NOVELOG Guidelines for the Planning & Development of Sustainable Urban Logistics Plans (SULPs)
Objectives and Approach

NOVELOG is a three year research project focusing on gaining insight into urban freight transport (UFT) and providing guidance for implementing effective and sustainable policies and measures. This guidance has been given through a 4 step – 4 tool approach aiming to help cities “Understand” their UFT environment, “Focus” on the most suitable measures and policies, “Assess” these measures and “Guide” the cities in their effective implementation.

12 cities and regions are involved in the project: Athens, Barcelona, Copenhagen, Emilia-Romagna Region, Gothenburg, Graz, London, Mechelen, Pisa, Rome, Turin, and Venice.

Each city has specific as well as common priorities and needs, different maturity level, different mix of measures and interventions, but the same objective: a more sustainable and liveable city. To this end, they have developed a pilot or case study to achieve the following results and impacts:

- Cost effective and green (non-vehicle technology) strategies, measures and business models
- Increased load factors and reduced vehicle movements
- Optimised governance and stakeholder cooperation in urban distribution, through a more powerful, consensus-oriented Decision Support System (DSS)
- Strengthened capacity of local authorities & public and private stakeholders for sustainable policy making and mobility planning.
Introduction

SULP development cycle

Guidelines for each SULP Step

Step 1: Determine the city’s potential for a successful urban freight planning process

Step 2: Define the development process and scope of the plan

Step 3: Analyse the current UFT situation, problems and opportunities

Step 4: Develop a common vision and future improvement scenarios

Step 5: Set priorities and measurable targets

Step 6: Identify and develop an effective package of measures

Conclusions
Introduction

The Sustainable Urban Mobility Plan (SUMP) is a “strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles.”

Although the SUMP in principle addresses the issue of efficient and effective distribution of goods in cities, there are no concrete guidelines on how this can be achieved. The complexity of organizing the urban freight distribution depends on the vast range of activities resulting from relationships among a variety of actors with different and often conflicting needs and goals and by a number of negative environmental and social effects like congestion, air and noise pollution, and safety. This makes it difficult for a policy planner to propose standard measures that could be suitable for different urban contexts as well as to develop a common understanding about future expectations.

In parallel, the science and practice of UFT and city logistics has been developing, introducing novel solutions to address issues caused by UFT traffic. The NOVELOG project is filling the gap of the current SUMP approach by suggesting specific guidelines on how a local authority could incorporate UFT measures and policies in their sustainable mobility planning. These guidelines taken separately can be described as a Sustainable Urban Logistics Plan (SULP). The SULP is defined, mirroring the SUMP definition, as a “holistic planning strategy for urban freight that ensures efficient and sustainable logistics operations within urban areas.” The development of the SULP also mirrors the development of the SUMP, except that special focus is given to the movement of freight and the use of UFT solutions.

SULP development cycle

The NOVELOG project implemented common planning procedures in a variety of cities using the same methods and planning supporting tools developed by the project.

The SUMP development cycle remains valid when considering plan formulation for city logistics. However, some of these steps are difficult to be performed for UFT due to lack of knowledge and access to information, limited skills of local authorities and high problem complexity caused by the multiple industrial stakeholders and their fragmented operational environment. In this context and depending on the process difficulty, it was found necessary to change the content of a step, merge or skip steps and provide a set of methods and techniques for supporting planning process step implementation.

In the figure below, the SUMP planning cycle adapted for city logistics is presented, as concluded by NOVELOG activities. The proposed changes concern Phase I and II of the well-known ELTIS cycle\(^3\), since the approach was focused on alleviating obstacles of the process and facilitate local authorities in integrating UFT measures in the city’s SUMP.

Therefore, the techniques, methods and tools proposed by the project concern the first six steps of the typical SUMP process.

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NOVELOG SULP planning cycle

It is recommended that the SULP process is implemented separately from the SUMP procedure, and that it starts after the definition of the overall sustainable mobility vision of the city. In this way, the city approach for sustainable distribution and service trips that will result from the SULP development process will be in line with the SUMP vision and will focus on serving its general objectives.

\(^3\) http://www.eltis.org/mobility-plans
Guidelines for each SULP Step

The six steps of the SULP process are listed below and presented in the Figure of page 5.

• Step 1: Determination of the city’s potential for a successful urban freight planning process.
• Step 2: Definition of the development process and scope of the plan
• Step 3: Analysis of the city’s current UFT situation, problems and opportunities
• Step 4: Development of a common vision & future improvement scenarios
• Step 5: Setting priorities and measurable targets
• Step 6: Development of effective package of measures

In the next paragraphs, practical guidelines on what to do in each step, as well as examples of implementation, are provided based on NOVELOG outcomes and the conclusions of the project life cycle experience with a network of cities.
Step 1 Determine the city’s potential for a successful urban freight planning process

1.1. Define responsible team in the local authority for the SULP design and implementation

In the majority of European cities, there are no responsible structures inside the municipalities dealing with UFT planning and management. In some cities, responsibility for UFT has been assigned to one or maximum two persons. The initiation of the SULP development process requires the appointment of a small team inside the municipality having relevant expertise, knowledge of the SUMP priorities and familiar with the general policy and regulatory framework for UFT.

1.2. Identify UFT key stakeholders and organize the SULP Multi-stakeholder platform (MSP)

Role

Planning for sustainable city logistics is a participatory process requiring stakeholders governance scheme for efficiently managing fragmentation of the transport and logistics industry. A key role is assigned to the Multi-stakeholder platform (MSP) for the development of the SULP. NOVELOG considers the MSP as “a mechanism for industry and local governments to work together in partnership to produce a tangible outcome to localised freight transport problems”⁴, defining a vision and set of measures for integrated urban logistics planning. The mission of the platform is to achieve a common understanding on the problems, consensus building for future vision, scenarios, measures selection and cooperative business models implementation.

Mixture & organization

A key criterion for inclusive and successful SULP is to identify who these actors are and how to engage them in the process. Size and mixture of the MSP influence considerably the efficiency and the validity of the planning process for UFT. In NOVELOG different MSPs were set up and different levels of engagement were reached. Based on this experience, it is suggested to build the stakeholder platform for UFT around three main stakeholders groups with percentage participation for each one of them as presented below:

- **Supply Chain Stakeholders** (e.g. Freight Forwarders, Transport Operators, Shippers, Major Retail chains, Shop owners) up to 28%
- **Public Authorities** (e.g. Local Government, regional or national government) up to 28%
- **Other stakeholders** (e.g. Industry and Commerce Associations, Consumers Associations, Research and Academia) up to 36%
- **Experts** up to 8% of the total number of participants in the platform.

The role each participant holds within the organization he/she represents (e.g. executive, CEO, distribution/logistics manager, driver, etc) is important for the robustness and the efficiency of the platform. All stakeholders should require a good level of representation (knowledge & decision-making capacity).

An important participant is the “neutral partner”, i.e. a person who favours neither “the public or private partner” (Lindholm and

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(4) UK Department for Transport (2003) A guide on how to set up and run Freight Quality Partnerships, Good Practice Guide 335, Transport Energy Best Practice Programme, DfT
Step 1 Determine the city’s potential for a successful urban freight planning process

Browne 2013[^5], who will chair and manage the partnership. NOVELOG experience shows that Academia/ researchers or 3rd party consultants can effectively play such a role. An important reason is to ensure that inevitable imbalances in the membership of the MSP can be mitigated, for example by ensuring that neither the public nor the private sector always dominates the discussions.

### City of Turin: composition of Multi-Stakeholder Platform

- Express couriers (TNT, SDA, BARTOLINI, DHL, UPS, GLS)
- Industrial Stakeholders (ANFIA, API, Confindustria, Federauto, Unione Industriali, UNRAE)
- Association and logistics operators (AICAI, Apsaci, FEDIT, Federdistribuzione, Confartigianato Trasporti, FITA C.N.A., FAI)
- Retailers associations (ASCOM-Confcommercio, C.N.A., Confartigianato, Confcooperative, Confesercenti)
- Public Authority (Local Chamber of Commerce, Municipality of Turin, Ministry of Infrastructure and Transport, Piedmont Region)
- Technology partners (5T, Viasat, Torino Wireless)
- Freight Villages (Sito Interporto)

### Best Practices

The MSP organization reached excellent results in some NOVELOG cities, and the operations of the platform also continued after the SULP process was completed.


1.3. Assess & improve city’s knowledge of its UFT profile

All local authorities are in the position to determine and describe passengers mobility issues of a city in a quantified and qualified way. Only a few of them can do the same for urban freight transport, i.e. to describe the size and the characteristics of these transport activities. The majority of the data are private and dedicated surveys are not executed regularly. Additionally, cities are wondering which data and with which method they should be collected and analysed for supporting the planning process for sustainable city logistics.

Data collection & knowledge creation framework for UFT

NOVELOG proposes a holistic data collection framework for UFT planning process. By following this framework, local authorities receive answers on how the knowledge on city’s UFT should be structured, what information to collect and how. Depending on the planning activity cities are initiating (i.e. justification of a single measure or infrastructure development, integrated UFT intervention scheme in an area, or horizontal sector-specific action, etc.) the detail of data collection & analysis is also provided.

The framework suggests UFT knowledge structure on four pillars: 1) Profile of major supply chains served in the urban area under study; 2) Mapping of urban freight and service trips activity; 3) Organizational and legal framework and 4) Procedural and technological methods and innovations.

Step 1 Determine the city’s potential for a successful urban freight planning process

The minimum set of data for describing UFT characteristics

Acting on UFT problems is often an urgent matter and requires quick reference to a basic description of UFT in the city and its evolution over the years. Basic knowledge on city’s UFT implies knowing the magnitude of the daily urban freight transport workflow (number of vehicles & vehicles-kms, number of tons & tons-kms) and their spatial distribution (volume of freight vehicles on road network), and the average daily service trips by category of major freight transport generators (i.e. shops in the city centre, supermarkets, commercial mall, couriers activity etc).

Based on survey results involving about 150 experts around Europe, NOVELOG identified a minimum dataset that can describe the UFT characteristics of a city and thus provide basic knowledge of the city logistics issues in any urban area.

The below (or enriched) set of data is proposed to be collected regularly by the local authorities.
This can be achieved in the following ways:

• **Dedicated minimum UFT data survey.** The NOVELOG Data Collection Framework provides reference for sampling & surveying techniques for each data set.

• **By engaging the transport & logistics industry actors in regular data provision process.** Since municipalities provide the operational licence for the majority of the activities (commercial or others) that constitute main freight transport generators, it is recommended to add the obligation for data provision (i.e. twice or three times per year) to the operational licence maintaining procedure. In case of a specific geographical area intervention, it was also found efficient to relate data provision to area access permission.

• **Through experts’ workshops collecting average values for the minimum data set for UFT description.**

From the different approaches implemented during NOVELOG lifecycle for creating minimum data set for UFT, the above were found the most efficient practices.

As a result of NOVELOG pilots and international cooperation activities, examples of best practices for model development and big data analytics for UFT can be found in http://www.uct.imet.gr/Novelog-Tools/UC-Tool

### 1.4. Review availability of resources

Resources needed for a successful SULP development are:

• **the assessment of existing legal and policy framework for enabling new UFT regulation**

• **the type and amount of information already available for the identification of the current state of the city’s UFT**

• **the different tools available for further enrichment of the existence knowledge, for problems identification and arguments creation justifying alternative measures.**

The tools used for UFT planning mainly refer to transport models which in general allow for quantification of transport demand, supply as well as forecasts. Freight models for urban areas should calculate for the current situation and estimate for the future an important part of the UFT parameters. Therefore, they are able to provide calculated data for planning as well as minimum data set for UFT characteristics description. Although in the majority of the cases cities have models for passengers’ mobility, they don’t have urban freight models describing the demand and the supply of urban distribution. Cities need to ask for external expertise for model development, since this is demanding regarding qualification and resource mobilisation process.

The adoption of Intelligent Trasport Systems (ITS) technologies by cities and logistics industry provides the possibility for generating UFT related data through the analysis of the ITS systems recorded information. Truck floating data, traffic monitoring and surveyance systems data, when analysed properly, may provide the number of freight vehicles in the city every day, their running Kms, Origin & Destinations
Step 1 Determine the city’s potential for a successful urban freight planning process

of freight fleet, routes used and number of deliveries per vehicle, etc., all of them being important for describing the UFT situation in the city.

In the context of the availability of resources required for UFT planning, it is recommended to be reviewed in collaboration with the UFT stakeholders:

1) Confirm in the MSP meeting the tools and data that are available for UFT planning

2) Compare the data proposed in NOVELOG Data Collection Framework with your own resources, to identify which further data should be collected.
2.1. Look beyond boundaries

City logistics is the last mile of a broader supply chain, and relevant infrastructure for handling city logistics operations are usually located at the boundaries of the urban areas. Therefore, the geographical coverage of the plan might need to have a strong regional dimension. On the other hand, the negative impact of city logistics operations may be concentrated on a specific urban area, demanding for local measures in order to be alleviated.

Therefore, the definition of the territory of a SULP requires both considerations to be taken into account, and should be guided by the typology of supply chains occurring in the area.

NOVELOG created a poly-parametric city typology to describe, benchmark and support the definition of the urban area on which the SULP should focus.

More specifically, a city can be described based on six main criteria:

1) Economic activity, Infrastructure, Gross Domestic Product
2) Degree of integration of freight-generating activity, such as the presence of a few large employers in a city
3) Political culture
4) Culture
5) Degree of logistics sprawl
6) Legal and regulatory framework.

Apart from defining the SULP reference area, this City Morphology Framework allows for comparisons with other cities and gains of inspiration from similar best practices.

2.2. Involve stakeholders in the planning process

Involving a variety of relevant stakeholders throughout the planning process helps in the legitimacy, quality, and cost effectiveness of the SULP development.

Apart from ensuring the involvement of the stakeholders in the planning process through their participation in the MSP, NOVELOG developed and made available to the cities a Stakeholders Governance Platform which supports stakeholders’ consensus building. The NOVELOG Understanding the Cities Tool (UCT) incorporates a web-enabled Delphi methodology, which is governed by the corresponding city moderator. This tool allows for virtual MSP meetings and opinion management techniques.

Partnership agreement template in Copenhagen
Cities should draft a work plan including objectives, type of procurement, roles of the single stakeholders, activities and specific stakeholders’ deadlines during SULP development and implementation.

The management and implementation arrangements may be formalized in written Memorandum of Understandings among the UFT stakeholders participating in the MSP. The responsibility of specific work plan activities might be assigned to subgroups of the MSP. At this stage, it is recommended to identify types of cooperation among private actors and between public and private stakeholders for the successful implementation of cooperative business models for UFT measures.

The stimulation of the cooperation should start at this stage by communicating failure and success stories as well as examples of appropriate business models per UFT measure. NOVELOG identified a list of Cooperative Business Models appropriate for specific sustainable UFT measures implementation.

Step 3 Analyse the current UFT situation, problems and opportunities

3.1. Identify the main characteristics and external influencing factors of your city’s UFT environment

The analysis of the current UFT situation of a city is usually performed by quantifying major operational parameters as well as impact and externalities resulting from the UFT operation. There are different descriptive approaches for situation analysis. NOVELOG suggests a system of correlated UFT city characteristics parameters and key influencing factors for describing UFT situation in the area of SULP reference. The first set of parameters mirrors the result of the current operations, while UFT Influencing factors refer to areas of policy baselines and intervention. The NOVELOG Understanding Cities Tool offers to the stakeholders the possibility to select parameters and define correlations, thus describing the current UFT situation.
The tool is also offering Dashboard functionalities to the stakeholders, providing them with comparative results of the different stakeholders’ choices.

*The Understanding the Cities Tool can be found here: [http://www.uct.imet.gr/UC-Tool](http://www.uct.imet.gr/UC-Tool).*


### 3.2. Analyse problems and opportunities

Before developing improvement scenarios, it is necessary to understand the current state of a city’s UFT. Due to the heterogeneity of the city logistics sector, gaining this knowledge is quite complicated.

The Understanding Cities Tool offers the opportunity to quantify the current status of each city logistics component as well as to assess the future state of the city logistics, in two-time horizons (2020-2030), considering that no additional intervention will take place in the city’s UFT environment in the meantime.

#### Venice – Italy

<table>
<thead>
<tr>
<th>The city’s main UFT characteristics</th>
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</thead>
<tbody>
<tr>
<td><strong>Today</strong></td>
</tr>
<tr>
<td>Time of day of delivery/pick-up</td>
</tr>
<tr>
<td>Empty running</td>
</tr>
<tr>
<td>Loading activities: docking</td>
</tr>
<tr>
<td>Delivery activities: round trip delay</td>
</tr>
</tbody>
</table>

Quantification of current and future state of UFT in Venice
4.1. SULPs objectives definition

In this step, the objectives of the SULP are defined. Similarly to the ELTIS SUMP Guidelines “a vision needs to be specified by concrete objectives, which indicate the type of change desired. These changes also need to be measurable. This requires selecting a well-thought-out set of targets that focus on selected areas (indicators).”

NOVELOG developed a comprehensive Evaluation Framework (EVALOG), incorporating an exhaustive list of primary and secondary objectives and associated indicators for measuring the expected impact of the overall SULP as well as of an individual UFT measure implementation.

### Gothenburg – Sweden

<table>
<thead>
<tr>
<th>Objectives &amp; impacts</th>
<th>Promoting the care of addresses concept of an UCC</th>
</tr>
</thead>
</table>
| **City’s primary objectives** | Economic:  
  • Increase UFT system efficiency  
  Environmental:  
  • Reduce CO2 emissions  
  Social:  
  • Improve service accessibility  
  • Change behaviour towards sustainable UFT  
  • Reduce congestion |
| **City’s secondary objectives** |  
  • Increase delivery load factor  
  • Increase use of clean technologies/delivery means (EVs, bikes, walk)  
  • Introduce Urban Consolidation Centres  
  • Adopt new business models  
  • Introduce new/adapted regulatory schemes (SULPs, LTZs)  
  • Provide evidence/incentives for further adoption  
  • “Shared” freight and passengers schemes |
| **Expected impacts** |  
  • 15% CO2 emissions reduction  
  • 5% deliveries reliability increase  
  • 4% accidents / damages decrease  
  • 8% traffic reduction  
  • Operational costs reduction  
  • Stakeholders behaviour improvement towards sustainable UFT |

Definition of objectives and expected impacts for new UFT solutions in Gothenburg

4.2. Development of future improvement scenarios

The vision of a SULP cannot be described verbally as it is for the SUMP development process. Private stakeholders, companies and enterprises involved in the MSP define their individual plans on the basis of quantified targets.
NOVELOG suggests the future vision of a SULP is articulated on quantified targets for specific UFT parameters in three-time horizons. More specifically, it is proposed the involved stakeholders use the UCT for describing future UFT characteristics in the case of no action being taken and for the scenarios related to infrastructure development and trends (on demand, supply, disruptive technology) as well as policy implementation.

NOVELOG proposes a three step consensus-building process for the development of the future scenarios and the common vision of a city:

- **In the first round**, involve city authorities, local experts, and stakeholders with the aim of developing three scenarios (current, 2020, 2030), with three levels of development (minimum, medium and maximum) based on the previous tasks’ results (i.e. the analysis of the city’s UFT situation)
- **In the second round**, brainstorm internally the ideas on the scenarios developed in the previous round
- **In the third round**, if necessary, address the local stakeholders with the scope to integrate experts’ suggestions for each Sustainable Future Urban Logistics scenario.

For the successful implementation of the above-mentioned consensus building process, the city authorities should take into consideration the following suggestions of actions:

- Implement training actions and coordinated activities at city’s authority level before implementing the consensus building process on the scenario development
- Arrange personal meetings with the stakeholders
- Organise workshops to raise awareness about expectation in term of developing a UFT sustainable future scenario.
Step 5 Set priorities and measurable targets

The NOVELOG Evaluation Framework also proposes alternative methods for collecting evaluation data and quantifying Key Performance Indicators (KPIs). At this step, it is suggested that UFT stakeholders select the most suitable KPIs in the framework that is considered appropriate for monitoring the change.

<table>
<thead>
<tr>
<th>Module</th>
<th>Impact Areas</th>
<th>Collected relevant data indicators</th>
<th>Wish list of indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact assessment</td>
<td>Mobility</td>
<td>Number of deliveries with “bring mE” (number, amount of shipments, distance, weight, volume)</td>
<td>• Load factor</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Vehicle utilisation factor</td>
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<tr>
<td></td>
<td>Environment</td>
<td>Number of deliveries with “bring mE” (number, amount of shipments, distance, weight, volume)</td>
<td>• Traffic throughput</td>
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<td></td>
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<td></td>
<td>• Violations</td>
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<td></td>
<td></td>
<td></td>
<td>• Punctuality</td>
</tr>
<tr>
<td></td>
<td>Adaptability</td>
<td>• CO2 emissions</td>
<td>• Stakeholder acceptance</td>
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<td></td>
<td></td>
<td></td>
<td>• Stakeholders percentage</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>• Adoption rate</td>
</tr>
<tr>
<td>Adaptability &amp; transferability</td>
<td>Transferability</td>
<td>Transferability to new project areas</td>
<td>• Lack of willingness from stakeholders for cooperation</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Behavioural - Compliance with regulations</td>
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<tr>
<td>Risk analysis</td>
<td>Political and social framework Access regulations for pedestrian zones</td>
<td></td>
<td>• Urban space engagement</td>
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<tr>
<td></td>
<td>Economic, legal and organizational support</td>
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<td>• Infrastructure usage</td>
</tr>
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<td></td>
<td>Infrastructure requirements</td>
<td></td>
<td></td>
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<td></td>
<td>Time of the actions</td>
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</tr>
</tbody>
</table>

Evaluation Framework for UFT in Graz

More information about the Evaluation Framework can be found in Deliverable 3.1 “Integrated Assessment Framework for UFT solutions”.
Step 6 Identify and develop an effective package of measures

6.1. Identify effective measures

Selecting measures for completing and integrating a SULP approach is mainly influenced by the ability of the measure to achieve the desired impact (efficiency, reduction CO2 etc.). The level of success of each measure depends on the urban environment particularities and UFT characteristics. In addition, the readiness of intervention area (Infrastructure, Policies, Cooperation etc.) for measure’s adoption further defines the level at which the measure might be proved appropriate for implementation.

In order to facilitate measures selection, the project developed the NOVELOG Toolkit. The NOVELOG Toolkit aims to match measures and interventions with city typologies in a publicly-accessible platform. NOVELOG City Typology integrates previous city typologies in a structural approach which is defined in:

Why, which is related to the problems and the primary and secondary objectives of the SULP

Where, which refers to the City Morphology at the place of intervention and UFT Logistics Profiles

Who, which is related to the UFT markets and stakeholders involved in the planning process

What, which refers to the typology of measures

How, which relates to the nature of the implementation process as well as the Nature of the Business Models.

Integrated inventory for urban freight policies and measures, typologies and impacts

More information about the NOVELOG Typology can be found in the Deliverable 4.1. [http://novelog.eu/downloads-2/downloads]
6.2. Learn from other experiences

The NOVELOG Toolkit holds 250 measures with summaries of the resulting sustainability impacts to the city it was implemented in. This is the most extensive database of sustainable UFT measures applied within Europe. In this step, it is suggested to the local authorities to use the Toolkit and the grid methodology which allows the user to compare the performance of the various measures considered for being included in the SULP package.

The NOVELOG Toolkit can be found at: http://www.uct.imet.gr/Novelog-Tools/Toolkit
More information about the NOVELOG Toolkit can be found in the Deliverable 4.2. “NOVELOG Toolkit” http://novelog.eu/downloads-2/downloads
Step 6 Identify and develop an effective package of measures

6.3. Impact Assessment Evaluation

Evaluation should be performed through the use of the Novelog Evaluation Tool (EVALOG), by reporting indicators’ values before and after implementation, and assessing ‘ex-ante’ and ‘ex-post’ whether an adopted measure achieved the desired outcome.

6.4. Consider value for money

A big part of the sustainable UFT measures/solutions turn to be not economically viable. This is mainly due to lack of critical masses and need for additional mode change that is usually required by some of the measures. In this context, the cooperation of private stakeholders for increasing load factors and decreasing the number of freight vehicles entering the city centre is important. Similarly, win-win cooperation schemes between public and private stakeholders for allowing innovative UFT measures (micro consolidation, lockers, bike logistics, Urban consolidation centres etc.) need to be examined for securing long-term sustainability of the measures.

<table>
<thead>
<tr>
<th>Consolidation scheme</th>
<th>Customer (offering)</th>
<th>Value proposition</th>
<th>Reduced value proposition</th>
<th>Revenue stream</th>
<th>Cost structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban consolidation centre (UCC)</td>
<td>LSP (UCC services)</td>
<td>Green branding, The on-demand delivery services (due to proximity)</td>
<td>Additional fixed costs, Additional handling</td>
<td>Subscription model</td>
<td>Existing UCC to be reneged, Operational costs</td>
</tr>
<tr>
<td></td>
<td>LSP (EV rental solutions)</td>
<td>EV rental (and recharging)</td>
<td>Additional transport costs</td>
<td>Subscription model</td>
<td>Purchase of vehicles and charging system</td>
</tr>
<tr>
<td>Micro-consolidation centre (MCC)</td>
<td>LSP (Light goods delivery)</td>
<td>For delivery - higher availability and better convenience</td>
<td>Additional handling</td>
<td>Long-term contract with LSP</td>
<td>Investment and operational costs for MCC</td>
</tr>
<tr>
<td></td>
<td>Other LMC (Bicycle servicing)</td>
<td>Bike rental, recharged</td>
<td>None (additional service)</td>
<td>Per use</td>
<td>Investment and operational costs for secured accessibility</td>
</tr>
<tr>
<td>Man in the loop (MIL)</td>
<td>Logistics in shopping (reduction with consolidated transport)</td>
<td>Delivery flexibility</td>
<td>None</td>
<td>Base service - parking shopping centre</td>
<td>Use of existing UCC (it is less expensive) + no new investment cost, Operational costs</td>
</tr>
<tr>
<td>Automated locker system (ALS)</td>
<td>LSP (Light goods delivery)</td>
<td>Reduced final deliveries costs, Waste collection cost</td>
<td>Extra costs for usage</td>
<td>Pay per-use charged to LSP</td>
<td>Real estate (fully funded by municipality) + installation and lockers</td>
</tr>
<tr>
<td></td>
<td>Receivers (Light goods delivery)</td>
<td>Reception flexibility</td>
<td>May not financially recoverable due to training</td>
<td>None</td>
<td>Operating costs (maintenance, surveillance, energy)</td>
</tr>
</tbody>
</table>

Example of Novelog Cooperative Business Models types and concept

NOVELOG emphasizes on cooperative business models development and guidance of stakeholders for achieving successful cooperation. Revised business models have been proposed to stakeholders for increasing success factors of specific measures implementation.

The evaluation of business models, regarding their efficiency in adapting to specific case characteristics, was also examined in different cities around Europe. In the context of the above and for this step, NOVELOG suggests the use of NOVELOG Guidance tool for:

1) The adaptation of city logistics Business Model Canvas for mapping value of cooperation for the different stakeholders
2) The revision of the cooperative business model for increasing robustness and resilience of cooperation
3) Business model evaluation for assessing impact in the UFT measures’ economic viability.

The main motivation for developing the NOVELOG SULP Guidelines was to share the knowledge gained during the project life-cycle in implementing integrated planning processes for sustainable city logistics in 12 European cities.

It was also a prioritized objective of the NOVELOG Team to associate NOVELOG Tools with methodological steps of the ELTIS SUMP approach, thus proving first the need and then the ability for supporting local authorities and stakeholders in accomplishing their objectives in the complex environment of city logistics.

Finally, this document was also prepared to highlight the need for a separate and parallel to SUMP approach for developing SULPs in European cities.
References

All the NOVELOG Deliverables can be found at http://novelog.eu/downloads-2/downloads/
The Deliverables referred to the present document are the following:

- Deliverable 2.1. “Framework for Data Information and Knowledge Collection for Urban Freight and Service Demand Understanding”
- Deliverable 2.3. “The Understanding the Cities Tool”
- Deliverable 3.1 “Integrated Assessment Framework for UFT solutions” at
- Deliverable 3.2. “The Evaluation Tool”
- Deliverable 4.1. “Integrated inventory for urban freight policies and measures, typologies and impacts”
- Deliverable 4.2. “NOVELOG Toolkit”
- Deliverable 7.3. “Identification and customization of business models”

The NOVELOG Tools can be found on the Novelog Platform: http://www.uct.imet.gr
More specifically:

- Understanding the Cities Tool: http://www.uct.imet.gr/UC-Tool
- Evaluation Tool: http://www.uct.imet.gr/Evaluation-Tool
- Guidance Tool: http://www.uct.imet.gr/Yellow-Pages

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NOVELOG consortium

The NOVELOG consortium comprises a variety of experts in the field of urban freight transport, ensuring the knowledge of the academic sector, the experience of cities, the expertise of consultants and the multiplier effect of European networks.

For further information

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