



## FINANCING MECHANISMS FOR SUSTAINABLE TRANSPORT AND MOBILITY

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### 1 INTRODUCTION

Many small and medium-sized (S-M) European cities encounter challenges caused by traffic and congestion. Urban road transportation accounts for 40% of all CO<sub>2</sub> emissions caused by road transport in Europe and up to 70% of other pollutants from the transportation sector. Furthermore, congestion in the EU, often located in and around urban areas, costs almost 100 billion euros annually, which equates to 1% of the EU's collective GDP (European Commission, 2017a). Encouraging effective and sustainable transport solutions can help to reduce these issues and to meet objectives in a wide range of policy frameworks, resulting in wider economic and social benefits and leading to better health and wellbeing for citizens.

The European Commission (EC) has been promoting sustainable transport and mobility through a collection of papers, policies, research, and targeted investment. In 2007, the EC adopted the Green Paper "Towards a new culture for urban mobility"<sup>1</sup>, a consultation document which opened a broad debate on the key issues of urban mobility, outlining a roadmap for achieving urban transport and mobility which is green, accessible, safe and secure for all European citizens. Based on consultations from this document, in 2009, the EC adopted the Action Plan on Urban Mobility<sup>2</sup>. This document proposed measures to encourage local, regional and national authorities to achieve their sustainable mobility objectives, and it was the first comprehensive support package in the field of urban mobility. Since its release, the EC has created a variety of other tools for authorities, including the 2013 Urban Mobility Package<sup>3</sup>, which established procedures and financial support mechanisms at the European level for preparing Urban Mobility Plans.

The EC has recognised the fact that targeted investment and research is required to bridge the knowledge and capacity gap that small and medium sized cities are facing, so that they are able to achieve their mobility objectives. This is the context of SUITS

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<sup>1</sup> [https://ec.europa.eu/transport/themes/urban/urban\\_mobility/green\\_paper\\_en](https://ec.europa.eu/transport/themes/urban/urban_mobility/green_paper_en)

<sup>2</sup> [https://ec.europa.eu/transport/themes/urban/urban\\_mobility/action\\_plan\\_en](https://ec.europa.eu/transport/themes/urban/urban_mobility/action_plan_en)

<sup>3</sup> [https://ec.europa.eu/transport/themes/urban/urban\\_mobility/ump\\_en](https://ec.europa.eu/transport/themes/urban/urban_mobility/ump_en)



(Supporting Urban Integrated Transport Systems: Transferable Tools for Authorities) research, which is financed under the umbrella of the HORIZON 2020 programme.

The overall aim of SUITS is to increase the capacity of local authorities in S-M cities to develop and implement sustainable, integrated and accessible transport and mobility strategies and technologies. The SUITS project shares best practice and develops a range of materials to enable S-M cities to increase capacity to finance and implement sustainable transport and mobility measures and Sustainable Urban Mobility Plans (SUMP) that support mobility transformation.

Three separate guidance documents, namely: Guidelines to Innovative Financing, Guidelines to Innovative Procurement, and Guidelines to Innovative Business Models, have been developed as part SUITS with the main objective to maximise the effectiveness and sustainability of transport measures through transferable best practice, new funding models and opportunities for new business entries.

Eight cities in seven countries - Rome and Turin (Italy), Kalamaria (Greece), Valencia (Spain), Stuttgart (Germany), Alba Iulia (Romania), Palanga (Lithuania) and Coventry (UK) - have been selected to demonstrate differences in approaches to developing and financing sustainable urban mobility. These cities have shared case studies and provide the test bed for the development and use of the Guidelines.

This paper discusses financing mechanisms for sustainable transport and mobility, as financing is an issue that is faced by many cities and regions across Europe. More specifically, it focuses on new and innovative financing approaches which, for a variety of reasons, are not widely used by small and medium – sized municipalities at present. Traditionally, public transportation infrastructure has been financed by public funding via taxation, borrowing, operating profits, or a mixture of these. Following the reduced ability of governments to find funding for mobility and transportation schemes, innovative financing approaches have become increasingly important.

The outcomes of this research will help local authorities in S-M cities with the decision-making process of identifying the most appropriate financing approaches to achieve sustainable urban mobility objectives. The results can also be used in a broader context and the Guidelines may be of interest to a wider range of policy makers and researchers.



## 2 REGULATORY ENVIRONMENT, STRATEGY, AND GOVERNANCE

### 2.1 General Finance Regulation

Following the recent economic crisis, the EU adopted over 40 new pieces of financial legislation to help restore financial stability and market confidence (European Commission, 2016). Financial legislation and regulations give the European Parliament the power to prevent spending on projects which do not meet the rules that were set out within these frameworks (European Union, 2017). With regards to transport and mobility, there are various legislative and regulatory frameworks in place which detail how these EU funds can be spent.

Since the EU's pledge in 2013 to encourage sustainable transport and mobility initiatives, a greater number of corresponding legislation and regulatory frameworks have also been put in place. In order to gain funding for transport and mobility projects, criteria regarding a project's environmental sustainability has been heightened. A range of funding and financing options exist for transport and mobility projects, such as the European Structural and Investment Fund (ESIF), the Connecting Europe Facility (CEF), and European Fund for Strategic Investment.

Regulation (EU, EURATOM) No 966/2012 is the central legislative document that sets out the financial rules that are applicable to the EU's general budget. Funding and financing for all operations in the EU must comply with these rules.

The Regional Policy (also known as the Cohesion Policy) and the Investment Plan for Europe are the EU's main investment policies, where a third of the EU's budget is spent. The Regional Policy targets all the regions and cities within the EU and supports economic growth, sustainable development, and quality of life. One of the Regional Policy's key priorities for 2014-2020 is transport and energy networks, with a particular focus on 'smart mobility, multi-modal transport, clean transport, and urban mobility' (European Commission, 2017b).

The Investment Plan for Europe, also known as the Juncker Plan, is an ambitious infrastructure investment plan, set out in 2013, that aims to unlock additional public and private investment for infrastructure by providing guarantees and technical support. The Plan's key objectives are to "remove obstacles to investment; provide visibility and technical assistance to investment projects; and make smarter use of financial resources". There are three central pillars to the Plan: The European Fund for Strategic Investment (EFSI), which is the core of the investment plan for Europe; the European Investment Project Portal / Investment Advisory Hub, which offer



technical assistance to investment projects; and removing national and EU regulatory barriers to improve the business environment (European Commission, 2017b). Regulation (EU) 2015/17 sets out rules related to the European Fund for Strategic Investments (EFSI), the European Investment Project Portal and the European Investment Advisory Hub. The regulation highlights that EFSI funding should only support strategic investments into projects which are of common interest to the Union objectives.

As an example, the EFSI supported the municipality of Las Palmas, Gran Canaria, to secure a 50-million-euro loan from the EIB to finance a high-capacity bus network in Las Palmas, Gran Canaria. The project includes a new 11.7 km high-capacity bus route with new cycling lanes and widening of pavements, as well as 17 new hybrid and electro energy buses. This loan would not have been possible without the guarantee from the EFSI and the support services from the Investment Advisory Hub that helped to get the project off the ground.

Within the Member States, there are several types of legal and regulatory frameworks, which govern finance and investment by national, regional, and local authorities, as well as by private organisations. In addition to laws regarding finance, some Member States have specific regulatory bodies that regulate these laws.

## **2.2 Transport and Mobility Related Finance Regulation**

Much of the recent EU-level transport and mobility legislation emphasises the importance of sustainability. The latest EU legislation regarding transport and mobility, which provides details of how the new EU budget should be spent, was adopted in 2013. Prior to this time, legislation for EU funding for transport and mobility projects did little to encourage ‘greener’ mobility, and generally failed to consider impacts of air pollutants, land use, and greenhouse gases caused by transport. However, in 2013, the EU pledged that a minimum of 20 percent of the one trillion euro EU budget for 2014-2020 would be spend on climate adaption and protection goals, with one hundred billion euros of this to be used for sustainable transport and mobility projects (Transport and Environment, 2017). Since then, the EU transport and mobility financing and funding legislation has focused more heavily on sustainable transport and mobility.

The Connecting Europe Facility (CEF) is the main financing tool for funding transport and mobility projects at the EU level. The CEF was first launched in 2014 and has provided funds for European transport, energy, and digital infrastructures. The majority of this funding, over twenty-four billion euros for the period between 2014 and 2020,



was allocated to European transport (Trans-European Transport Network), of which approximately eleven billion euros will be made available only for projects in the Member States which are eligible for the Cohesion Fund.

Regulation (EU) No 1316/2013 sets out the rules for using the CEF. The regulation has a strong focus on sustainable mobility and transport, and transport and mobility projects are eligible for the CEF financing only if they meet the criteria of increased sustainable modes of transport and promote a low-carbon economy. There is also a legal requirement for socio-economic cost-benefit assessments which needs to be carried out for all projects that apply to use this fund. This is to demonstrate that the project is planned in line with all national and EU environmental legislation, and in a resource-efficient way.

Regulation (EU) 1315/2013 covers rules for financing Trans-European Transport Network (TEN-T), including the type of TEN-T projects which the EU can invest in. Projects that meet the EU objectives, and which contribute to the TEN-T guidelines, are eligible for Union financial assistance. The regulation specifies that every two years the European Commission has to publish a progress report covering where financial assistance for TEN-T was spent. As well as this, the European Commission has to outline how spending for each project coherently supports the EU guidelines, in line with their objectives and priorities.

Although there is little legislation regarding the financing and funding of sustainable transport and mobility specifically, there is much legislation which covers the financing of transport and focuses heavily on increasing sustainability of this transport. The provided selected examples of legislation for the EU financing and funding at a general and transport-specific level, were chosen to demonstrate the wide range and importance of the EU financing and funding legislation and its focus on promoting sustainable mobility and transport.

Laws and regulations that govern investment in and financing of transport and mobility projects vary significantly from country to country. In some of the EU Member States such as Greece, there appears to be a lack of laws and regulations related directly to transport and mobility finance, especially with regard to sustainable transport and mobility finance. On the other hand, some EU Member States with strong focus on sustainability do have laws and regulations in place regarding the financing of sustainable transport and mobility schemes. In many EU Member States, there are authoritative bodies who regulate transport and mobility including how it is financed.



National laws and regulatory frameworks in relation to transport often set measures regarding finance and investment. However, even if there are regulations to govern investments in transport and mobility, they could be outdated and not always fit to the task posed by the need for investment in sustainable transport and mobility.

Overall, despite various laws regarding the financing of transport and mobility in the EU Member States, it appears that a substantial proportion of funding and finance in sustainable transport and mobility is not controlled by legal and regulatory frameworks. For most sustainable transport and mobility projects, funding is received from any organisation willing to invest in the project, and there are few laws that are associated with where funding can come from, and how it is distributed.

In most Member States, national funds for transport and mobility are spent in accordance with national investment strategies that set out the priorities for investment in this area. More recently, national investment strategies have focused more heavily on sustainable transport and mobility.

Overall, although there is little legislation and regulations regarding the financing of funding of transport and mobility projects, in particular, those that are sustainable, there is a large amount of legal and regulatory frameworks regarding the general finance and investment in the EU Member States. In addition, there are various authoritative bodies which control and regulate how finance and funding are accepted and distributed for transport and mobility projects in the EU Member States.

Furthermore, most funding and finance sources for sustainable transport and mobility are regulated in accordance with national investment plans, and therefore, despite few legal frameworks, there are rules on how different types of funding can be spent.

### **3 FINANCING SUSTAINABLE TRANSPORT AND MOBILITY SYSTEMS**

#### **3.1 Contemporary Financing**

Present-day financing systems in cities, which used to finance sustainable transport and mobility, tend to comprise public and private finance, although the types of public and private finance tend to vary from city to city. Existing literature suggests that most cities receive some level of national funding, although small to medium-sized cities tend to receive much less national funding compared to larger cities. However, the results of a survey that has been carried out as part of this project, suggests that funding in the partner cities comes from national, regional or EU sources (see Table

3-1). For example, Alba Iulia tends to rely heavily on EU funding to finance sustainable transport and mobility by applying for various grants and EU programmes, whereas Stuttgart, which is a much larger city, tends to rely more on local level funding from the municipal budget.

**Table 3-1: Examples of Sustainable Transport and Mobility Funding Mechanisms**

Country	European Funds	National Funds	Local Funds
Alba Iulia	Passenger transport/ adopting SUMP/ time schedule for merchandise deliveries in the historic and central areas.	Passenger transport/ adopting SUMP/ time schedule for merchandise deliveries in the historic and central areas.	Used for passenger transport/ adopting SUMP/ time schedule for merchandise deliveries in the historic and central areas.
Erfurt		Expansion of tram network (120 million euros). Barrier-free expansion of tram and bus stops/ stations.	Expansion of tram network (120 million euros). Barrier-free expansion of tram and bus stops/ stations. Stake on the transport association 'Middle Thuringia' until 2006 (200,000 Euros).
Kalamaria	Re-design of Metamorfoseos Street into a pedestrian road and a bike lane (2 million euros).	Redesign of Metamorfoseos Street into pedestrian road and bike lane (2 million euros) Information campaigning, European Mobility week and training in a mobility park (10,000 euros)	Upgrading pavements (1.3 million euros). Information campaigning, European Mobility week and training in a mobility park (10,000 euros).
Palanga	Acquisition of environment and		Acquisition of environment and

	disabled people friendly buses (0.44 million euros until 2030).		disabled people friendly buses (0.44 million euros until 2030).
Rome	Smartset (freight).	A cycling plan and its implementation financed by the Ministry of Environment Tumabia	A cycling plan and its first implementation financed by the Ministry of Environment Smartset (freight)
Torino	Novelog (under experimentation)	Metro line (1,046 million euros)	Metro line (1,046 million euros) ZTL (Zona Traffico Limitato) – Limited traffic zones (5 million euros) Pedestrian areas in city centre (1 million euros)

## 4 INNOVATIVE FINANCING APPROACHES

### 4.1 General Principles

We refer ‘Innovative Financing’ to financing mechanisms that are creative in thinking, that mobilise, govern, or distribute funds in ways that go beyond traditional funding processes. Innovative financing includes financing practices that have not been applied to sustainable transport and mobility previously. It also includes mechanisms that may be well-established and traditional in some cities but have not been widely applied in other S-M European cities.

The principles used to assess suitability and applicability of the identified Innovative Financing Mechanisms are as follows:

- Environmental Sustainability – the mechanisms could be used to support investment towards low-carbon, climate-resilient transport and mobility options
- Financial sustainability – the mechanisms do not have a negative impact on the ability of S-M cities to cooperate with other public bodies and private organisations, or to attract funding from other sources
- Complementarity – the mechanisms could be used with other financing mechanisms, including traditional funding sources and government revenue





- Scalability – the mechanisms could be replicated and scaled up in other cities in the EU
- Efficacy – the mechanisms have ability to bridge funding shortfalls and/or to create new funding streams
- Innovation – the mechanisms feature new methods that are advanced and original

The key outputs of the Innovative Financing Guidelines include:

- A collection of Innovative Financing Mechanism briefs, including selected case studies and implementation steps for S-M cities, and
- A Matrix of Financing Mechanisms to show users of the Guidelines which Innovative Financing Mechanisms are best suited to specific types of sustainable transport and mobility projects.

The innovative financing mechanisms chosen and assessed in these Guidelines are Congestion Charge; Municipal Green Bonds; Crowdfunding; Stamp Duty Land Tax (SDLT); Lottery Funding; Voluntary Capture; HGV Charging Schemes; Work Place Parking Levy (WPL); Community Infrastructure Levy (CIL); Advertising; Sponsorship and Naming Rights; Collaborating with Other Cities, Research Consortia and Private Companies; Citizen Cooperatives; Emission Trading; Planning Obligations / Developer Contributions; Tax Increment Financing ; Sales Tax; Toll Roads; Selling Expertise and Technical Know-how ; Selling of Land and Property; Donations as Part of Consumer Purchases; and Grants from Private Foundations and Trusts.

## **4.2 Innovative Financial Mechanisms and Guidelines for Implementation**

### **4.2.1 Congestion Charge**

A congestion tax or charge is a finance mechanism and mobility management strategy that surcharges users of public services as a result of excess demand. A congestion charge for transportation can include higher peak charges for use of public transport or road pricing to reduce congestion. It embraces a 'stick' approach to traffic management, using negative incentives to encourage users to change their behaviour. Congestion charging helps to manage demand, making it possible to control congestion without increasing supply.

Acceptability is an overriding concern for congestion charging. The way that the impacts, in particular, benefits, are perceived is critical. Municipalities and national governments find it difficult to design a scheme that is effective as well as publicly



accepted. This can result in original proposals weakened or watered down (Banister, 2003). In order to generate substantial funds, vehicles need to continue to drive within the congestion charge zone; this contradicts the primary goals of congestion charging, which is to discourage individuals from driving. There is a risk of traffic spilling over into areas outside of the congestion zone.

Implementation causes change in demand of other transport modes. Transport planners must ensure that other alternative public transport services are provided and/or improved. Without specified projects and funding initiatives, congestion charging provides a general source of funds for public projects, rather than public transport-specific initiatives. This mechanism requires high capital and operational costs. However, this can be offset by the income generated by the charge. It also requires national governments to enable congestion charging through legislation.

The successful implementation of the congestion charge is currently limited to a few cities, including Singapore, London, Stockholm, Milan, and a few smaller cities such as Gothenburg in Sweden. Other cities such as New York City, Edinburgh, and Cambridge have considered schemes, but many have been rejected by authorities or by public referendum. While congestion charging is easy to implement in areas with strong existing public transport systems and successful alternative transport schemes, regions with strong car lobbies and low transportation market share tend to struggle with the implementing the scheme. Once implemented, however, these areas have greater returns and experience positive impacts on congestion and car use, especially if the scheme is implemented in tandem with transit improvements.

There is no fixed method on how to set tolls, how much to charge, or how to spend the net revenues that are generated from a congestion charge. Cities that have successfully implemented a congestion charge have had different motivations, used different methods, and experienced different results. The following two case studies will explore these differences in greater detail.

#### Guidelines for Implementation:

- The amount charged should correspond to the type of urban vehicles and their contribution to traffic congestion.
- Finding the right tariff will require close consideration, as it must be high enough to encourage behaviour change, but it must not be too high to encourage heavy opposition.



- Using effective communication and marketing will garner support for the scheme. It is particularly important to get this right at the front-end of the project, as public expectations need to be managed early.
- A congestion charge will only be effective if it is combined with improved public transport services and an increased focus on walking and cycling initiatives.
- Hypothecate congestion charge revenues, so that they are spent directly on improving the city or region's public transport system. This will help to garner public support and further encourage modal shift.
- If not done already, national governments might be required to create new legislation to enable municipalities to implement a congestion charging scheme. Once this has been achieved, national governments can work closely with municipalities to create top-down incentives, e.g. the West Sweden Fund which helped drive local political support for the scheme.
- Form powerful coalitions between economic, political, and environmental groups in order to build momentum. This can be particularly tricky, as major stakeholders often have different expectations and desired outcomes.
- Congestion charging can easily create more problems, e.g. by shifting congestion to neighbouring areas. A meta-analysis of the city's transport system and a strategic modelling exercise is required in order to take local conditions into consideration.

#### **4.2.2 Municipal Green Bonds**

In financial markets, a bond is categorised as a debt instrument, which allows the issuer to raise capital from investors. The issuer of a bond owes the bond holder a debt, of which he is required to pay interest and/or to repay the principal at the maturity date. Due to fixed returns bond generally have a lower risk profile compared to equity instruments. This makes bonds more appealing to institutional investors who are attracted to steady pay-outs over an investment timeframe.

Green Bonds differ from other bonds because they can be only used to finance projects that work towards climate change mitigation and resiliency, which includes sustainable mobility initiatives and projects. Municipal bonds are debt securities issued by national governments, local authorities, regional bodies, and other governmental agencies to finance day-to-day operations and new projects.

Many investors are attracted to Green Bonds because of their strict due diligence and transparency. The issuer of Green Bonds is subject to strict regulations and must prove to investors how 'green' the projects are. Green Bonds are particularly attractive



to investors who make decisions based on ESG criteria, pursue environmental agenda and/or have a separate asset class for climate-focused investments (Reichelt, 2010). Purchasers of Green Bonds include private and public investors, pension funds and insurance companies.

While multilateral development banks are still main drivers of the Green Bond market, national and local authorities are also becoming major players and taking the market to a new level. An increasing number of municipalities and subnational governments raise funds by issuing Green Bonds. Municipalities are currently the second largest issuer of Green Bonds, with 15% share of the total issuance (Cochu et al., 2016).

Green Bonds are used to finance a range of projects. Transport is still a relatively small theme in the Green Bond market, as bonds issued solely for transport projects are a more recent feature of the Green Bond market.

Toyota's issuance of bonds for financing electric and energy efficient vehicles in 2014, was the first Green Bond solely for transport. Since then transit authorities such as Transport for London in 2015 and, in 2016, the New York Metropolitan Transportation Authority (MTA) and local municipalities such as the Council of Paris (Conseil de Paris) entered the market.

Potential challenges faced by S-M cities include the small scale of projects, lack of investment grade credit rating and perceived risk of default. These challenges can be mitigated by using "club or pooled issuance" approach by issuing a bond on behalf of several municipalities, providing tax incentives and tax exemptions for investors, using credit enhancement methods and by municipal authorities sharing pierced investment risks.

Compared to traditional bonds the municipal Green Bonds have additional transactions cost due to the increased need for monitor and reporting, as Green Bond issuances should be cheaper as issuers can use the same framework for identifying green projects and assets as well as the same independent reviewer and the same processes for managing proceeds and reporting.

Despite challenges and additional costs, municipal Green Bonds could offer significant benefits to S-M cities, providing access to new sources of capital to finance climate-friendly infrastructure. Municipal Green Bonds can attract private capital and investors who are not typically interested in investing into municipal bonds and allow residents to invest in sustainable mobility projects in their own communities. In the long run, the



increasing availability of green finance could potentially lead to stronger internal emphasis on for sustainable mobility projects and enhanced collaboration between different departments within a municipality.

Guidelines for Implementation:

- Identify qualifying and suitable green sustainable transport and mobility projects
- Arrange an independent, third-party review
- Set in place procedures for monitoring and reporting
- Issue a Municipal Green Bond
- Monitor usage of proceeds and report annually

S-M cities who lack expertise and capacity to issue Green Bonds could partner with other municipalities and/or the national government. Cooperation across municipal departments is a crucial to success. For example, the finance department must work closely with the transportation and environment departments. This could present a challenge for municipalities and local authorities where this sort of cooperation is not common.

#### 4.2.3 Crowdfunding

Civic Crowdfunding, also known as 'public subscription', is centred around four main concepts: Crowdsourcing (collectively reaching a project goal), Crowdfunding (microfinancing from the crowd), the internet (online platforms where projects are publicised and funds are raised), and civic- and social-impact focus (FCC, 2017). Projects are showcased on an online platform where funds are also tracked and collected. Increasingly, local authorities are making greater use of civic crowdfunding platforms to support and co-fund/match-fund citizens in their initiatives to develop, fund and deliver local improvement or community service projects.

Online Civic Crowdfunding is a relatively new finance mechanism, so it is in the early stages of development, with only few detailed case studies currently available. However, the market is growing rapidly in Europe, with municipal authorities of medium to large cities in the United Kingdom leading the way. In the transport sector, most examples of civic crowdfunding platforms involve public realm improvements such as new walkways, squares, and public gardens, rather than major transport infrastructure projects.

Guidelines for Implementation:



- Municipalities must find appropriate online platforms to provide ‘match-funding’ to civic crowdfunding projects. If no such online platform exists in a country, perhaps innovation grants can be created to entice a local social enterprise or software company to create such a platform. A good platform will help to reduce administrative costs for authorities and will provide strong support services to project owners and grant-makers.
- Civic Crowdfunding requires close supervision from government and, depending on the type of crowdfunding, may require new regulation entirely. National, regional, and local legal frameworks will have to be taken into considered before any crowdfunding initiatives are taken on board.
- Starting civic crowdfunding initiatives within government could require in-house capacity building and the removal of bureaucratic barriers.
- Crowdfunding requires defining shared outcomes, to ensure that the government authorities, online crowdfunding platforms, and project participants are aligned and working towards a similar, overarching goal.
- Creating ‘Movements’ like the London Mayor’s Civic Crowdfunding Initiative which focuses on neighbourhood regeneration are a useful way to build communities around several projects and determine shared targets. This helps to maximise social impact of individual projects. S-M cities who are new to crowdfunding could run a small, pilot ‘Movement’ in order to gauge public opinion.
- Governments would need to ensure that marginalised groups are given extra support and engagement in order to prevent homogenisation and the dominance of wealthier communities. This may require providing targeted financial support as well.
- S-M cities need to approach Civil Crowdfunding as an opportunity to encourage active participation and to make up for squeezed finance initiatives but should not use it as an excuse to cut funding entirely. Instead, it should be emphasised that crowdfunding helps the more efficient use of current funds and has wider benefits such as improvement in mental health.

#### **4.2.4 Stamp Duty Land Tax (SDLT)**

Stamp Duty Land Tax is paid to the government by the new owner on most properties above a certain value when the property is purchased (Transport for London, 2017). A set percentage of revenue generated from Stamp Duty Land Tax could be used to finance new transport and mobility schemes within the catchment area, through a concept known as land value capture. Because of the evidence of transport



infrastructure improvements contributing to an increase in property values, the theory is that these types of taxes could be used to fund the improvements in transport infrastructure that stimulate this increase in property values. Transport improvements funded through this mechanism may include additional services, infrastructure building or fare subsidies. This financing method allows for the government to recycle some of these windfall gains in property value which currently only benefit private landowners (Sintropher, 2015).

The successful implementation of Stamp Duty Land Tax type funding mechanisms has occurred in some cities throughout the world. However, it should be noted that most successful cases have occurred in much larger cities than that which may be considered a small to medium sized city. Hong Kong, Singapore and Los Angeles have all successfully implemented different variations of this financing mechanism. Hong Kong and Singapore have both used Stamp Duty Land Tax collection to fund transport projects. Hui et al. (2004) found that one reason for the continued success of this in both Singapore and Hong Kong was the extremely high density of these cities and the amount of people who would use transport infrastructure in any given area. There are two schemes of this type in Los Angeles, known as proposition A and proposition C, which have helped reduce traffic congestion by funding improvements to the metro system and the introduction of carpooling lanes (Los Angeles Metro, 2018). The Crossrail Project in London is considered to be one of the examples of this type of financing mechanism.

While not funded by this type of tax, a plethora of research has been undertaken investigating how the tax could have worked in the financing of the Gold Coast's new light rail system, which opened in 2014 (Keolis Downer, 2015). The Gold Coast is a city in Australia of approximately 600,000 people, set to host the 2018 Commonwealth Games (Murray, 2016). Murray (2016) sought to investigate the economic benefits of this new light rail system, looking at the degree to which reductions in travel time and improved accessibility to properties in close proximity to the light rail corridor translated into an increase in property values. The study by Murray found that the Gold Coast light rail project increased property values in the area collectively by at least \$AUD 300 million. This equates to approximately 25% of the entire cost of the project, which was estimated to be around \$AUD 1.2 billion. It should be pointed out however that the entire value of increase in property values would be impossible to capture, as it would be unrealistic to tax a landowner £50,000 if their property had increased in value by that amount. Nevertheless, Murray outlined the fact that this data can be used to inform future policy decisions around using Stamp Duty Land Tax.



The taxes may place significant financial burden on a relatively small cohort. Success of these type of taxes in funding infrastructure is contingent on a high level of understanding and support for the way the taxes work, and a high level of support for the projects themselves. Usually property price increases will occur following the completion of transport infrastructure projects, which means the additional revenue from this increased property value cannot be captured until after the project has been complete and the funds spent. In all cases where this type of tax has been undertaken, only a percentage of the project's finance came from this mechanism. It still requires additional funding mechanisms as a top up. The taxes, particularly if too high, risk rendering some redevelopment unviable, resulting in less redevelopment on transit nodes, particularly in the case of development-based land value capture mechanisms.

Only a small percentage of the total value uplift of properties through result of infrastructure projects can be captured (i.e. if a property price increases by £50,000, only a percentage of that £50,000 will be captured). Most, if not all, examples of this type of finance mechanism have been tried in larger cities; Hong Kong, Singapore, Los Angeles and London. There are no clear examples yet of this being tried and tested in small to medium sized cities.

#### Guidelines for Implementation:

- Public consultation should be front and centre throughout the implementation to ensure the public are clearly and consistently made aware of the benefits of the tax.
- An increased rate of Stamp Duty Land Tax should only apply in zones of influence around new or upgraded transport infrastructure.
- The tax should be proportionate to the accessibility of the property to the new public transport, and not so high that it impedes the property market from operating.
- Existing residents (those not selling their property) should be exempted from paying the charge.
- There should always be other funding mechanisms in place to support Stamp Duty Land Tax collection in financing transport projects, as this method alone cannot 'self-fund' projects.

#### **4.2.5 Lottery Funding**

Lottery funding is funding mobilised through profits generated from lotteries, which are a form of gambling, involving the drawing of lots for prizes, including lotto, electronic terminals, and instant games (UNDP, 2018). Lottery funding is available for various types of organisations, such as not-for-profit or charity organisations, local





governments, education, or individuals to put towards 'good causes'. To gain lottery funding, the applicant for funding usually follows a standard online application process, and a designated lottery funding distributor then decides whether the project is applicable for funding. However, sometimes gaining funding is competitive and projects must enter competitions to win the funds (National Lottery, 2018a).

The use of lottery funding to specifically fund sustainable transport and mobility systems in S-M sized cities is currently limited. In general, lottery funding tends to be used to promote social and environmental outcomes (UNDP, 2018). However, there are some instances where lottery grants have been given for community infrastructure projects such as new bridges, shuttle buses and easier connections to cycling routes (Big Lottery Fund, 2018; National Lottery, 2018b; Ystwyth Transport, 2018).

In most cases, lottery funding has been a successful way to fund one-off community development initiatives. However, there are some examples of communities which have relied heavily on lottery funding as a baseline revenue stream to fund local sports and cultural projects, which have then been put under threat following large reductions in lottery income (Scottish Government, 2017).

Lottery funding tends to be a one off or irregular income source. As a result, it cannot be relied on as a baseline revenue stream to fund all public transport projects. Lottery funding budgets depend heavily on ticket sales, retailers commission and prize payments, and can therefore vary substantially. Consequently, if an organisation relies on lottery funding, any budget cuts could have serious negative impacts (National Audit Office, 2017; Scottish Government, 2017).

The financing mechanism does not incentivise good planning or spending. Funding distributors have no responsibility in the success of the project, and there tends to be a 'fund it and forget it' culture. Therefore, it is solely up to the grant receiver to invest the money in the most efficient way (Big Lottery Fund, 2005; UNDP, 2018).

Funding distributors tend to have insufficient skills to identify bankable projects and organisations (UNDP, 2018). Therefore, there is a risk that some bankable sustainable transport and mobility project applications may be overlooked. It would only be possible to benefit from this type of funding in EU countries which have lotteries in place.

#### Guidelines for Implementation:

- Sign up to relevant lottery funding organisations available in your country or city.



- Typically, there will be a search page on lottery websites where you can identify criteria to search for relevant funding programmes.
- When applying for funding, develop a sound business plan for your project, which demonstrates exactly why you need the funding. To do this:
  - Speak to people with experience in the field of your project
  - Conduct research into the scale of the need for investment into your project
  - Include local statistics such as the level of population in deprivation or without access to public transport links
  - Highlight how your project will meet some of the objectives identified in local, regional and national policy
  - Show how your project will make a difference
- The Big Lottery Fund's guidance on getting funding and planning successful projects to be useful when applying for funding.
- Look out for any competitions run by lotteries in the media, which offer funding as a prize.

#### 4.2.6 Voluntary Capture

Voluntary Capture is a deal or partnership between developers or property owners and a local authority, where the developers or property owners offer a voluntary contribution towards the costs of a public infrastructure project. Voluntary contributions tend to be offered when the developer or property owner calculates that the benefits that they will receive from the provision of public infrastructure, outweigh the cost of investing in it.

Examples of successful implementation of Voluntary Capture to fund sustainable transport and mobility schemes can be found in cities such as Boston, Washington, and Toronto, where voluntary contributions have funded new transit stations, and connections with existing transit facilities (Enoch, Potter and Ison, 2005; Smith, 2013).

Voluntary Capture is not a common type of funding for sustainable transport and mobility systems in cities. It could be hard to encourage developers and landowners to pay a voluntary contribution towards a project, as it is not a legal requirement. Furthermore, if the developer or landowner does offer to pay a contribution, their objectives may not match up with those of the wider community and other stakeholders, and therefore, a compromise would have to be made on the design and implementation of the scheme.



The evidence suggests that often developers or property owners will come forward with plans for funding a piece of infrastructure themselves, as part of their development plans. However, where this is not the case, the following approach can be used to gain voluntary contributions to a project.

Guidelines for Implementation:

- Local authorities should be open about future transport and mobility objectives for the S-M city to help gain interest from the public, landowners and developers, and create a sense of transparency. The objectives could be publicised through the following methods of communication:
  - Social media (LinkedIn, Twitter, Facebook)
  - Local newspapers and magazines
  - Flyers posted to local residents
  - Public consultations
  - Stakeholder events
- Local authorities should make sure that the potential benefits of proposed transport and mobility projects are communicated to developers and landowners in the affected areas. If the developer or landowner realises the benefits that a project will bring to them, it will help towards gaining their support and encourage their investment.
- It should be made clear that the developers and landowners' willingness to contribute towards the project will influence any decision made. For example, developers and landowners who contribute towards the transport or mobility project should be given the opportunity to give their input into the design and implementation of the scheme.
- Developers and landowners should be given the opportunity to demonstrate their willingness to contribute towards a project. The local authority should publicise that they welcome the financial support of private developers and landowners and should develop a system for them to express their willingness to contribute. The system could be an online form.

If the governing body or local planning authority has already announced the project, it can signal to private investors and developers that they can influence certain aspects of the design and potential benefits by demonstrating their willingness to pay and providing voluntary contributions. This can be done by opening up a consultation process that encourages feedback and comments from potential investors in the area.

While using Voluntary Capture could mean the investment into sustainable infrastructure is driven by private investors, it doesn't mean that a scheme cannot be



designed to deliver the best possible solutions for the wider community. It is important that the objectives of the beneficiaries for the design of the project do not compromise those of the wider community. Local authorities using Voluntary Capture to fund their sustainable mobility and transportation agenda need to make sure that all stakeholders are actively involved into the design process and that their voices are heard.

#### **4.2.7 HGV Charging Schemes**

Most European countries have implemented or are in the process of implementing some form of truck charging scheme, where all hauliers from any country pay for using the roads, either by time or distance. Three different nationwide HGV charging mechanisms are currently used within the EU:

- Electronic network-wide toll (distance-based charge)
- Toll with physical barriers (distance-based charge), and
- Time based charges

For a distance-based charge, the level of the toll to be paid depends on the number of kilometres driven. One of the key elements of the electronic network-wide toll is an On-Board Unit (OBU) which sends GPS track data and other mandatory information to a server. The OBU is placed in every HGV subject to the levy and must be continuously switched on. The distance-based toll is calculated by using GPS tracks, road type and category of the motor vehicle. Whilst most of the HGV distance-based charges are introduced and managed at the national level, some or all roads within individual cities can also be included into the system. Participating cities would then receive their fair share of the proceeds, which they can spend on maintaining their local road network and on investing into more sustainable transportation and mobility schemes.

A variation of the distance-based charge is an area-based charge, an example of which is London's Low Emission Zone (LEZ). The area-based charge can be enforced via physical barriers or Automatic Number Plate Recognition (ANPR) technology. ANPR is used to record number plates and to charge levy to vehicles entering and travelling on roads subject to toll. The charge can cover a part or all of the city and does not need to be part of a regional or national system. However, this system would not necessarily be a revenue generating scheme as it is likely that most or all proceeds would need to be spent on covering the costs of implementing and operating the scheme.



With a time-based charge, HGVs are charged according to the duration of the use made of the infrastructure. The level of charge could also depend on the type and vehicle's emission class.

There have been organised EU wide efforts to adopt a common methodology regarding the internalisation of the external cost caused by HGV traffic. Currently, 22 EU countries have some sort of an HGV charge applied to vehicles using their road networks. Estonia was the last EU country that introduced an HGV charging system, with a time-based charge coming into effect on 1 January 2018. Netherlands, Bulgaria and Sweden have plans to introduce distance-based charging in the near future. That would leave just three EU members without any form of HGV charging or plans to introduce one (Cyprus, Finland and Malta).

Brussels-Capital region has recently introduced an HGV electronic distance-base tolling system, as part for the nationwide system. Within the "city zone" of Brussels the tolls apply to all roads and are higher than charges applied to the roads outside of the capital.

Development of an independent charging policy for HGV tolls that considers all the parameters of the external cost, such as pollutant emissions, vehicle gross weight, and traffic conditions could be challenging for S-M cities. The introduction of scheme could be met with resistance from a range of stakeholders, especially from the road freight and haulier industry and local businesses which would be directly affected. S-M cities could lack knowledge and capacity to introduce an effective and revenue generating charging scheme on their own without being part of a larger region- or nationwide scheme. Appropriate national and local legislative framework should be in place, allowing development of an HGV charging scheme and regulating the process of recovering debt from vehicles owners who failed to pay the charge. Tolls on the main road network could divert HGV traffic to the secondary and local roads, caused by drivers avoiding toll chargers. Potentially high cost associated with the introduction and operation of the scheme may jeopardize its financial sustainability.

#### Guidelines for Implementation:

- Relevant national legislative framework is required. If such legislation does not exist, S-M sized cities might need to work together with other local authorities and lobby a national and regional government to adopt appropriate legislation.
- Where an existing nation or regionwide HGV charging scheme exists or is proposed, a local authority considering the introduction of such scheme needs to take advantage of the existing or proposed system by working together with



an overseeing authority. A local authority would need to make a strong case for roads within their local road network to be included into a larger toll system and to share the proceeds from the charge.

- To prevent HGV traffic diversion into roads which are not covered by the scheme, careful consideration should be given to determine what roads are included and what level of charge is adopted for each road type. If a free alternative exists, HGV drivers are likely to avoid roads subject to a charge and use roads not covered by the scheme. Also, if tolls on different types of roads covered by the scheme vary significantly, for example between motorways and secondary roads, total vehicles per kilometre can potentially increase as operators could use routes which take advantage of the lower charges per kilometre.
- To minimise impact on local businesses, where possible provide alternative freight transportation options.
- Ensure compatibility of HGV tolls with neighbouring local authorities and regions to allow future integration of systems.
- Work together with stakeholders who would be directly affected by the charging scheme, including local and regional businesses, haulage operators, neighbouring local authorities and the local community.
- Employ reliable IT technology.
- Ensure that relevant legislation exists which allows the recovering of debt from owners of vehicles who have not paid the charge, including international vehicles.

#### **4.2.8 Work Place Parking Levy (WPL)**

WPL is a charge on employers, posed by local authorities, who provide parking spaces for their employees and could be seen as a type of a congestion charging scheme. The introduction of WPL usually has two objectives: firstly, to be a traffic demand management measure to deter driving and secondly, to raise funds for transport and mobility improvement schemes (Dale et al., 2014).

Under WPL, it is the employer who is charged, who then have a discretion to absorb the cost themselves or to pass all or part of it on to their employees who commute to work by car and use the provided parking. In the UK, by law, any funds generated through WPL must be spent on local transport, as outlined in the Local Transport Strategy.



Currently parking levies are used in Australia (Perth, Melbourne and Sydney), Singapore and the UK (Nottingham) (Burchell, 2014). Each parking place levy scheme is unique in terms of who is charged, what the charge is, and who is exempt. The main objective for most of the existing schemes is to reduce traffic congestion via the charge element, as well as investing the raised revenue into improvements of public transport infrastructure (Dale et al., 2014).

In Perth, the revenue has been spent on providing a bus system and expanding the Free Transit Zone, while in Sydney it has been used mostly on Park and Ride car parks and transport interchanges. Regarding targeted groups, in Melbourne, the charge applies to all types of parking, in Sydney, only certain business districts are liable for the charge, whilst in Perth, exemptions apply to residents and businesses with five or fewer parking spaces. The highest parking levy charge was in Sydney, where the annual charge was approximately £1,335 per space. Recent studies suggest that revenue generated from the schemes in Melbourne, Perth and Sydney has delivered significant benefits (Burchell, 2014).

In the UK, Nottingham introduced a WPL in 2012. Since then, over £44 million has been generated with 100% compliance of liable employers (Hallam & Gibbons, 2018). Oxford and Cambridge are currently considering the introduction of a WPL. Oxfordshire County Council has allocated £100,000 to develop an Outline Business Case. In Cambridge, a WPL plan has been given the green light. It is estimated that developing the scheme and introducing the infrastructure required to run it would take between three and five years.

WPL could lead to potential backlash from local businesses who would be charged extra, and it could be perceived as unfair by a wide range of individuals, employers and other organisations, as it does not distinguish between those who travel in congested periods on congested roads, and those who do not. It also does not distinguish between those who have practicable public transport option and those who do not. Finally, it places an additional burden on low income households compared to higher income households (Dale et al., 2017).

The introduction of a levy requires lengthy and comprehensive consultation with residents and businesses, as well as an audit of the existing workplace parking spaces. Finding the right balance for pricing strategy could be difficult. A local authority needs to find a balance between a revenue raising activity, while avoiding setting a charge which is too high, and thus deterring employers from setting up new business.



Risk of spilling over into surrounding streets unless on- and off-street parking-controlled measures are introduced within the affected areas.

Guidelines for Implementation:

- When designing and implementing a WPL scheme, the following aspects of a WPL need to be understood and considered: number of liable spaces, exemptions, and fairness; propensity for parking to displace if on-street parking-controlled measures are introduced within the affected areas, need to design the scheme in a way that aids enforcement; availability of a good public transport alternative prior to introducing the scheme; and potential issues associated with a public consultation or holding a referendum.
- While raising the revenue is an important objective for the introduction of the WPL, the acceptance of a scheme can be significantly improved if a lower charge is initially applied. The charge can be increased once the scheme is established.
- The major barrier to the implementation of the WPL scheme is political risk for the decision makers. Obtaining stakeholder support and acceptance could present significant challenges for local authorities promoting the WPL scheme.
  - Typically, the WPL is criticised on 3 grounds: being an additional burden on business and thus damaging local economy; being ineffective in reducing congestion; being unfair on the motorist who already carries a high tax burden (Dale et al., 2014).
  - Lack of relevant national and local laws and regulatory environment is another major barrier to the implementation of the scheme.
- It is vital that the introduction of a WPL involves an extensive period of consultation with local residents and businesses, and with neighbouring local authorities which would be affected by the scheme. An important part of the consultation would be deciding on suitable boundaries for the area covered by the levy.

Recommendations relevant for policy makers:

If no relevant national legislation exists, local authorities seeking to introduce WPL need to work with national governments to establish appropriate legislative base.

- Local authorities should not proceed until they have developed a detailed programme for the scheme, including developing a strategy for managing the proceeds and an administrative structure required for managing the scheme. Local authorities need to be clear and transparent about how the proceeds of the WPL would be spent, and they should emphasise to the public and businesses the relationship between the WPL and transport improvements, and



to ensure that the public transport benefits associated with the scheme are clearly publicised.

- Acceptance of a scheme can be improved by making sure that all those who pay the levy benefit from improvements funded by it. At the same time, local authorities seeking to implement a WPL scheme need to manage the expectation of stakeholders with respect to beneficial impacts from the scheme (Dale et al., 2017). A WPL may be better accepted politically in locations where a large proportion of commuters travel from outside of the jurisdiction of a local authority considering a WPL. This is because people living outside the boundary of a local authority are ineligible to vote with respect to the authority introducing the scheme.
- Evidence suggests that referendums for charging schemes such as Road User Charge (RUC) or WPL almost never get a 'yes' vote due to the nature of costs and benefits. Therefore, a consultation on a WPL could be better suited to gauge public opinion and understand people's concerns and desires.
- A WPL may take a long time to develop and implement. Therefore, it is important that political stability and continuity is in place in order to allow a scheme to be developed strategically without becoming destabilised by elections and a change of political party.

Recommendations relevant for practitioners:

- Applying WPL to the whole local authority area rather than to a specific area within the administrative boundary can simplify the administrative complexity and increase revenue.
- Working closely with employers while the scheme is being introduced would improve compliance with the scheme.
- Promoters of the scheme should aim to minimise the number of exemptions in order to ensure scheme remains simple. At the same time, applying an exemption to the first few vehicles at a location could reduce the administrative complexity and enforcement as a large proportion of businesses are unaffected by the levy without having a significant negative impact on the total revenue raised.
- Having a 100% discount applied instead of an exemption, provides greater flexibility with respect to changing the exemption criteria at a later date.
- A lower initial charge can improve acceptance when the scheme is first introduced. If required, the charge can be later increased to raise additional revenue once the scheme has been implemented.



- If possible, the employers should be able to pass on the charge by means of salary sacrifice. This would effectively reduce the charge for an employee via tax breaks.
- Employers should apply for a licence for all parking spaces that they use, including those that are exempt from the levy. This information would be used to calculate how much the business is to pay under the scheme and create a register of all employee parking spaces within the scheme boundary.
- Local authorities would need to carry out regular checks to see how many spaces were being used and that the licence was being complied with.
- Local authorities need to identify the most likely locations for displaced parking, and make plans for addressing this issue, including allocating resources for implementing any necessary parking control measures.
- Local authorities can benefit significantly with respect to the design and operation of the WPL by learning from other cities who have introduced or working on introducing similar type of schemes. Important lessons can be learnt regarding implementation (business case, charge, exemptions etc) and operation (monitoring, penalties, enforcement etc) of a WPL.

A workplace parking levy works best when there are controlled parking zones (CPZs) in place within the vicinity of the scheme area. CPZs prevent commuters from parking on nearby streets once the WPL is introduced. Local authorities seeking to introduce the WPL should consider extending their parking controls to cover the proposed WPL area and surrounding streets or to exclude areas where they do not have controls in place from the WPL scheme.

A comprehensive audit of workplace parking spaces within a city is required. Once a register and licensing system is in place, the administration of the levy is relatively simple, and a small team should be able to manage the whole scheme.

#### Impact Assessment

Extensive assessment and modelling need to be carried out to assess both direct and indirect transport impacts of the WPL.

#### **4.2.9 Community Infrastructure Levy (CIL)**

CILs are used to raise additional funds for the promotion of existing infrastructure and development of new infrastructures in England and Wales. The levy is placed on new building developers in the local area, as it is expected that the new infrastructure will increase the value of new developments.



Revenue generated through a CIL is usually used for funding facilities such as:

- Roads and other transportation
- Schools and other education
- Medical services
- Sport/recreation and open spaces

The charging schedule is unique to each local authority, and it is determined on a case-by-case scenario. The rate is calculated by taking into account the net increase in floor space of the new development, with established minimums.

CILs are legally binding and taxes can be calculated prior to the execution of the works during the planning process, considering the values established by each local authority. The corresponding fee is invoiced at the starting date of the development, following a communication sent by the local authority. A deadline for the payment of the levy is established on the invoice.

Case studies include Crossrail 2, which is a proposed new railway in the UK serving London and the wider South East, with an estimated cost of around £30 billion in 2014 prices (Crossrail 2, 2018), and Bristol City Council (UK), who has established a CIL Charging Schedule to collect money to fund new infrastructure in the local area.

As stated on the Bristol City Council website, the money raised from the Community Infrastructure Levy is spent as follows:

- 5% for set up and admin costs of CIL
- 15% to Neighbourhood Partnerships to spend on local schemes
- 80% to infrastructure on Bristol City Council's Regulation 123 List including:
  - Bus Rapid Transit (Ashton Vale to Bristol Temple Meads and City Centre)
  - South Bristol Link
  - Bus Rapid Transit (North Fringe to Hengrove)
  - Infrastructure schemes in the Temple Quarter Enterprise Zone (excluding site specific highway access / public realm works required to directly mitigate the impact of proposed developments)
  - Existing Parks and Green Spaces identified in the Parks and Green Spaces Strategy
  - School Schemes set out in the Schools Organisation Strategy
  - Infrastructure schemes to support the regeneration of Lockleaze
  - Infrastructure schemes to support the regeneration of Knowle West
  - Strategic Flood Defence measures.



Various sources of funding are being used to fund Crossrail 2, one of which is the Mayor of London's Community Infrastructure Levy. The Mayor of London's Community Infrastructure Levy was introduced in 2012 (MCIL1), to help finance Crossrail 1, a major rail link that will connect central London to Reading and Heathrow in the West and Shenfield and Abbey Wood in the East. However, following 31st December 2017, MCIL1 ceased to apply. A second Mayor of London Community Infrastructure Levy (MCIL2) is currently in the preliminary draft stage, and is expected to be levied from April 2019, superseding MCIL1. MCIL2 will contribute to the funding of Crossrail 2.

CIL is dependent on the local authority for pricing and enforcement. There is no 'one way' to implement a CIL, thus the local authority needs to be mindful regarding the creation of a CIL charging schedule. The charging system may discourage development in areas with high charging rates, in favour of development in areas with either a more affordable CIL or no CIL at all. This can be resolved by implementing a CIL across all local authorities within region. This mechanism requires an overseer authority in order to approve the CIL rates and schedule.

#### Guidelines for Implementation:

The following steps should be undertaken for the implementation of CILs:

1. Identify any relevant national legislation which allows local authorities to charge CILs. If there is no such legislation, local authorities should join together and lobby for the national legislative body to adopt one.
2. Identify the necessary infrastructure needed to support the development of their area, as well as the costs associated with it.
3. The charging authority should prepare a 'preliminary charging schedule' setting out the rate and/or the formula determining how the CIL will be calculated in their area. Levy rates should be expressed per square meter and the charge should be applied to the gross internal floorspace of the development liable for the levy. Developments liable for the levy charge should be specified in the charging schedule. Charging authorities should strike an appropriate balance between the desirability of using the levy to fund infrastructure and the impact which this may have on the economic viability of development in their area. To do this, charging authorities should look at infrastructure planning evidence which underpins the development strategy for their area.
4. Consult on the preliminary charging schedule and, after that, preparing a draft schedule to be subjected to a further public consultation.

5. Test the charging schedule through an examination in public (EiP). The examiner should consider whether the charging authority has regarded the criteria in the CIL legislation. The examiner should publish their recommendations.
6. The charging authority should consider the recommendations of the examiner, and approval, rejection or amendment to the charging schedule should then be made by the charging authority.
7. When the charging schedule is approved, it should be published by the charging authority. The start date for which the charge applies should be chosen by the charging authority and specified in the charging schedule. The charging schedule will remain in effect until the charging authority decides to bring into effect either a revised version or decides to abandon the levy.
8. The amount of CIL to be paid by a development should be calculated by the collecting authority (usually the same body as the charging authority) at the time planning consent is granted and will be payable at the time when development starts. It is the collecting authority's responsibility to make sure the levy is collected. Failure to pay could result in a legal requirement to stop development.

#### **4.2.10 Advertising, Sponsorship and Naming Rights**

Local government revenue options from private marketing generally broadly fall into three categories:

- 1) Advertising on public assets, in publication and digital media
- 2) Sponsorship, and
- 3) Selling of or leasing naming rights for public facilities and assets

Advertising can be defined as an agreement between a local authority and the advertiser, whereby the local authority receives money from an organisation or individual in return to an advertisement in local authority-controlled media and on publicly owned assets. The value of advertising contracts is dependent on the local market and total amount of exposure, which is the total number of potential opportunities a viewer would have to see the advertisement.

Sponsorship gives businesses an opportunity to become a key stakeholder and official provider of goods or services to local sustainable mobility and transportation events and schemes. For a local authority it provides a chance to share cost with a private partner while delivering benefits to their citizens.



A local authority can also sell or lease to private companies naming rights for public facilities and assets. The agreement provides companies with a benefit of improved brand recognition, while the local authority benefits from additional revenue. The sale of naming rights for public physical capital may be a viable alternative for raising revenue, especially to fund highly visible infrastructure, such as large transport interchanges, as well as bus and metro station.

There are various examples of where outdoor advertising has been successful for generating revenue to fund or maintain public infrastructure. For example, in Australia, outdoor advertising funds or maintains a large amount of public infrastructure. In 2006-2007, outdoor advertising paid for more than US\$182 million for public infrastructure (e.g. bus shelters, park benches and pedestrian bridges). Revenue generated through outdoor advertising also pays for the maintenance of this infrastructure, at a cost of approximately US\$12 million per year (Daluge et al, 2011).

Recent examples involving municipal authorities and transit agencies selling or leasing naming rights include: Emirates Air Line (a cable car link across the River Thames and Santander Cycles (self-service cycle hire scheme) in London, UK; AT&T station in Philadelphia, US; Vodafone Sol and Line 2 Vodafone metro line in Madrid, Spain; and Zhou Hei Ya (Wuhan-based food outlets famous for spicy duck neck) Jiangnan Road Station in Wuhan, China.

In 2010, AT&T paid \$5 million to put its name on a downtown transit station for five years. A year before that in New York City, the British bank Barclays bought the naming rights to a bustling Brooklyn subway station for \$200,000 per year (USA Today, 2013). Las Vegas sold the name of a key station in its new monorail system to Nextel Communications Inc. (reportedly for \$50 million) (Fisher and Wassmer, 2016).

In Dubai, in 2008, the Roads and Transport Authority (RTA) launched the Dubai Metro Naming Rights Project to choose the name of 23 of the 47 stations of the two underground lines (excluding landmarks and historical sites). A deal was signed for 40 million dirham per station for a 10-year period (approximately €2,5 million per station, per annum), it included 13 metro stations and leasing spaces inside the metro network. It is estimated that authorities have earned more than €450 million between 2010 and 2014 (CODATU, 2016).

There could be an initial cost associated with buying and installing advertisement infrastructure. The regulations for outdoor advertising could include specific



requirements for size, content and location. Planning and legal restrictions may also forbid certain outdoor advertising platforms and other forms of advertising. The proliferation of advertisements may have a negative impact on the aesthetic of environments such as picturesque landscape and cultural streetscapes. This may impact on factors such as tourism and quality of life, which, in turn, may devalue a place. Outdoor advertising may cause light pollution.

Local authorities do not always have the same pulling power as the private sector in terms of gaining sponsorship and advertising. In difficult economic climate it may be very difficult to secure sponsorship and sell advertising. Lack of staff, resources and expertise required for planning and implementation of sponsorship and advertising strategy and/or increasing pressures on existing workforce by creating extra work on top of existing workload. Advertising can be intrusive on public space, can divert driver's attention away from the driving task. In addition, taxpayers and ratepayers may object to a specific advertisement or the name put on a facility. Current businesses offering advertising space would likely oppose concessions as it could undermine their economic future.

#### Guidelines for Implementation:

- Identifying Opportunities for Advertising, Sponsorships and Naming Rights. This include identifying public facilities and assets suitable for outdoor and indoor advertising, media and digital media suitable for advertising, opportunities for sponsorship of sustainable mobility events, and assets suitable for naming rights.
- Developing Relevant Policy and Guidelines. This policy needs to define a consistent, co-ordinated and professional approach towards advertising and sponsorship, as well as outline standards, principles, responsibilities, and procedures for award approval and agreements. Such policy should minimise the local authority's exposure to risk whilst supporting the opportunity. It needs to specify what is acceptable and what is not.
- Compliance with existing legislative framework
- Developing central database listing: a local authority needs to create a coordinated approach to income generation through sponsorship and advertising, by developing a central database listing existing suppliers, local businesses and national companies. This tool could be used for engaging prospective sponsors and building relationships with local companies for potential advertising revenue.
- Highlighting potential benefits for private partners



- Making sure that companies are aware of these benefits improves chances to attract private partners who could provide a financial contribution.
- Partner with a Specialist Marketing Agency. This arrangement usually involves a revenue share.
- Key to Success include
  - Competitive pricing structures
  - Careful negotiation of contracts
  - Compliance with financial and procurement regulations, and
  - Ensuring best value

#### **4.2.11 Collaborating with Other Cities, Research Consortia and Private Companies**

Research consortia and private companies are interested in working with cities as it offers them an opportunity to test and promote their ideas and new products. In their turn, cities can benefit from additional funding, capacity building programmes and investments into their infrastructure.

Types of collaborating projects that S-M cities can get involved and benefit from are:

- Demo Projects
  - The companies benefit from collaborating with cities for promotion of their products and technological solutions. An example of a demo project could be showcasing low carbon emissions vehicles and evaluating the users' reaction. The city can gain access to the latest technology contributing to sustainable transportation without significant investments.
- Pilot Projects
  - For companies and research consortia, pilot projects provide an opportunity for evaluation of new technology or solutions under the real-world operational conditions, at a scale where cost and failure impacts are manageable. The city benefits from direct investment into its infrastructure and facilities and from assessing new technological solutions against their needs.
- Capacity Building Projects
  - Capacity Building Projects aim to increase the capacity of local authorities to develop and implement sustainable policies and strategies, new technologies, innovative solutions, and best practices. The participating city benefits from transfer of technical know-how and good practices from other participating partners, as





well as from training, and establishing partnerships and networking with other cities and organisations. The city can also benefit from financing available to participating partners from a funding organisation.

- Applied Research
  - These types of projects seek to solve practical problems and find solutions to everyday problems, such as developing innovative technology or using transport forecasting and demand analysis to reduce congestion. The participating city usually provides data and information which could be used by a consortia or partnership for research purposes. The city benefits from the research results and data which could be used to inform its transport modelling, land use planning, transport demand management, as well as development and implementation of local transport strategies.

Many EU cities were involved in successful research partnerships which delivered multiple benefits for them, including Dublin, Valencia, Rome, Skopje, Tallinn, Adana, Dubrovnik, Fagaras, Hradec Kralove, Jonava, Kassel, Katowice, Limassol, Lisbon, Ljutomer, Szege, Varna and Fundao, among many others.

Developing long-term action plans and committing to long-term projects could be challenging due to political constraints and lack of political will. There is lack of awareness about programmes supporting collaboration between cities and funding available for research consortia, and lack of experience, expertise, and relevant knowledge, as well as human resources that could be dedicated to managing participation in research programmes and partnerships. Meeting specified pre-requisites for participation could be a challenge.

Benefits received from partnering with research organisations and consortia could be limited to technology transfer and training programmes, and not necessarily provide additional funding opportunities. Even if funding is provided it is most likely to be tied to specific project(s) or agenda.

Guidelines for Implementation:

- Participation in research partnerships calls for a long-term vision, strategy and action plan from the city administration.
- Visit the Horizon 2020 Research and Innovation Partnership Portal to find out about funding opportunities, partners and guidance on how to participate.



Searching for partners in the portal allows to view profiles of all the companies which received Horizon 2020 financing.

- Contact relevant National Contact Points (NCPs). NCPs provide practical information and searching facilities for partners, with details referring the partners' profiles and the demands of active partnership. Create a profile including relevant information and prepare a letter of intent.
- Register with websites providing information about funding opportunities and potential partners. Get on mailing lists to receive updates about partnership opportunities.
- Visit the European Commission's Smart Cities and Communities website for more information regarding partnerships and how to get involved.
- For cooperation and exchange of experience between cities, see the European Commission's Regional Policy Urban Development Portal.
- The European Commission's Enterprise Europe Network (EEN) business-support network offers business or innovation cooperation profiles and partner search option.
- Build networks and partnerships with other cities who share your sustainable mobility goals.
- Dedicate a person or team within your organisation who would be responsible for identifying opportunities and following leads.
- Check eligibility and pre-requisite criteria before applying to join a consortium or partnership.
- Employing a consultancy company rather than having a dedicated person or team within your organisation can be an option.
- Cooperation with other departments within your organisation, such as financial and legal departments, could be essential for developing a successful application.

#### **4.2.12 Citizen Cooperatives**

Citizen cooperatives are “autonomous associations of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise” (International Cooperative Alliance, 2018). Members pay a membership fee when they join the citizen cooperatives, and these fees go towards projects which are of interest to the whole group. Citizen cooperatives tend to operate on a non-profit basis, and therefore any revenues made from the enterprise are either reinvested into the enterprise or returned to members (International Cooperative Alliance, 2018). There are examples of where



citizen cooperatives have been used to fund sustainable transport and mobility projects.

Whereas citizen cooperatives have a long tradition in sectors like agriculture, energy generation, banking or retail, they are a relatively new and not widely used phenomenon in the transport area. However, citizen cooperatives could also provide a good method for financing sustainable transport and mobility projects in S-M cities. Citizen cooperatives tend to be not for profit, and therefore could be used to fund projects which private investors may avoid due to them being unprofitable. They are also initiated and managed by members who are part of a local community, which means that a sustainable mobility service they provide meets needs of the community.

Citizen Cooperatives require knowledge of legal framework conditions and administrative processes, especially in smaller cooperatives with no employees. It could be difficult for the members to build up the necessary knowledge without some sort of support from a local authority. Cooperatives are subject to self-government by their members, so the local authority has no direct influence on their decisions. Members are liable for losses incurred by the cooperative up to the amount of their contribution. In the event of insolvency, unless excluded in the statutes, members may also be obliged to make additional payments. Due to the democratic decision-making, decisions may not always reflect one's own or local authority's interests. The lack of profit leads, in some cases, to corruption and to the misappropriation of funds. Influential members tend to dominate in the affairs of the cooperative.

Guidelines for Implementation:

- Hold a founders' meeting. A certain number of members, a supervisory board and a board of directors must be elected.
- A cooperative auditing association is required to be able to carry out the legally prescribed foundation audit.
- Carry out a foundation survey. The survey is an assessment of the viability of the project and prerequisite for registration in the register of cooperatives.
- Registration in the Cooperative Register.

The following should also be considered:

- Finding suitable consultants who contribute their expertise free of charge, on a voluntary basis, could reduce initial financial burden on cooperative founding members.
- Preparing a governing document on the basis of existing legal regulations which is acceptable to all founding members.



Local authorities can encourage and support citizen cooperatives through:

- Actively promoting cooperatives to its citizens as a viable and attractive business model for sustainable transportation services, through knowledge sharing, seminars and training.
- Helping to find or providing a mentor or consultant, who can evaluate the idea, help with tackling possible issues and provide advice to founding members of a cooperative.
- Helping with identifying potential funding options.
- Providing legal and advisory support, such as helping with developing of a robust business plan, including reliable financial operating plans and cash flow projections.
- Providing financial support in a form of grants and local tax breaks.
- Providing space and facilities to sustainable mobility and transport cooperatives for free or at a reduced rate, e. g. reserving kerbside or parking spaces for cooperative car or bicycle-sharing services.

#### **4.2.13 Emissions Trading**

Emissions trading has its origins in economic theories, first formulated in the 1960s, that seek to attach a production cost to pollution. The theory held that if pollution had a price, market forces would eventually deter businesses from polluting the environment because it would become less cost effective for them to do so (Kill et al., 2010). Emissions trading has been a central pillar of the EU's efforts to slow climate change and a policy instrument of choice among many other governments. The EU CO<sub>2</sub> Emissions Trading Scheme (EU ETS) was introduced by the European Union in 2005, independent from the pre-existing international treaties such as the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC).

Activities and projects that reduce emissions or pull carbon dioxide from the atmosphere (for example, through biosequestration, the capture of carbon from the atmosphere by the biological process of photosynthesis) generate carbon credits that are sold into carbon markets. For example, a company who is emitting 1,000 tonnes of CO<sub>2</sub> a year in their factory may purchase 1,000 credits from a company who has started a new biofuel plant which has been verified as taking 1,000 tonnes of CO<sub>2</sub> out of the atmosphere (Green Investment Services, 2018).



Currently, revenue generated through emissions trading is not a common financing mechanism for sustainable transport and mobility projects, especially those in S-M sized cities (Clapp et al., 2011). Despite the fact that the transport sector accounts for roughly a quarter of energy related global GHG emissions, only a small amount of total investments made using Climate Finance Instruments (CFIs), such as emissions trading, are made into transport. At present, almost 140 countries still have no transport projects which are funded by any of the major CFIs.

However, there is evidence suggesting the use of revenue generated through emissions trading to finance transport and mobility-related projects is becoming increasingly more common. Data in the SLoCaT Partnership Climate Finance Transport Database, which contains information on 277 transport projects covering the time period from 1992 to 2016, shows that over \$3 billion of transport-focused investments are by CFIs (PPMC, 2018). Furthermore, a growing number of countries are applying climate finance to sustainable transport projects (PPMC, 2018). In comparison to May 2015, the number of countries making use of CFIs for transport has increased from 50 to 62.

Arguably, there is a need to increase access to revenue generated through emissions trading in the transport sector to achieve the transformational change required in the coming decades. However, gaining access to this revenue is still possible for S-M sized cities, and there are steps which can be taken to make this type of financing more readily available.

Local Authorities in cities may hesitate to use emission trading for financing transport projects, due to the following challenges and risks:

- It is a complex mechanism that changes through time due to the conventions on climate change, the state of the market, and other parameters. Therefore, it cannot be relied upon as a continuous revenue stream.
- Even though local governments have strategies, plans and measures in place in the transport sector to reduce carbon emissions in cities (for example, if the framework of their voluntary agreements is through the Covenant of Mayors), the buying and selling of carbon quotas for countries takes place at national level. Therefore, there is a strong dependence on political will that may discourage local authorities from funding projects through emissions trading.
- Many local authorities in S-M sized cities have a limited institutional capacity (e.g. human resources and technical expertise in the area of emissions trading) which could cause them difficulty in identifying viable project options and developing and monitoring them.



- The legislative frameworks that establish and regulate carbon markets have not been designed with city projects in mind.
- Potential overlapping jurisdiction of greenhouse gas (GHG)-emitting sources.
- High transaction costs due to long time frames.
- Risk of projects underperforming due to carbon reductions verified and the amount of carbon credits ultimately delivered (Clapp et al., 2011).

These challenges could present serious obstacles for cities, particularly given the limited financial resources and working knowledge of carbon markets within city authorities. However, cities can use the support of experts (either from the central government or from private companies) in the carbon market, to trade their carbon credits and generate revenues for implementing sustainable transport and mobility projects.

#### Guidelines for Implementation:

Local Authorities in S-M cities should use the following steps to approach emissions trading as a financing mechanism for sustainable transport and mobility projects.

1. Guarantee support from central/national government
  - Find out whether there is political will to finance transport and mobility projects in S-M sized cities.
  - Find out whether the central government or power-generating industries generate revenues from emission trading. If so, find out where they currently invest and whether there are any options to apply for this funding.
  - Find out whether the central government can provide expertise regarding using revenues from emissions trading for local projects. If so, make use of this.
2. Investigate potential sources of carbon credits
  - Search whether the industries and power-generating plants in the vicinity of the city are involved in the emissions trading market and have available carbon credits. Find out if they have plans for future investments within their facilities and whether they are willing to discuss an investment within the city through selling their carbon credits.
  - Find out whether there are any other sources of carbon credits.
3. Create incentives
  - Some power-generating industries may already have in place a corporate social responsibility plan focusing areas such as environment, and infrastructure support. However, a solid set of incentives must be



- developed for them to attract partnership with S-M cities to trade their carbon credits and invest into sustainable mobility projects.
- Incentives should be developed for the central/national government in order to invest the revenues gained from selling carbon credits into transport projects in the city.
4. Employ experts in emission trading
    - The mechanisms are very complicated and external support most probably will be required to explore whether emissions trading is a viable and cost-effective mechanism for funding transport projects in the city.
  5. Design the project
    - Find a suitable project for the city.
    - Implement a cost-benefit analysis.
    - Engage the private sector to minimise financial risk.
    - Explore benefits of the potential transport project, i.e. benefits for the city, its citizens and local stakeholders in order to minimise risk of project underperformance.

#### **4.2.14 Planning Obligations / Developer Contributions**

New residential development could place extra burdens on the existing infrastructure and resources in the local area, such as an increased volume of traffic and congestion. Planning obligations are a way for local authorities to internalise some of the external costs of the development, either through a fixed levy on the development, or via direct negotiation between the developer and the local authority. Local authorities can use the money generated from developer contributions to improve existing infrastructure and help minimise the strain which the new development puts on it. Planning obligations are the result of individual, scheme-based negotiations that have proved to be a practical way for local authorities to cover infrastructure costs, as well as capturing some development value.

Planning obligations can also be used to restrict or define the way in which the land is used, or in other words, to make acceptable a development which otherwise would be unacceptable to the local authority. For example, the local authority can require a given portion of housing be affordable or require a developer to compensate for loss of open space.

Importantly, the agreement usually applies to the land itself, not the person or organisation which negotiated it. Thus, the agreement stands even if the owner of the



land changes. This protects against the agreement being circumvented by a change of ownership.

If the planning obligation is not complied with, the local authority can take direct action and recover expenses. It is enforceable against the person that entered into the obligation or any subsequent owners.

There are various types of Planning Obligations contributions, including:

- In-kind and financial contributions
  - Where the developer builds or provides directly the matters necessary to fulfil the obligation, by means of a financial payment, or in some cases a combination of both.
- One-off and a series of payments phased over time
  - Where obligations are to be delivered in kind by the developer, the relevant facilities can be provided at one particular point in time, or there may be advantages in providing the relevant facilities in a phased manner over time to match stages of the development.
- Maintenance payments
  - Where Local Planning Authorities seek maintenance payments through planning obligations to contribute towards the physical upkeep of infrastructure or facilities (such as maintenance payment for a car club service).
- Pooled contributions
  - Pooled contributions are planning obligations that are pooled together from more than one development, and/or across more than one Local Planning Authority area in order to address impacts across developments and local authority boundaries.

Commonly known as ‘S106’ agreements in the UK, or ‘public gain’ in North America, in many countries planning obligations proved to be successful in making developers contribute funding to offset the site-specific impact of development on public infrastructure.

The negotiations between developers and local authorities can be lengthy and sometimes difficult, requiring time and effort from both parties. Input from multiple neutral surveyors could be required in order to obtain an impartial appraisal of the scheme’s viability. The outcome of the negotiations remains unclear for the local authority until its end. As a result of this uncertainty, financial planning for potential schemes and projects is more difficult.





Planning Obligations could be perceived as highly subjective when determining the amount to be contributed. Without adequate controls or transparency, negotiations between the developer and local planning authority about developer contribution could lead to collusion and corruption. There is an inherent danger of larger developers getting a better deal than smaller, less well-resourced developers (Burgess et al., 2011).

Planning obligations could discourage development in areas that ask for planning obligations, in favour of development in areas that are less strict about imposing public obligations. This could lead to a race to the bottom between local authorities. Funding for large infrastructure would be potentially dependent on planning obligation payments from many different developers and projects. Due to the one-on-one nature of the planning obligation negotiations, securing the required funding amount could be challenging, as well as time and resource consuming (Burgess et al., 2011).

Significant resources could be required to monitor the agreements and conditions pertaining to them after they have been agreed upon, i.e. while and after the land has been developed. Negotiations relating to planning obligations, including agreeing viability, can add delays to the planning process (Lord et al., 2018).

#### Guidelines for Implementation:

- Legal Framework
  - If relevant legal framework does not exist at the national level, S-M cities and regional authorities would need to work closely with a national government to develop legislation which is fit for purpose.
  - Any legislation designed to capture development gains – such as planning obligations – should be robust and effective and does not discourage development.
- Developing Planning Obligation Policy
  - Planning obligations policies should allow applicants to clearly understand what level and type of planning obligations the Local Planning Authority is likely to seek from them.
  - It is important that all planning obligations policies are informed by a sound and robust evidence base, for example an up-to-date assessment of the need for, impacts on and costs of necessary infrastructure related to development.

- Planning obligations policies should inform other local development policies and frameworks, which can also be used to clarify the way in which planning obligations policy is to be applied.
- The local authority needs to be aware of the variety of different forms of contributions and the circumstances in which it would be appropriate to make use of them to improve delivery.
- The level of contribution set in planning obligations policies should correctly reflect relevant costs and that it can be adjusted to account to changes in cost over time.
- The Local Planning Authority needs to agree a joint approach towards planning obligations policies if the impact of a development within their boundary or neighbouring authorities is likely to have significant impact on cross-authority infrastructure.
- Developers and other stakeholders should be made aware of the opportunities to contribute to policy formulation and engage constructively in the process.
- The planning obligations must be governed by the fundamental principle that planning permissions may not be bought or sold.
- Steps to negotiate planning obligations
  - As part of the pre-application discussion, the developer and Local Planning Authority engage in dialogue regarding the scheme and any viability issues which developers foresee with their project.
  - The Local Planning Authority and developer review identified viability aspects.
  - The developer submits a planning application.
  - The Local Planning Authority considers the planning application for planning permission and the amount owed for Planning Obligation contributions.
  - Members of the public are given an opportunity to comment on the planning application, to ensure that adequate public infrastructure is met for the community.
  - The Local Planning Authority decides on whether or not the planning application is accepted based on the information submitted and additional information discovered during the verification process.
  - Planning Obligation requirements are released with the conditional approval of the development.
  - In order to ensure that agreed planning obligations are implemented effectively, it is vital that the local authority has systems in place



designed to monitor the timely and efficient delivery of obligations, and any enforcement action where necessary.

#### **4.2.15 Tax Increment Financing**

TIF is a way by which local authorities borrow money to build infrastructure. Assuming that improving an area by providing or improving public facilities or infrastructure will increase the value of the properties surrounding those facilities, the local authority can borrow money to build those facilities and pay it using the increased tax revenues related to the increase in economic activity and property values.

TIF is reliant on growth in property taxes and assumes property prices will increase as a result of the development of a new facility or infrastructure. In reality, property prices are reliant on a variety of other factors along with the development, some of which are in the local authority's control, and some of which are not. Although generally sold to legislatures as a redevelopment tool, some TIF districts are drawn up where development would happen anyway, such as ideal development areas at the edges of cities.

The TIF process arguably leads to favouritism for politically connected developers, implementing attorneys, economic development officials, and others involved in the processes. Districts can be drawn excessively large thus capturing revenue from areas that would have appreciated in value regardless of TIF designation. Capturing the full tax increment and directing it to repay the development loans ignores the fact that the incremental increase in property value likely requires an increase in the provision of public services (King et al., 2015).

According to Haider and Donaldson (2016), in 1970, seven states in the USA had adopted forms of TIF, however, this had increased to 48 by the late 1990s. The use of TIF in Canada is limited, with a notable exception being Calgary's 'Community Revitalization Levy', which is similar to TIF. Despite TIF schemes no longer being initiated there, as of 2008, California had over 400 Tax Increment Districts (TIDs), areas in which properties' tax will be used to finance the investment, earning over \$10 billion annually, coupled to \$28 billion of debt (King et al., 2015). Chicago, USA, reports having instituted 173 tax increment districts since 1984, with combined income of \$7 billion. Of the 173 TIDs, 165 were still active in 2008, with a combined TIF income of \$570 million. Values of TIF schemes can vary from tens of millions of dollars to \$300 million (Haider and Donaldson, 2016).



Haider and Donaldson's (2016) concludes "TIF's success as a development financing tool has been mixed. Numerous studies have found that TIF developments have a positive impact on the community such that property values increase more rapidly in TIF districts than otherwise. At the same time, a large number of studies failed to find higher growth rates or appreciation in property values for TIF districts when compared with non-TIF districts. They go on to argue that "TIF could support only partial capital costs of such a project," and that "in addition, economic cycles have the potential to affect the expected increase in property values, which in some instances would result in lower-than-expected TIF revenue."

Guidelines for Implementation include the following steps:

1. Initiation
  - Determine the overall project feasibility
  - The public sector most often initiates TIF projects, however the private and non-profit sectors are also able to do so
2. Formulation
  - Create a redevelopment plan, in which the geographic boundaries of the TID - the area in which properties' tax will be used to finance the investment - are established, along with the project's objectives, costs, and timelines
  - Establish tax base, revenue increment, and debt financing policies
  - It may be necessary to argue what would happen if the TIF project did not take place
3. Adoption
  - Public hearings and stakeholder participation events to ensure input from citizens and taxing districts is considered in the decision-making process
  - Complete political and legal approvals and draft public-private partnership agreements
4. Implementation
  - Actual infrastructure construction
  - Manage construction and project finances
  - Establish the tax base and tax rates
  - Issue debt instruments
  - Generate and distribute tax increments
5. Evaluation and Termination
  - Assess the project's outcomes against expected results
  - Dissolve the TID after all debt is repaid



- Project termination is generally regulated by any TIF-enabling legislation at the state or provincial level
- At this point, the tax revenues from the TID revert to the allocations from before the TIF, hopefully at significantly higher levels (Haider and Donaldson, 2016)

#### **4.2.16 Sales Tax**

Sales tax is a tax which is paid to a governing body of a region, such as a local authority, for the sales of certain goods and services. Generally, laws require the seller of the goods or service to collect the funds for the tax from the consumer at the point of purchase.

Sales Tax Increase Financing is a mechanism which is sometimes used by the governing body of a region, to generate additional revenue to fund public realm improvements. Where this is the case, a governing body initiates a one-off increase to the current sales tax rate of a region to generate additional revenue. A blanket increase in sales tax is executed, which covers all applicable goods and services sold within the region. Applicable goods and services are determined by the local government, and there are some goods and services which are exempt from the tax.

The difference between the original tax revenue and newly increased tax revenue is then made available for use in public realm improvements such as the financing of sustainable transport and mobility projects and initiatives (King et al., 2015).

It has been observed that these sales tax increase schemes for funding transport projects are mostly found in the US and very rarely seen outside the US (Ubbels et al., 2000, King et al 2015). Some examples have been found in India (Dalvi and Patankar, 1999), while a proposed scheme in Madrid failed and was not implemented. Cities in US where sales tax increase has been used to fund transport projects are Denver (Colorado), New Orleans (Louisiana), Atlanta (Georgia), Reno (Nevada), Fort Worth (Texas), Austin (Texas) and San Francisco (California) and more recently in Texas, Virginia and Los Angeles.

The advantage of this funding mechanism is that local authorities can generate this revenue without government support and not a lot of extra administrative procedures are required. Depending upon the economic situation, applicable goods and services to be taxed can be determined by the local authority and some goods and services could be excluded from the tax increase. However, local authorities may not have the capacity to undertake the complex administrative processes associated with increasing



sales tax in the region. The rate of sales tax does not depend on a person's income or wealth, and therefore an increase in sales tax may be unaffordable for people with lower-income salaries.

If the tax increase is big enough, it could impact the level of public spending on goods and services, which would impact the local and regional economy (King et al., 2015). The public may be resistant to the tax increases if they do not necessarily use the services which will benefit from the tax increase (King et al., 2015). The amount of funding generated will depend upon the amount of services/goods purchased by consumers and can be difficult to predict.

#### Guidelines for Implementation:

- A strong campaign should be implemented to inform the public on the issues related to public transport, and how the revenue generated from a tax increase will help to overcome these issues.
- A consultation process should be undertaken with local stakeholders and members of the public, to help overcome public resistance.
- Implementing the additional tax by including it in VAT may be less noticeable with regards to personal spending habits and budgets, compared to a 'tax additional' model, where it is added onto a bill separately (King et al., 2015).
- The implementation of a Sales Tax Increase Financing is related to the territory and it has to adapt to the regulation and competencies of the city.
- The additional revenue generated through the sales tax increase should be pooled into a separate pot and should only be used to fund applicable sustainable transport and mobility projects and there should be a clear accountability of the funds.
- The tax should be proportionate to the amount intended for investment into sustainable transport and mobility projects. The tax increase should not be higher than the amount intended to be spent as this could cause major public opposition.

#### 4.2.17 Toll Roads

Road infrastructures, such as motorways, tunnels or bridges are considerably expensive, and governments are often unable or unwilling to commit fiscal spending to build new assets. This is also true for existing infrastructure; most Highway Agencies find it difficult or even impossible to provide the necessary resources for the optimal maintenance and rehabilitation of their road transport infrastructures.



Many countries have tried to overcome this lack of funds by levying tolls on highway users to generate additional revenue. In fact, toll revenues already provide a much-needed source of revenue to maintain and expand highway networks worldwide, allowing to provide the public with infrastructure, and services, that otherwise wouldn't be practicable in the same period of time or to the same extent.

Tolling systems have two main purposes. Firstly, of shifting mode choice towards public transport, and secondly, of generating revenue to finance road maintenance and investments. However, the excess revenue generated can also serve as a potential funding source for other types transport and mobility projects, and therefore, could be used for sustainable transport and mobility projects.

Generally, the cost of the infrastructure is paid over the life of the project. This allows for the execution of projects which do not have immediate or short-term budgetary backing.

There are many examples of the successful implementation of urban toll roads, whereby the revenue generated has been invested into maintaining existing infrastructure, new infrastructure projects or sustainable transport and mobility projects. For example, the Norwegian cities of Bergen, Oslo and Trondheim have extensive experience on the implementation of toll roads as a financing mechanism for transport projects, and have been applying these policies since 1980's and 1990's. The revenue from the initial Bergen toll ring (1986-2002) was only used for road infrastructure investments, however, the new Bergen Programme also funds public transport and mobility infrastructure.

Other examples of urban road charging in Europe can be found in the UK (Durham and London), Stockholm or Milan, however targeting primarily traffic congestion control, gas emission taxation, or both. In Milan for example, the system shifted from a pollution to a congestion charge because most polluting vehicles were rapidly put out of circulation. In Milan, there was an increase of about 12.5% in passengers using subway stations inside the charged area (Croci, 2016).

In London, after a first phase, congestion increased because it was decided to use the road space freed from cars for other social or sustainable mobility purposes (bike lanes, pedestrian areas, etc.) (Croci, 2016).

Results from London, Milan and Stockholm charging schemes also point to benefits regarding air pollution levels, with reductions of about 10% to 20% in gas emissions.



The success of urban toll roads is highly dependent on a strong political support and public acceptability for its implementation. In some cities, like Edinburgh, Manchester and New York, the attempt by local governments to introduce a charge failed because of citizens or political opposition (Croci, 2016).

Political and public opposition can occur due to a sense of inequity, for example, the idea that frequent users suffer the most. Political and public opposition can also occur if there is a lack of efficient communication of the positive targeted impacts of the tolling system, such as additional revenue for public transport projects. This can be overcome by earmarking toll road revenues, which is the case in Bergen, where toll road revenues are earmarked to road network investments. Public opposition can also occur due to a user's perception that they are being charged twice, by paying the tolls on top of their taxes.

There is a cost recovery risk. Traffic and toll tariff levels may not be sufficient to cover all costs, including construction, operation and maintenance (Bull and Mauchan, 2014).

#### Guidelines for Implementation:

- Use political support as a driver to implement the charging system and coordinate local and national authorities to promote toll systems as an instrument for implementation of sustainable mobility policies.
- An intensive information campaign to highlight the targeted goals and use of revenues should be implemented to gain the public's acceptance. This is especially important in societies with no familiarity with toll roads.
- Clearly define the main pricing objectives of the tolling system, as this is central to scheme design (for example, tariff levels, mechanism of charging, period of charging).
- Toll tariffs should be adapted according to vehicle classification, time of day or day of week, construction and operation costs, social considerations, and geographical area (Bull and Mauchan, 2014). A toll tariff structure based on these topics improve user's equity perception of the charging system.
- Identify mobility patterns, quantify road traffic demand and develop projections and scenarios of modal shift after the implementation of the toll system.
- Analyse public transport alternatives, and levels of service, and assess the capacity to absorb the estimated increase in demand following the reduction in road traffic.





- Improve public transport services, as well as walking and cycling infrastructure, to be used as alternatives.
- Develop an economic feasibility analysis of the project based on the expected revenues and costs.

#### **4.2.18 Selling Expertise and Technical Know-how**

Selling expertise and technical know-how is a form of collaborative knowledge sharing, where one has an exclusive right to exploit his or her substantive knowledge for economic profit and desires to merchandise it (Crevoisier, 2016). A local authority may sell its expertise and technical know-how to obtain an additional revenue for its sustainable transport and mobility projects.

An urban local authority can also transfer and share its knowledge through networks, partnerships and knowledge hubs, for free or for a small price. By doing this, the city can benefit from increased attractiveness and name recognition among the general public and various organisations, including local authority employees from other cities looking for new ideas, private companies looking for a location for their business operation and potential tourists looking for an exciting destination for their holiday.

The transfer of expertise and technical know-how could consist of the identification, documentation, and dissemination of processes, practices, and expertise in the area of interest, which can include but is not limited to transport and mobility, asset management, procurement, models for cost and revenue savings, innovative legal tools etc.

Examples of transport authorities selling expertise and technical know-how successfully include the Land Transport Authority (LTA) Academy in Singapore; licencing contactless ticketing technology by Transport for London (TfL); Dutch cities, including City of Nijmegen, City of Amsterdam and Utrecht, sharing their knowledge and expertise about cycling via Dutch Cycling Embassy.

There may be a reluctance from the 'buyer' to pay for expertise and technical know-how if they have difficulty in assessing how it will contribute towards reducing costs and accelerating delivery of their project(s). The expertise and technical know-how should be transferred to the 'buyer' in a proper manner to avoid misunderstandings, resistance, or pitfalls (Jöns et al., 2017).

There could be institutional/organisational challenges within transport authorities and public administrations such as getting people motivated to approach 'selling expertise



and technical know-how' as a new financing mechanism. The practice of knowledge-sharing should align with local legislation, and harmonise with that at global, regional, national and state levels.

S-M cities may not have a relevant expertise or knowledge which has a market value. Small and medium-sized local authorities may lack capacity and resources to participate in knowledge sharing networks and partnerships.

#### Guidelines for Implementation:

- The transport authority or public administration should carry out research to find out whether their expertise is marketable in the transport and mobility industry. They should seek to find knowledge gaps and work out whether they have the expertise and technical know-how to fill them.
- The local authority should ensure that the expertise and technical know-how that they provide is relevant and useful.
- In order to provide marketable expertise and technical know-how, the local authority should possess strong and accurate knowledge in the field in which they are willing to sell their expertise. Otherwise, they will not only lose the possibility of gaining deals, but they may also damage their reputation.
- A crucial factor in selling transport-related expertise and technical know-how is managing the intellectual property rights of the innovation, as it could be the case that more than one organisation was involved in the developing the innovation. This aspect should be taken into consideration before selling the technical know-how.
- Pricing of expertise and technical know-how should be decided upon by considering the amount of added value that the knowledge will provide to the buyer, the price of the resources used to generate the knowledge, and the price of similar sales in the industry.
- The sale of expertise and technical know-how should align with all relevant legislation and regulatory frameworks in countries of all parties involved.
- Contractual arrangements should be effective and protect the commercial interests of both parties involved in the buying and selling of expertise and technical know-how.
- In order to provide a successful transfer of knowledge, a good communication and engagement strategy is required. The accurate selection of the communication channels is very important.



- Find out about opportunities for knowledge sharing networks and partnerships using online resources such as URBACT, EUROCITIES, and JASPRS Network Knowledge and Learning Centre.
- Build knowledge sharing networks and partnerships with other cities who share your sustainable mobility goals.
- Dedicate a person or team within your organisation who would be responsible for identifying opportunities and following leads.
- Changes may have to be made within the institution/organisation, such as developing a culture that accepts new learning, distribution, changes and improvements.

#### **4.2.19 Selling of Land and Property**

Local authorities have publicly owned land and property which in many cases is not being used, especially brownfield land, which lies empty for years. Such government land and property can be used productively to raise funds for sustainable transport projects. This type of initiatives will not only generate revenue for housing and jobs and support economic growth but save on the running cost of maintaining such assets.

Examples of successful implementation of this form of funding mechanism are as follows:

- Transport for London – Being London’s largest landowners, TfL is working in partnership with various local authorities to release land for new homes and improved local train stations. One of their projects is the Kidbrooke station square, where TfL is working in joint partnership with a housing association to regenerate the Kidbrooke rail station site to submit a planning application for 619 houses and improved station.
- The One Public Estate Programme (OPE) - The One Public Estate programme started as an innovative pilot programme in 2013 with just 12 councils and over time it has now expanded to over 300 councils involved in transforming local communities and public services. It is a national programme delivered in partnership with the Local Government Association (LGA) and the Office of Government Property (OGP).

The aim of this programme is to make better use of public-sector assets, releasing land for new homes and create jobs. So far, the programme has saved taxpayers £24million in running costs, created 5,745 new jobs and released land for the development of 3,336 new homes. It has delivered innovative outcomes by better use of the publicly owned land and property. One



such example is the redevelopment of Plymouth railway station, which is explained in the case study in the following section.

S-M cities who lack experience and the capacity of the legal and administrative processes could benefit from cooperation with other local authorities who have the experience and may also need support from central government. The example of that is The One Estate Programme (OPE) in U.K, which works in partnership with central government, local government and other public sector partners and provides practical and technical support to councils to deliver ambitious projects based on utilising their assets productively. The partnership approach by OPE shows the value of working together across the public and private sectors for better asset management and bringing the most out of the value of these assets.

This mechanism requires strong political and public support, and effective communication and collaboration between all partners involved. Local authorities may not have the capacity to undertake the complex administrative process requiring due diligence and accountability, and they may require the support of other government bodies. There might be planning and land issues that need to be resolved before disposing off the assets, and in some case, central government would need to be involved. The uncertainties in the economy and, in particular, the property market would pose a risk, as land values can vary a lot depending on many factors.

If managed effectively, this form of funding can generate an appreciable revenue and could offer significant benefits to S-M cities namely:

- Creating economic growth (more houses and jobs)
- Delivering sustainable transport projects
- Delivering more integrated services
- Reducing the running cost of local authority assets

Guidelines for Implementation:

- A framework needs to be set to establish the guidelines for disposal of the local authority land
- A consultation process should be undertaken with all stakeholders and members of the public to get the consent of all parties involved
- Local authorities need to be clear and transparent about how the revenue would be spent
- Mapping the local authority assets is the key to identifying the opportunities to use them in a more efficient way



- The sale processes should be easier so as to encourage commercial property development sector to work with local authorities and attract more private sector investment
- Preparing an effective business plan and collaborating with the right development partners can capture best value for the publicly owned land and property
- Establishing a strong governance mechanism and effective partnerships with all parties involved
- Engaging with public sector partners in early stages of the project to develop a shared vision and work towards a common goal
- The availability of funding to support the initial stages of the project

#### **4.2.20 Grants from Private Foundations and Trusts**

A grant is defined as a sum of money given by a government or another organisation for a particular purpose. A grant is different from a loan as in that the money is not expected to be repaid. In the United Kingdom Grant-making Trusts and Foundations give about £3.9 billion in Grants each year. Grants from private trusts and foundations differ from the government grants as the money does not come from taxpayers.

In most cases, the source of income for these trusts is from an endowment, which is given by a wealthy individual or a company and in they are often named after the original benefactor.

Grants from private trusts and foundations to fund transport projects is not very common and not many case studies are currently available. In the US, city governments are turning towards philanthropic support for improving their cities and trying out adventurous and innovative ideas. An example is the City of Detroit's 20-person grants team, which is a dedicated squad that raises funds from large philanthropists like Bloomberg Philanthropies, JPMorgan Chase, the Kellogg Foundation and the Knight Foundation. Projects have included in-house innovation team using data analytics to support city's development and regeneration projects. It is worth mentioning that these foundations played a remarkably large role in saving the City of Detroit from bankruptcy after the 2008 financial crisis.

A more known grant which is in form of a competition is the Bloomberg Philanthropies' Mayors Challenge, which provides funding to winning cities to develop innovative ideas to improve their cities.

Obtaining a Grant from a Private Foundation or Trust may be a difficult process. Applications often involve adhering to strict selection criteria and there may be



constraints on potential applicants. Grants may require significant reporting on their outcomes. Frequent reporting on the achievements and the criteria for the Grants may be a good thing but may also create a heavy administrative burden on organisations. Grants from Private Foundations or Trusts tend not to be a particularly reliable source of funding, they are usually a one-off. Once the Grant funds are used, any ongoing costs will not be covered. There are usually a series of applicants competing for the same money, which makes it very competitive.

Guidelines for Implementation:

- Authorities responsible for funding public transport projects should keep up to date with relevant websites and forums of Private Foundations and Trusts to ensure they do not miss opportunities to apply for Grants.
- Register with websites providing information for grants from private trusts and foundations
- Significant resources and training should be invested in for organisations wishing to write potential bids for Grants from Private Organisations and Trusts to ensure the best chance of success.
- Due to the nature of Private Grant funding, the use of this funding mechanism should be saved for smaller one-off projects, especially innovative ones, which are not going to last for extended periods of time.

#### **4.2.21 Donations as Part of Consumer Purchases**

The aim of this financing mechanism is to leverage a small amount of extra revenue from each consumer purchase covered by the scheme. To do this, when a buyer purchases something, they may agree to donate a small additional amount of money which would go towards a certain good cause.

There are two ways that a buyer could donate; either when they purchase a single product, or as a recurring donation on a subscription service (for example, a regular donation on a mobile phone contract).

Donations are collected using existing infrastructure put in place by the service provider or merchant, and generally, it is channelled through an independent body. Previously, this financing mechanism has mainly be used to gain additional finance for international development organisations or charities, however, it could also be used to raise funding for a specific local sustainable transport or mobility measures within a city.



There are many examples of fundraising through consumer purchases and this is a very popular way of raising funds. There are many big businesses like MacDonald's raising funds through donating a penny from the sale of Happy Meal. IKEA's Soft Toy Campaign raised funds for Save the Children and UNICEF.

Local authorities raising funds for their local sustainability and mobility schemes need to target product or service provided that is relevant to the cause, so it would be more attractive to the consumers of those products. An example of such a fundraising is the voluntary donation scheme at the Windmill Car Park in Wimbledon and Putney Commons.

There are some examples of where this financing mechanism has failed (for example, MASSIVEGOOD which raised funds for UNITAID). The revenue stream may be unpredictable if it is not automated or maximised. A significant investment into marketing may be needed to maximise revenue.

Successful examples of where this financing mechanism has been implemented have not generated huge revenues (in the tens of thousands) and therefore, this financing mechanism may need to be used alongside others. The success of the financing mechanism depends on both the consumer and corporate uptake. This financing mechanism is vulnerable to wider economic conditions. Economic downturns could impact people's spending habits.

#### Guidelines for Implementation:

- Local authorities should spend time finding the most appropriate merchants and service providers to collect the donations. The product or service provided by the merchant or service provider should be relevant to the cause of the funding. For example, possible merchants and service providers to collect donations could include bus providers, metro providers, or cycle hire shops.
- Local authorities should find an independent body to channel the revenue between the merchant or service provider, and the local authority.
- To raise substantial additional revenue, the voluntary nature of the donation should be maximised. This could be done by using either 'opt out' or 'opt in' provisions. If the local authority wants to implement an 'opt in' scheme, it should be made convenient for the buyer to do this to maximise revenue.
- Another approach to maximising additional revenue, is by using an automated donation system. For example, having an option for adding a donation on a card payment machine.



- The additional amount that consumers pay on top of the normal price of the product or service should be set at a low level so that the consumer is not deterred from donating.
- Local authorities should advertise the importance of the proposed sustainable transport and mobility projects, to let consumers know exactly where their donations will be going and the impact that they will have. This could be done through a marketing campaign by publicising on the Local Authority website, on local Facebook pages, in local newspapers and magazines, and on posters and leaflets in transit hubs.
- It is also beneficial if a public consultation is carried out to understand if the consumers are willing to pay such a voluntary donation.

#### **4.3 Indicative Matrix of Financing Mechanisms**

The Indicative Matrix of the selected financing mechanisms is presented in Figure 4-1 and shows which innovative financing mechanisms are best suited to specific types of sustainable transport and mobility projects.

The matrix has been compiled using professional judgement and available information and is intended for indicative purposes only. It should be noted, that it does not cover all sustainable transport and mobility projects that can be financed using the identified financing mechanisms. Some of the identified financing mechanisms could also be potentially used for other sustainable transport and mobility projects different from the ones indicated in the table. The applicability of the identified financing mechanisms would depend on local context and would be determined by existing legislation and policy, national and local sustainable mobility plans, as well as political will within the S-M city administration.



	Financing Mechanism																				
	Congestion Charge	Municipal Green Bonds	Crowdfunding	Stamp Duty Land Tax	Lottery Funding	Voluntary Capture	HGV Charging Schemes	Workplace Parking Levy	Community Infrastructure Levy	Advertising, Sponsorship and Naming Rights	Collaborating with Other Cities, Research Consortia and Private Companies	Citizen Cooperatives	Emissions Trading	Planning Obligations/ Developer Contributions	Tax Increment Financing	Sales Tax	Toll Roads	Selling Expertise and Technical Knowledge	Sale of Land and Property	Grants from Private Foundations and Trusts	Donations as Part of Consumer Purchases
Park and Ride	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Electric and Hybrid Buses	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓		
Bus Priorities	✓	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓		
Integrating Urban Freight	✓	✓			✓		✓	✓	✓		✓			✓		✓	✓	✓	✓		
Cycle Parking and Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cycle Lanes	✓	✓		✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Cycle Signage	✓	✓		✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Bike Sharing System	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pedestrian Crossings	✓	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓		
Pedestrian Footpaths	✓	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓		
Pedestrian Signage	✓	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓		
Car Sharing Scheme	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Car Pooling Scheme	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Public Electric Vehicle Charging Services	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parking Management Systems	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	✓	✓		
Tram/ Light Rail	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Cable Cars	✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		
Green Zones	✓	✓		✓	✓		✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓		
Trip Planning Systems (I.e. Mobile Travel Planning Apps)	✓	✓	✓		✓		✓	✓	✓		✓		✓			✓	✓	✓	✓		
Personalised Travel Planning	✓	✓	✓		✓		✓	✓	✓		✓				✓	✓	✓	✓	✓	✓	✓
Improving Availability of Travel Information	✓	✓	✓		✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Improving Train, Bus, Tram Stations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Improving Accessibility to Transport for Disabled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
Safety, Security and Awareness Schemes	✓	✓	✓		✓		✓	✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	✓
CCTV for Public Transport	✓	✓			✓		✓	✓	✓	✓	✓				✓	✓	✓	✓	✓		
Street Lighting	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓	✓		

Figure 4-1: Indicative Matrix of Financing Mechanisms

## 5 RECOMMENDATIONS

Small and medium-sized cities face certain constraints with implementing innovative financing approaches, such as:

- Innovation – the mechanisms feature new methods that are advanced and original
- National and local policy and regulation constraints
- Absence of relevant know-how and capacity constraints
- Lack of awareness regarding innovative financing mechanisms
- Lack of guidance from national governments
- Risk averse and fear of perceived and/or real risks
- Lacking political champion to take ownership of innovative initiatives

Local authorities can address these cultural and administrative shortcomings by creating framework conditions that favour innovation and allow bringing ideas to practice. They can provide support to innovation through initiatives and actions aimed at providing financial support to R&D Programmes, cooperation between its staff and other national and international local authorities. They can also dedicate staff resources for innovation and to adopting best practices in innovation policymaking.



S-M city local authorities should allocate resources to training and human development, including:

- Lacking political champion to take ownership of innovative initiatives
- Lacking political champion to take ownership of innovative initiatives
- Working together with national and local political appointees as well as other stakeholders and supporting agencies on increasing their awareness of local policy goals and sustainable mobility strategy
- Appointing a champion to take ownership of innovative initiatives and trying out new approaches
- Developing multi-sector technical skills for transport infrastructure planning
- Working together with private investors' on reducing their capability gap, and
- Transforming local authority into a learning organisation

Urban innovation centres (also known as 'catapults' or 'incubators') can help connect academics, city leaders, entrepreneurs and businesses to inspire new smart city solutions. Innovation centres normally receive their core funding from national governments but can also undertake collaborative research and receive private funding from businesses. The centres can lead events, networking sessions, training, and help oversee innovative projects by providing technical support. Municipalities and national governments can use innovation centres to target sustainable transportation and mobility initiatives and to entice businesses to explore new and emerging technologies (e.g. blockchain, IoT, and artificial intelligence).

S-M cities should prioritise investment which improves digital customer services and information provision for transportation services. This will help to optimise existing networks and resources, and to improve conditions for passengers by providing them with live journey and routing information. Investment should start with creating multi-modal smartcard or contactless ticketing systems to increase ease of use, as they make interchanges between modes far simpler. Smartcards create valuable data about how and where people are travelling, which can be used and processed to feedback into improving the existing transportation network. In addition to smartcards, making use of technologies such as IoT and wireless tracking on mobile devices can help provide more detailed information about how people use transit stations, transit lines, and even trains. This can help municipalities target investment where it is most needed (World Bank, 2015).

Open data can help to enhance product development, allowing developers to build creative and useful tools that help passengers make more informed travel decisions. For example, non-personal data could be made freely available to the public, which



could help tech entrepreneurs to develop smart solutions to increase ease of use for existing public transport network within a city. Using data from the public requires careful consideration as to how the data is used, and this should be communicated with passengers. If approached in an ethical and effective way, open data could help save money by encouraging the private sector to make use of the data.

Open data is an initiative which is being encouraged throughout the EU, and the amount of open data available is expected to increase. By 2020, the use of open data is expected to reduce public administration costs across the EU. The effective use of open data could also help to save millions of hours of unnecessary waiting time on EU roads and help to reduce energy consumption by 16% (Carrara et al., 2017). For example, Transport for London claims that by releasing transport data to be used by global leaders, such as Citymapper, they are generating employment and wealth for London and beyond.

Mobility as a Service (MaaS) is a mobility distribution model that is bringing about digital innovation in the built environment. If designed correctly, it will play a huge role in driving positive change in the mobility industry. MaaS brings all modes of travel together, combining options for different transport providers into a single mobile service. It is an 'access over ownership model' that aims to unlock all transport modalities with the overarching goal to decrease the need for car ownership and increase public transport usage (Catapult Transport Systems, 2016). Perhaps most importantly, it will help prepare cities for the arrival of autonomous vehicles and to coordinate different mobility services so that there is no shift away from sustainable transportation modes.

Municipalities should start coordinating efforts to implement or trial Mobility as a Service (MaaS) in their cities in order to stay ahead of the curve and to maintain greater control over the future of mobility services. Municipalities across Europe, including larger cities like Helsinki and Amsterdam, as well as smaller cities like Milton Keynes, are beginning to lead MaaS initiatives.

By implementing MaaS in S-M cities, it is expected that the use of existing public transport networks will increase, improving overall performance and efficiency, which will help to save money by reducing the need to invest in other sustainable transport and mobility solutions.



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