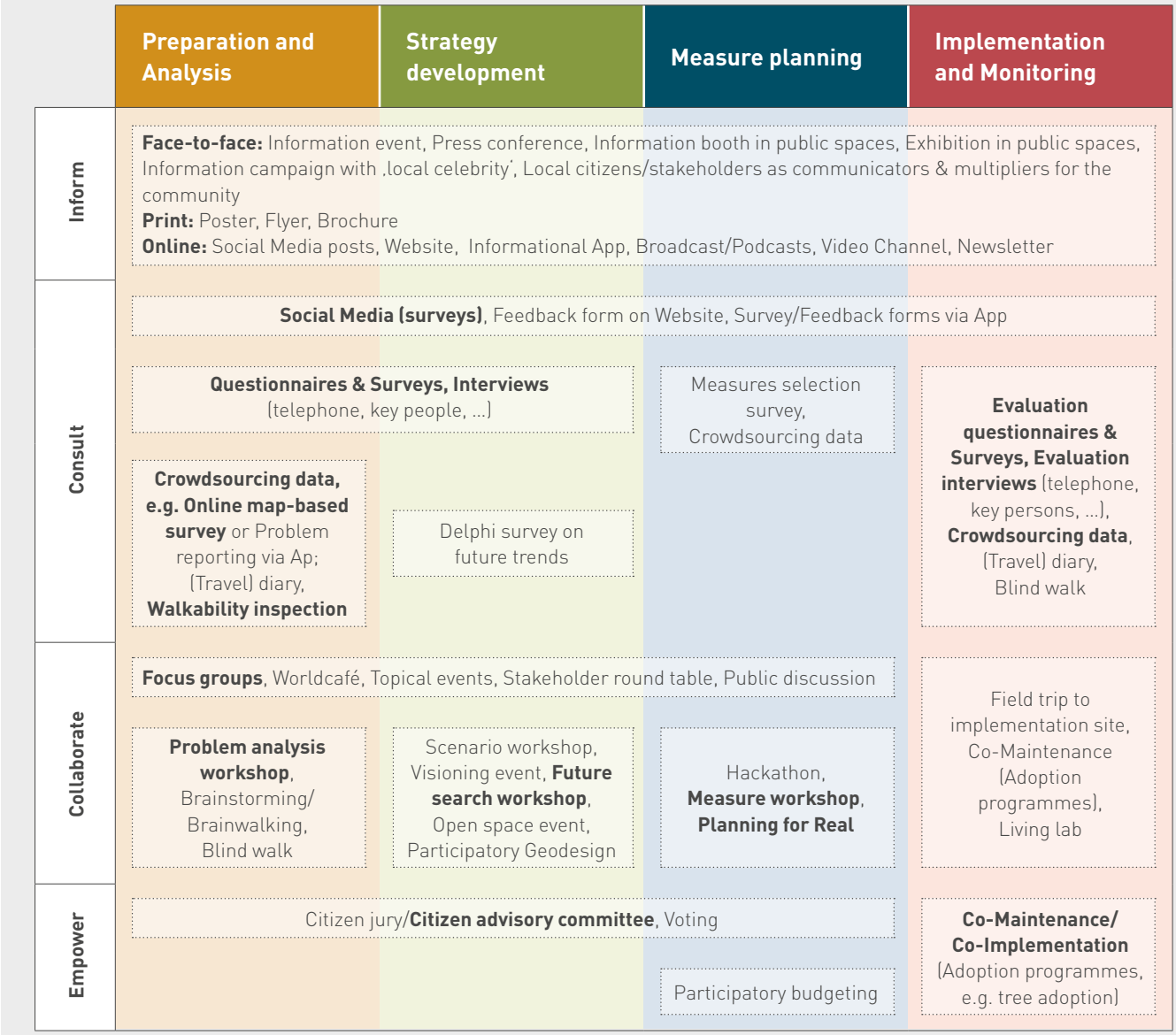
- Secondary data sources include census data, land use records (including records of land transactions), district gazetteers, administrative records (and previous surveys), documents from non-governmental organizations.
- Primary sources of data can be gained through use of quantitative methods (as referenced in WebTAG and SEIA), census data and socio-economic surveys. However, richer insights can be drawn from more qualitative approaches which may be more of a challenge.

Figure 4: Citizen involvement in the SUMP process (p46 Sump Guidelines)

Typical qualitative methods include; key informant Interviews, focus group discussions, journey diaries and public hearings. Figure 5 illustrates a variety of methods used in the SUMP process. They are shown in terms of the level of user engagement they enable, from informing through to consulting, collaboration and empowerment.

There are numerous tools and methodologies which may be used to harness citizen involvement and get the most from their input and feedback at all stages of the process. It is beyond the scope of this Practitioner Briefing to list all such tools and methods, (see later for some online compendia). Rather the intention is to highlight the need for inclusiveness in the design and operationalisation of such methods to ensure that the voices of all sectors of society have the chance to be heard and are given equal value. In the past, research and user engagement has been significantly skewed towards the male car owner or the representation of commuter journeys. This has led to inequalities in transport provision (which may reinforce other inequalities) leading to multiple levels of deprivation, reduction in opportunities (e.g. to access resources such as health, education, employment and recreational facilities) and a poorer quality of life.

Figure 5: Recommended involvement tools and methods for SUMP development, (SUMP Guidelines, second edition, p48)



To avoid this, consideration should be given to composition, timing, location and format of stakeholder and citizen meetings and how 'harder to reach' groups such as economically disadvantaged, ethnic minorities, women and vulnerable groups will be involved so that they can share their experiences and provide input in SIA's processes. This may require channelling communication and recruitment to events through social media, in different languages, to various community groups, and holding events at times and locations accessible to local communities or groups. For example,

- holding meetings in the evenings, or with babysitting so that parents with children can attend;
- holding consultation events in the community where there is a large and natural footfall, using accessible buildings and infrastructure;
- levelling the power balance through the use of language (avoiding or explaining jargon and acronyms) and material which is readily understandable and attractive;
- using social media campaigns to raise awareness and buy-in of the consultation process.

Key elements which may be overlooked in the planning of citizen engagement are:

- **adequate preparation, budgeting and planning of events** – allowing time for advertising and recruitment, design of the material, understanding the venue, the audience and how the events and the outcomes fit into the overall strategy. For example, the city of **Ghent** (Belgium)[10] held public debate evenings where citizens discussed the first draft of the SUMP, held extensive consultations with stakeholders, monthly public enquiries and a dedicated newspaper 'de Wijze Gazet'. *https://www.eltis.org/sites/default/files/sump-guidelines-2019_mediumres.pdf* p.138;

- **trust and relationship building** – user engagement needs to build throughout planning, development, implementation and evaluation. This means that activities will take place over a number of years. This is not a one-off event, the more people understand about the process, the more they will buy into it. For example, **Bologna** (Italy) implemented a series of workshops and dedicated information points aimed to engage citizens through the participatory, informative and communicative activities; **Groningen** (Netherlands) created a Public-private partnership for coordination and cooperation of actions for a sustainable and accessible Groningen; the body ensures that all parties cooperate effectively and coordinate their work on the various transport-related projects;

- **linking SUMP to wider issues of social inclusion** (intersectionality) e.g. In **Belgium**, mobility planning includes consideration of free concessionary travel passes for elderly persons and social fees for taxis for those on low incomes who cannot drive; **Greater Manchester**'s transport strategy is driven by six societal trials, with an evidence base that is continually updated;

- **the 'tokenism trap'** i.e. the apparent involvement of a group or use of a method that hides a lack of commitment to be involved with users or to hear what they are saying. Most often seen at the earlier levels of user engagement (informing and consulting); for example, tick-box exercises where engagement targets have been met, or the required number of questionnaires /surveys conducted; one person invited on to a committee to represent the voice of their group;

- **understanding the engagement from the perspective of the citizen and wider ethical practices** e.g. Are the issues framed in ways citizens can understand? Has enough space been left for meaningful interaction? Have they been given an active role? Is the event fulfilling and fun for them? The more someone understands about the proposal, the more they can contribute and the more meaningful and richer their input. More experiential and participatory approaches are being used as part of the SUMP process, e.g. **Ljubljana** (Slovenia)[11] implemented a pilot temporary street closure (over 4 months), which was so successful it was made permanent;

- **wider role of consultation at community or individual level**, in terms of capacity building, resilience, and buy-in. Although associated with engagement at levels of empowerment and collaboration, if engagement exercises are framed correctly then citizens could leave with new insights, knowledge and interests. Longer-term engagement can lead to training e.g. in citizen science, advocacy, expert users and co-creators. This has been used in scenario planning stages for example in **Maia** (Portugal)[12], **Leipzig** (Germany)[13] and **Antwerp** (Belgium)[14];

- **need to record, present, assess and act on the results.** This key stage is often overlooked. For face-to-face, qualitative and participatory approaches, this may take longer than the event itself. Without these steps, the whole exercise will be a waste of time. Key issues include recording and collection of information at the event; collation and analysis of results; format, timing and presentation of key findings; pathway to feed into the overall SUMP process.

[10] *https://www.eltis.org/sites/default/files/sump-guidelines-2019_mediumres.pdf* p.138

[11] As above, p. 158

[12] As above, p. 83

[13] As above, p. 84

[14] As above, p. 86

4.5.5 Examples of resources supporting user engagement

CIVITAS 2020 Tool Inventory provides good practices, manuals and contextual uses and experiences to be considered for different cities and policies.

ELTIS: Urban Mobility Observatory provides an overview of SUMP processes as well as related resources, training material and case studies.

SUMP Participation Manual (2016) Actively engaging citizens and stakeholders in the development of Sustainable Urban Mobility Plans from *The CH4LLENGE project*.

Tovaas, K. 2020, Rupprecht Consult: The INCLUSION Project, D3.4, Typology and description of underlying principles and generalisable lessons, identifies 12 user groups with their needs, local context conditions and mobility gaps to inform recommendations for inclusive mobility solutions, with case studies.

CIVITAS Policy Note – the use of social media to involve citizens in urban mobility projects and city planning (2015). Although not directly relevant, social media (e.g. crowdsourcing and sensing), is an effective and efficient way for LAs to conduct assessments.

4.5.6 Examples of tools supporting wider inclusiveness at different stages of the SUMP process

SiMPlify has developed an online mobility tool (*www.wbcsdsmp.org*) to support cities in calculating the data-based indicators and in running citizens surveys to inform survey based results. The online tool creates a spider chart that provides an overview of strengths and weaknesses of the mobility in a city.

KonSULT is a tool designed to evidence the range of measures available to cities and to make goal-oriented strategies more efficient. Action plans can be designed with KonSULT's measure option generator, which identify initial policy measures and packages. A policy guidebook and a decision-makers' guidebook are available, providing detailed measures/instruments, outlining SUMP concepts and strategies and case studies.

Paramics Discovery is a micro-simulation modelling tool that helps policy makers, citizens and other stakeholders visualise scenarios and strategies, analysing multiple simulations and variables. This is useful in this phase of the development of a SUMP, as this phase concerns imagining and analysing scenarios that 'try to capture the scope of uncertainty that comes with "looking into the future"'.

Real-world experimentation and reflexivity in Stuttgart (Bruck, E.M., 2018), discussion of how reflexivity can be systematically integrated into the planning process to guide change in the early phases of technology adoption. Case study of real world experiments with entrepreneurial change agents.

4.5.7 Examples of more participatory approaches

The *European Network of Living Labs* (ENoLL) have developed a Toolkit designed to support public officials and urban actors interested in co-creating innovative solutions for the built environment together with citizens and other relevant stakeholders. The tools come in a wide range of formats from games, workshops to templates. ENoLL describes these within the following categories:

- Need Finding – to discover user needs, goals and values to get the right solution;
- Ideation – tools to unleash creativity, discover valuable insights and generate innovative solutions;
- Strategy – tools to design action plans to achieve long-term aims;
- Experimentation – tools to test and validate the developed solution;
- Feedback – tools to evaluate the user's reactions to the solution.

These are important, participatory methods to add to the SUMP toolkit, as they are designed to engage citizens in more creative ways, in conversations from which they have traditionally been excluded. They are therefore most valuable for use at the 'consult', collaborate' and 'empower' stages.

Examples include:

- *UNaLAB project's* co-creation tools and methods which have been used across the different urban demonstration areas to explore, design, implement and evaluate UNaLab's nature-based solutions.
- *U4IoT's Co-Creative Workshop Methodology Handbook*. The Co-Creative Workshop Toolkit was developed in the context of co-creation for the internet of things, nonetheless it enables experts to empathise with the needs of end-users, whilst end-users are enabled to communicate on an expert level. Ideally this increases empathy within design and development teams, leading to more meaningful IoT-solutions. Four co-creative phases: Co-analysis, Co-design, Co-evaluation and Co-implementation are explained together with practical information on how to organise, facilitate, analyse and document a Co-Creative Workshop.
- *SUNRISE*. The SUNRISE mission is to develop, implement, assess and facilitate co-learning about new, collaborative ways to address common urban mobility challenges at the urban district level through 'neighbourhood mobility labs' and thus to lay the foundation for a Sustainable Neighbourhood Mobility Planning concept. SUNRISE identifies five stages of co-creation: Co-identification / co-validation of problems; Co-development / co-selection of solutions; Co-implementation / co-creation of solutions; Co-evaluation / co-assessment; Co-learning.
- *The LOOPER Project*: The LOOPER Living Labs serve as new models for experimental design and innovation at the urban and community level. They can address practical problems such as air quality, road safety, noise, crime or greenspace.
- *Living Lab Methodology Handbook*.

5. Pitfalls and recommendations to improve practice

SUITS' survey of practitioners (Woodcock, 2018) found that SIA could be made more effective through:

- better funding and planning of SIA at the start of the SUMP process, so that it can inform design and implementation;
- closer cooperation between those conducting the SIA and stakeholders, especially local authorities and users;
- widening inclusion criteria to those seeking employment, young people and commuters;
- the need for SIA to be simple and easy to use;
- the need to translate surveys, findings and impacts into layperson's language and different languages of minority groups in the region, bearing in mind levels of understanding and interest in mobility, especially when the scheme may not be in their local area or seem to affect them;
- conducting consultations in safe settings for the group with trusted interviewers, intermediaries and community leaders;
- collaborating with established groups, faith communities, women's clubs, migrant groups, social workers, street workers, youth clubs etc.;
- informing key stakeholder groups at each stage;
- moving from merely communicating, towards consultation, co-design and empowerment using more creative engagement methods;
- extending the use of SIA in transport measures to consider, for example,
  - how different routes and technologies to be used in urban transport as it should evaluate the way people have real access to services;
  - how urban transport can be used as a tool for social inclusion of all groups in a society;
  - environmental impact and economic assessment (e.g. motives for buying electrical or hybrid cars);
  - indirect effects of transport measures e.g. education performance of pupils, effects of cleaner transport on health of citizens etc.;
  - longer vision horizons, e.g. not 5 but 15 years ahead;
  - land use planning.

6. Case studies on consultation for creating inclusive public spaces

This section illustrates how European cities have used consultation to create inclusive public spaces where all citizens can access services safely, comfortably, and sustainably. These projects showcase how gender and diversity mainstreaming can introduce diversity and inclusiveness to the smart mobility of future cities.

6.1 Vienna, Austria

Vienna has been incorporating a gender perspective in its urban planning since the early 1990s. It demonstrates how a focus on community rather than technology provides a framework for planning sustainable transport. The municipality has carried out over 60 projects that have used gender mainstreaming in urban design. It was ranked first in the Smart City Index Report 2019.[15]

Key Characteristics

- A strategic plan based on large-scale gender differentiated data, e.g. on transportation use; data is collected systematically for innovative research and monitoring purposes.
- A community based approach prioritising human experience rather than technology.
- Public participation in urban planning.
- Explicit action to promote and communicate the work of gender mainstreaming.

Challenges

Vienna is a rapidly growing city. Annual population growth is estimated at approx. 30 000 creating new barriers for development of smart mobility

Example in the City

- Public spaces designed to provide gender equality in mobility, and more footpaths to provide better facilities for pedestrians and walking.
- Improvement in street lighting, widening pavements to create a walkable, barrier-free and accessible route network interconnected with public transport.
- Traffic-calming zones or wider pavements in front of kindergartens, schools and other institutions to increase safety.
- Parks have been made more accessible for young girls (more footpaths, introduction of activities other than sports).
- Introduction of measures to manage parking spaces for commuters and facilities addressing the needs of vulnerable users (e.g. accessible toilets, lifts).

Achievements

- Between 2002 and 2006, over 20 traffic planning interventions were completed with a gender-focused perspective to provide greater accessibility wider pavements, pedestrian-friendly traffic lights, safe crossings and improve feelings of safety.
- Development of cycling routes: 1,500 bikes can be rented at 120 stations across the city and 1300 km can be covered along the longest cycle lane.
- Promotion of pedestrian traffic and the improvement of pedestrian safety through Project Schulstraße, introduced in 2018. As a result, car traffic is excluded from areas close to schools to encourage parents to take children to school on foot and improve traffic conditions at the start and end of the school day; after 3 months of the project, both parents and local authorities supported the project's continuation.

[15] *https://www.rolandberger.com/en/Publications/Smart-City-Strategy-Index-Vienna-and-London-leading-in-worldwide-ranking.html*

- Quality of service: The metro system transports 1.3 million passengers daily, and has been rated as the best public transport system in the world by the International Public Transport Association (*https://thecityfix.com/blog/vienna-austria-ranked-as-the-smartest-city/*).
- Well integrated barrier free public transport: during 2018 in Vienna, 822,000 people out of 1.9 million inhabitants bought an annual ticket for the city network and the percentage of journeys made by underground, tram or bus has increased to 38%. The city has an extensive 850 km long public transport network which is operated by 127 bus lines.

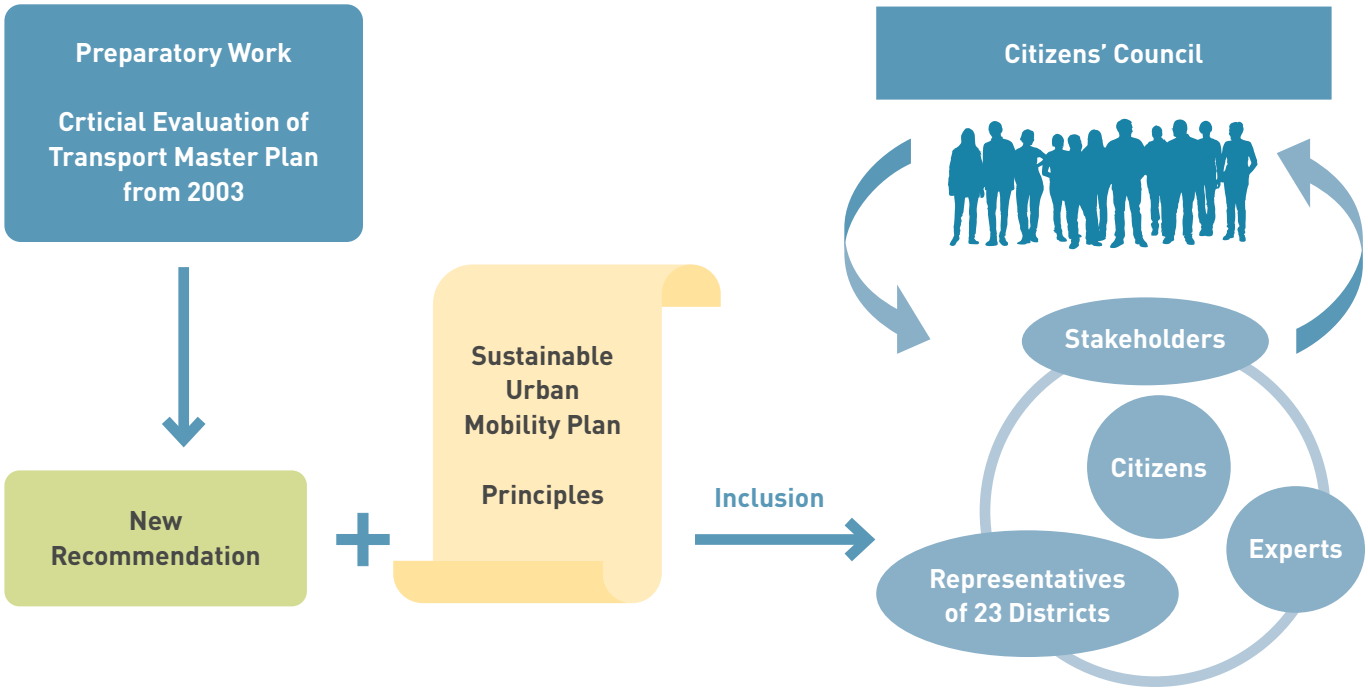
Case Study: Citizen Engagement Plan

It has been argued that participatory design provides a effective model for planning sustainable mobility system (2011, Gill et al.). Vienna used civic participation to develop the city's urban mobility plan in 2013-2014.

This started with an evaluation of the previous Transport Master Plan. New recommendations were formulated in accordance with SUMP guidelines. At this stage various groups were invited to participate in discussions about new polices. Co-planning was facilitated by discussion groups, brainstorming sessions, focus groups, stakeholder forums, social media platforms or exhibitions. Proposals were evaluated in spring 2014 by a Citizens' Council created randomly from a register to ensure diversity and inclusiveness. The last stage included going back to stakeholders who discussed the proposed plan under three themes: Innovation & Research; Business; and Mobility-related Interest Groups.

Vienna continues with ongoing participative approaches to developing smart urban mobility, including regular stakeholder forums ('Smart City Wien') and a programme inviting 100,000 schoolchildren and young citizens to design their future city, which encourages civic engagement for the future.

Figure 6: Overview of Vienna's approach



6.2 Malmö, Sweden

Malmö has been strategically integrating gender and inclusiveness mainstreaming into planning sustainable transportation since 2011. Malmö serves as an example of a green, well-integrated city accessible for all citizens regardless of ethnic background, gender, socioeconomic status, reduced mobility / disabilities or age.

Key Characteristics

- A holistic approach based on interconnecting social, environmental and economic factors in the planning process.
- Target oriented planning – shifting away from traffic to the city they wanted to create.
- The ultimate goal for transport is 'a city accessible for all'.
- Promoting more sustainable means of transport to drivers (and to male drivers in particular) in order to decrease traffic and emissions.
- Incorporating gender related factors to the transport planning process (such as income, economic inequality and social justice).

Examples include

- 'Socially friendly' pedestrian and cycle paths connecting the central areas of Malmö with the socio-economically less advantaged suburbs.
- Redesigning public areas and parks to create inclusive welcoming spaces for social integration; e.g. Rosengård.
- Reorganisation of the city's streets and cityscapes to allow a greater number of people to move on foot, by bicycle and with public transport.
- Integrating cycling routes in the public transport network.
- Implementing a 'safety and security' strategy plan on 170 buses to increase feelings of safety to make buses more attractive to passengers.
- Empowering local communities to maintain public spaces by themselves and encourage civic engagement.

Achievements

- Introducing environmentally friendly electric buses operating on 15 bus lines by 2018; in January 2020, a further 60 electric buses were introduced to further increase low emission transport[16].
- Successful implementation of the 'Business on Bike programme incentivizing cycling to work'[17].
- Increasing journeys by bus through introducing a more frequent service running every 5-6 minutes and accommodating the needs of female users.
- The 'Engaged in Malmö' project – a group of young women who were initially recruited for participatory design projects but after the project completion decided to continue their work and encourage gender representation in urban planning.

Challenges

Winter conditions causing slippery roads are the main challenge for increasing safety of cyclists and pedestrians.

photo © Arsenie Krasnevsky / Shutterstock.com

[16] *https://www.electrive.com/2020/01/31/malmo-orders-60-electric-bendy-buses-from-volvo/*

[17] *https://www.eltis.org/discover/case-studies/cycling-europe-celebrating-success-champion-city-malmo-sweden*

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