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1. EXECUTIVE SUMMARY

The purpose of the SETRIS project is to deliver a cohesive and coordinated approach to research and innovation strategies for all transport modes in Europe. SETRIS seeks to identify synergies between the transport European Technology Platforms' (ETPs) strategic research and innovation agendas (SRIAs) and between these and relevant national platforms. The 5 ETPs are:

- 1) ACARE (Advisory Council for Aviation Research and Innovation in Europe),
- 2) ALICE (Alliance for Logistics Innovation through Collaboration in Europe),
- 3) ERRAC (The European Rail Research Advisory Council),
- 4) ERTRAC (European Road Transport Research Advisory Council) and
- 5) WATERBORNE.

SETRIS aims to develop a framework for long-term cooperation between actors from all transport modes, to facilitate the delivery of a truly integrated transport system.

This SETRIS Deliverable *D2.4 Benchmark research and innovation activities (I)* presents the results of an assessment of different European projects and initiatives in urban freight and how these cover the research challenges and topics set in the 2014 ERTRAC-ALICE Urban Freight research roadmap (implementation status). Based on the gaps identified in the benchmark exercise an implementation plan proposes new research challenges and topics for the 2018-2020 period within eight different areas:

- 1) Integrated data framework and big data analytics as opportunity for improving decision-making in urban freight transport
- 2) Exploring new opportunities for achieving effective integration of urban freight and personal mobility: services and networks
- 3) Improving the link between urban and long distance freight transport services and infrastructures
- 4) New collaborative business models of services based on sharing economy
- 5) Logistics in the full circular economy: new business models for horizontal and vertical collaboration
- 6) Bringing logistics into urban design
- 7) Interoperable standard modular urban loading units: autonomous deliveries
- 8) Safety and security in urban freight

The results of this deliverable will be further re-fined within *D2.5 Benchmark and innovation activities (M22)* in which new projects, topics and targeted actions will be proposed.

2. INTRODUCTION

This deliverable presents the results of the benchmark activities carried out within the SETRIS 2.2 Urban logistics task. An assessment of recent European projects and innovation activities has been carried out to benchmark their progress and impact with respect to the research topics and challenges identified within the 2014 ERTRAC and ALICE Urban Freight research roadmap http://www.ertrac.org/uploads/documentsearch/id36/ERTRAC_Alice_Urban_Freight.pdf. Furthermore, specific supply chains have been considered, including fresh food, construction, reverse logistics, waste and e-commerce.

As a result, this benchmarking exercise identified how recent European urban freight projects and initiatives covered the research challenges and topics set in the ERTRAC-ALICE Urban Freight Research Roadmap (implementation status) and proposes research topics for the 2018-2020 time frame considering new challenges and those so far not sufficiently implemented.

As a next step, *D2.5 Benchmark and innovation activities* (M22) will further update this report by monitoring new projects, refining topics and including concrete proposals for action for different stakeholders including public authorities (local, regional, national level), industry (manufacturing, IT), end-users and operators as well as potential investments in infrastructure.

3. BENCHMARKING METHODOLOGY

The European projects and activities list, the areas of intervention and the challenges identified within these in the 2014 ERTRAC and ALICE Urban Freight research roadmap were taken as a starting point for the SETRIS urban freight benchmark. New projects and initiatives were included by the SETRIS' partners involved in task 2.2 and an assessment was performed on how these cover the challenges (implementation status) from the previous roadmap and within specific supply chains as stated in the SETRIS technical annex. The complete list of projects and initiatives considered in this assessment can be found in annex I.

ERTRAC and ALICE experts from the urban mobility and urban freight groups respectively were invited to comment on the first results of the benchmark.

In addition, they were invited to participate in a SETRIS workshop organised by ALICE and ERTRAC on the 26th of January 2016. In this workshop the initial conclusions of the benchmark analysis were presented and new challenges before and beyond 2020 were identified. The 31 participants of this event worked within different subgroups to collect as much input as possible and to promote the exchange on the future challenges and research needs. The results of this discussion were presented to the whole group.

Considering the outcome of this first workshop a second interactive meeting (with 99 participants) was organised by ALICE on the 3rd of February 2016 in which the implementation status of the benchmark and the research challenges and topics were refined.

The agendas and participants lists of these two meetings can be found in annexes II and III. After these two meetings, the ERTRAC and ALICE experts received the updated version of the benchmark and of the challenges and research topics and were invited to provide further comments.

The areas of intervention and the details of the benchmark assessment can be found in the next section.

4. MONITORING OF ROADMAP IMPLEMENTATION

The five areas of intervention in the ERTRAC-ALICE 2014 Urban Freight Research Roadmap include:

1. Identifying and assessing opportunities in urban freight
2. Towards a more efficient integration of urban freight in the urban transport system
3. Business models and innovative services
4. Cleaner and more efficient vehicles (focus on trucks as 3.5 ton)
5. Safety and security in urban freight

The benchmark summary (see tables below) presents the research challenges in each of these intervention areas and the related European projects and initiatives. Relevant call topics of the 2016-2017 work programme were also included. Five different degrees of implementation (DOI) have been identified to mark the implementation status (from 1= less implemented to 5= well implemented):

- DOI #5: Sufficient evidences of implementation
- DOI #4: Experiences but not deployed a large scale
- DOI #3: Some research activities exist
- DOI #2: Potentially foreseen in forthcoming topics
- DOI #1: No clear evidences of implementation. Few cases

4.1. IDENTIFYING AND ASSESSING OPPORTUNITIES IN URBAN FREIGHT

Nowadays, there is still no satisfactory and comprehensive qualitative and quantitative evaluation of the impact Urban Freight Transport (UFT) has on the life of cities. Recently, however, new trends are emerging as regards the identification and assessment of new opportunities for UFT. Collaborative transportation systems, for instance, have become an increasingly popular practice due to the crisis. However, the concept of cooperation and competition and data-sharing still requires further development. There is a strong need to acquire targeted consistent and homogeneous data in order to properly assess the problem and identify the most suitable solutions. It is expected that better data, knowledge and information will make it easier to identify opportunities for improvement. Although cities have proven to be almost unique and solutions very difficult to replicate, Key Performance Indicators (KPIs) can show the real impact of these new solutions and the extent to which they can be replicated in other cities.

DOI #5: Sufficient evidences of implementation	
Challenges	Specific contributions justifying DOI #5

<p>Assessing urban logistics in cities: KPIs, benchmarking tools, governance models & identify urban freight actors.</p> <p>Framework data collection to analyse freight movements, impacts and identify opportunities.</p>	<p>Wide coverage through EU projects as such as CITYLAB, C-LIEGE, ECOSTARS, NOVELOG, FREVUE, LAMILO, MODULUSHCA, SMARTFUSION, SMILE, STRAIGHTSOL, SUCCESS, DOROTHY etc.</p> <p>In France, “National Urban Goods Movements Surveys” since the 90’s, and FRETURB software</p> <p>Other examples: Mines Paristech (FR), CIRRELT (Canada)</p>
<p>Understanding the potential for stakeholder cooperation, stakeholders awareness and involvement</p> <ul style="list-style-type: none"> • New collaboration formulas (cooperative decision-making and cooperative planning processes), financing and governance structures. • New methodological frameworks to support participatory policy making accounting for agent-specific preferences and their dynamic interactions • New policies and regulation measures that benefit public and private parties. • Assessing the impact of policy regulations and frameworks 	<p>Wide coverage through EU projects as such as BESTFACT cases: Binnenstadservice, Cityporto Padova, Stadsleveransen in Gothenburg, Consolidation centre, LOGeco – eco-friendly logistics in Rome. C-LIEGE, CITYLAB, CIVITAS CYCLELOGISTICS, DOROTHY, ECOMPASS, ECOSTARS, LAMILO, MODULUSHCA, NOVELOG, SMARTFUSION, SMILE, STRAIGHTSOL, SPIDERPLUS, SUCCESS, TRAILBLAZER, U-TURN, etc.</p> <p>Forthcoming topics:</p> <p>MG-4.1-2017 Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas</p> <ul style="list-style-type: none"> • New governance models for freight and passenger transport: better coordination and cooperation; synergies between passenger and freight transport; stakeholder engagement; public consultation and participation; education and training, policy transfer. <p>MG-4.5-2016 New ways of supporting development and implementation of neighborhood-level and urban-district-level transport innovations.</p>
<p>DOI #4: Experiences but not deployed a large scale</p> <p><i>(No challenges in this category)</i></p>	
<p>DOI #3: Some research activities exist</p>	

<i>(No challenges in this category)</i>	
DOI #2: Potentially foreseen in forthcoming topics	
Challenges	Specific contributions justifying DoI #2
<p>Assessing the potential of new services in last mile operations associated to available data (big data).</p> <p>Assessing the potential of new distribution schemes in urban areas (e.g. 3D printing, crowd-shipping)</p>	<p>GALENA H2020 project: To adapt an existing logistics information system by taking into account the trusted PVT and authentication data.</p> <p>Forthcoming topics:</p> <p>MG-5.2-2017: Innovative ICT solutions for future logistics operations</p>
<p>DOI #1: No clear evidences of implementation. Few cases</p> <p><i>(No challenges in this category)</i></p>	

4.2. TOWARDS A MORE EFFICIENT INTEGRATION OF URBAN FREIGHT IN THE URBAN TRANSPORT SYSTEM

Achieving a cleaner and more efficient urban logistics system requires a better integration of urban freight in both the transport system and city. Other transport activities within the city transport system may have an influence and be influenced by UFT.

There is a relationship between the demand for passenger transport for certain type of activities, in particular commuting to work, and the demand for goods transport.

Waste is another fundamental part of city transport. Waste removal processes could be integrated with the delivery or, more likely, the return of certain product categories.

Additionally, it is important to consider the relationship between tourism and urban freight.

4.2.1. Optimising the use of the road infrastructure in space and time for urban freight activities

When it comes to the integration of different activities on the road infrastructure, research should aim to enable their integrated management at the strategic, tactical and real-time level. While work is required to enable this joint use of the infrastructure, it should be supported by activities to build support for this among stakeholders. It should therefore be supported by work on public acceptance and the involvement of the different actors, in particular the freight operators. The extent and conditions of some forms of public-private partnerships (PPPs) to enable this should be investigated.

Significant research is still needed to ensure that the best is made of the integration of urban freight in the urban mobility system, the development of tools and methods, including scenario planning and models, for fully taking urban freight into consideration at all stages of the sustainable urban mobility

planning process. This should identify opportunities to also assess the potential for using other modes and infrastructures than road for improving the urban freight system.

DOI #5: Sufficient evidences of implementation <i>(No challenges in this category)</i>	
DOI #4: Experiences but not deployed a large scale	
Challenges	Specific contributions justifying DOI #4
Dynamic use of dedicated lanes and lane prioritizing	<p>Some experiences:</p> <ul style="list-style-type: none"> • BESTFACT Case: Multiuse lanes for freight distribution in Bilbao • Also cases in Lyon, Barcelona, and Donastia San-Sebastian
Integration of urban freight with public transport on the infrastructure but also at the level of the vehicles and at public transport interchanges.	<p>Some cases regarding the use of vehicles for passengers and freight in combined way have been found.</p> <p>BESTFACT Case: Parcel and small cargo delivery using interurban coach system between Lithuanian urban areas</p> <p>BESTFACT Case: Combipakt – combined passenger and goods transport in Nijmegen, the Netherlands.</p> <p>Density project (Sweden, funded by Swedish VINNOVA) - cases in Gothenburg and Stockholm. Aim to address passenger and goods mobility for development and planning of dense cities with high demands on accessibility and sustainability.</p> <p>NOVELOG: Turin pilot: Flexible use of public infrastructure by ITS. Venice pilot: Using public transport for freight last mile deliveries</p>
DOI #3: Some research activities exist <i>(No challenges in this category)</i>	
DOI #2: Potentially foreseen in forthcoming topics	

Challenges	Specific contributions justifying DoI #2
Assess how road infrastructure can be best used for freight activities.	<p>Some experiences available:</p> <ul style="list-style-type: none"> Extensive work in the SPECTRUM project on using suburban rail networks for urban freight deliveries. The Monoprix service in Paris using RATP lines at night to deliver to stores. <p>Forthcoming topics:</p> <p>MG-4.1-2017: Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas</p> <ul style="list-style-type: none"> Optimizing the use of existing infrastructure and vehicles Integration between urban freight and passengers transport networks within appropriate city and transport planning governance Use of multi-modals hubs and terminals for passengers and freight Multi-purpose use of space for vehicles Synergies between passenger and freight transport
Differentiate the use of road space in time	
Explore the potential of private infrastructures. Public Private Partnerships (PPP) possibilities	
Development of tools and methods for fully taking urban freight into consideration at all stages of the sustainable urban mobility planning process	<p>C-LIEGE. Creation of the City Logistics Manager.</p> <p>ENCLOSE. Releasing a specific Sulp (Sustainable Urban Logistics Plan) and integrating it into the SUMP.</p> <p>NOVELOG: New Cooperative business models and guidance for sustainable City Logistics</p> <p>Density project (see above)</p> <p>SMARTFUSION developed the <i>Smart Urban Freight Designer</i> which is an interactive planning tool for clean urban logistics integrated with PTV routing tools.</p> <p>SMP ITC Software The tool integrates methods and calculations of the benefits of creating</p>

	<p>environmental zones, using low emission vehicles for urban distribution, bundling of goods, night distribution, reducing road capacity, etc</p> <p>Forthcoming topics:</p> <p>MG.5.4-2015. Strengthening the knowledge and capacities of local authorities</p>
<p>DOI #1: No clear evidences of implementation. Few cases</p> <p><i>(No challenges in this category)</i></p>	

4.2.2. Better understanding of the impact of land use on urban logistics activities

Research and innovation on this topic should help to increase the knowledge related to spatial patterns and urban freight facilities. It should lead to tools for measuring the role, location and impacts of warehouse, freight terminals and urban logistics platforms in metropolitan areas. On this topic, it is also necessary to assess and map locational trends and the impacts of “logistics sprawl” on freight flows, CO₂, local pollutants and congestion.

The location of logistics activities may also have an impact on the social cohesion of the territory and should be better understood.

Finally, some research should be carried out on measuring the accessibility of networks and terminals for various types of actors.

<p>DOI #5: Sufficient evidences of implementation</p> <p><i>(No challenges in this category)</i></p>	
<p>DOI #4: Experiences but not deployed a large scale</p> <p><i>(No challenges in this category)</i></p>	
<p>DOI #3: Some research activities exist</p>	
Challenges	Specific contributions justifying DOI #3
Knowledge related to spatial patterns, location and impacts of warehouse, freight terminals and urban logistics platforms in metropolitan areas	CITYLAB: City Logistics in Living Laboratories

<p>Assess and map locational trends and the impacts of «logistics sprawl» on freight flows, CO2, local pollutants and congestion</p>	<p>PLUME: decision-making tool to estimate the best position of urban distribution platforms</p> <p>ANNOA and SILOGUES projects include work on location of warehouses</p> <p>CITYLAB: Paris pilot addressing logistic sprawl</p> <p>CITYFREIGHT: LUTP (land use and transport planning) project. Much land use and freight work was done in Brussels and Helsinki.</p> <p>LAMILO, SUCCESS</p> <p>Laetitia Dablang's (IFSTTAR) work in this field is extensive:</p> <ul style="list-style-type: none"> • The impacts of logistics sprawl in Paris • Atlanta: a mega logistics center in the Piedmont Atlantic Megaregion (PAM) • How can we Bring Logistics Back into Cities? The Case of Paris Metropolitan Area
<p>DOI #2: Potentially foreseen in forthcoming topics</p> <p><i>(No challenges in this category)</i></p>	
<p>DOI #1: No clear evidences of implementation. Few cases</p>	
Challenges	Specific contributions justifying DOI #1
<p>Measuring the impact of the location of freight activities, including the accessibility of networks and terminals, for various types of actors.</p>	<p>No clear evidence it has been addressed</p>

4.2.3. Enabling a more efficient management of goods: ITS to better manage the movement of goods

ITS can be used to better manage the movement of goods. The key focus of any research is to identify appropriate business models for technology adoption and market deployment.

The integration of urban freight into urban network management can rely on new improved traffic management operations and a better use of data on urban freight. To support this approach, research work should be carried out on data definition/identification/collection/accessibility for planning and policy and urban freight plans.

The potential of e-Freight should be explored to accelerate this development towards a more efficient management of the network.

In-vehicle systems and connectivity should also be explored as means to enabling a more efficient management of goods. The limit of the scope of the roadmap towards vehicles is defined by the scope of the European Green Vehicles Initiative (EGVI).

DOI #5: Sufficient evidences of implementation (No challenges in this category)	
DOI #4: Experiences but not deployed a large scale	
Challenges	Specific contributions justifying DoI #4
Management of loading and unloading areas.	<p>Some experiences on load/unload management system, but not deployed at large scale</p> <p>BESTFACT Case: i-Ladezone: Intelligent monitoring of loading bays in Vienna.</p> <p>BESTFACT Case: New loading/unloading regulation and parking meter/loading bay surveillance technology in Lisbon</p> <p>FREILOT project: Bilbao case</p> <p>CO-GISTICS project: Bilbao case</p> <p>NOVELOG: Turin pilot and Pisa pilot</p> <p>ALF project</p>
DOI #3: Some research activities exist	
Challenges	Specific contributions justifying DoI #3
<p>Explore the potential of more exchange of data on urban freight</p> <p>Data definition, identification, collection, accessibility, for planning and policy and for urban freight plans.</p> <p>Models for data sharing and cost efficient data collection on urban freight.</p>	<p>GALENA project: To develop innovative and trusted PVT solutions with a hybrid system GALILEO / ZigBee enabling a seamless, robust and continuous handover indoor/outdoor localization of freight and enabling the various carrier operators to take over the liability of the goods they are responsible for.</p>

	<p>COMCIS: interoperability between e-freight systems that have been developed in previous EU projects as well as in commercial undertakings.</p> <p>SMARTIE project investigates and develops novel technologies to securely gather information from the real world e.g. from citizens, traffic control systems etc. and store it in the platform in a privacy-preserving way.</p> <p>Lindholmen Science Park: workshop series in Sweden as a basis for understanding the data need to better support freight planning in urban area.</p> <p>E-freight projects:</p> <ul style="list-style-type: none"> • Use of multi-modals hubs and terminals for passengers and freight • Freightwise • e-freight • the relevant ISO and GS1 standards <p>This has been well explored and the Common Framework covers operational work well.</p> <p>However, there is more to be done, pilots in urban freight are missing.</p>
DOI #2: Potentially foreseen in forthcoming topics	
Challenges	Specific contributions justifying DOI #2
<p>Appropriate business models for technology adoption and market deployment e.g.:</p> <ul style="list-style-type: none"> - Access control and privileges granted to specific vehicles (low noise, low or zero emissions,...) - Dynamic routing - Lane sharing - Load index control - Information on other road users - Delivery spaces availability or information related to logistics 	<p>ALF (ANR project): future generation delivery areas</p> <p>SMP ITC Software: The tool integrates methods and calculations of the benefits of creating environmental zones, using low emission vehicles for urban distribution, bundling of goods, night distribution, reducing road capacity, etc</p> <p>Forthcoming topics:</p>

	<p>MG-6.3-2016: Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS</p>
<p>Deployment of C-ITS, in particular V2I.</p>	<p>ECOMOVE: it developed core technologies and applications based on vehicle-to-vehicle and vehicle-to-infrastructure communication or so called “cooperative systems”.</p> <p>Compass4D: it focused on three services: the Energy Efficient Intersection (EEI), the Road Hazard Warning (RHW) and the Red Light Violation Warning (RLVW).</p> <p>Forthcoming topics:</p> <p>MG-6.2-2016: Large-scale demonstration(s) of cooperative ITS. Enable services based on appropriate access and sharing of data leveraging in-vehicle resources and 2-way V2V, V2I, I2I and vulnerable road users connectivity in complex urban environments</p> <p>MG-5.2-2017: Innovative ICT solutions for future logistics operations</p> <p>Need to match the increased need for real-time and open data to plan and track shared freight with guarantees that the exploitation of this data is both safe and secure</p>
<p>Development of communication interface to manage all information related to vehicle operation, data exchange with infrastructure, data exchange with logistics operations, load management and mission profile.</p>	<p>CO-GISTICS: Deploy cooperative ITS services for logistics:</p> <ul style="list-style-type: none"> • Intelligent parking and delivery areas • Eco-drive support • Priority and Speed advice <p>GET SERVICE: platform provides transportation planners with the means to plan transportation routes more efficiently and to respond quickly to unexpected events during transportation.</p> <p>OPTICITIES: ITS solutions to optimize urban logistics operations: urban traffic regulation</p>

	<p>tools and integration into traffic management systems; freight delivery optimisation tools and fleet management services</p> <p>ECO-FEV: Integration of the FEV in the cooperative transport infrastructure. Integrated IT platform that enables the connection and information exchanges between multiple infrastructure systems that are relevant to the FEV such as road IT infrastructure.</p> <p>SMARTIE project build the advanced and secure IoT platform to provide enhanced services to the citizens</p> <p>E-freight projects (see above): cover data exchange with logistics operations.</p> <p>Forthcoming topics:</p> <p>MG-6.2-2016: Large-scale demonstration(s) of cooperative ITS Enable services based on appropriate access and sharing of data leveraging in-vehicle resources and 2-way V2V, V2I, I2I and vulnerable road users connectivity in complex urban environments</p> <p>MG-5.2-2017: Innovative ICT solutions for future logistics operations</p>
<p>DOI #1: No clear evidences of implementation. Few cases</p> <p><i>(No challenges in this category)</i></p>	

4.2.4. Improving the interaction between long distance freight transport and urban freight

This challenge should address the interface and interactions with long distance freight transport services and infrastructures, and other modes (airports, seaports, intermodal terminals, dry ports, logistics platforms, etc.).

A major issue is the coordination of very different trends in long distance freight transport (increase efficiency by vehicle scale increases) and city distribution (increase efficiency by downscaling of transport modes used for urban deliveries).

The Physical Internet concept, in which logistics and supply chain networks are open and integrated, including warehouses and hubs, should be further investigated, to enable the proper consolidation of freight transport in the last mile delivery in urban areas. The design of freight corridors in cities/regions should be improved, to provide a better management of long distance freight transport through the urban transport network (urban nodes).

DOI #5: Sufficient evidences of implementation <i>(No challenges in this category)</i>	
DOI #4: Experiences but not deployed a large scale <i>(No challenges in this category)</i>	
DOI #3: Some research activities exist <i>(No challenges in this category)</i>	
DOI #2: Potentially foreseen in forthcoming topics	
Challenges	Specific contributions justifying DoI #2
<p>Studies on land use and freight transport/logistic operations interaction, and the impact of the multiplicity of logistics hubs and networks.</p> <p>Design of freight corridors in cities.</p>	<p>STRAIGHTSOL: One of the case studies deals with the link between long distance transport and urban freight: how will a more reliable management of long distance haulage help improving final delivery?</p> <p>SMARTFUSION freight corridor pilot in Berlin to assess how to meet the needs in terms of air quality.</p> <p>Land use and transport planning (see above).</p> <p>Forthcoming calls:</p> <p>MG-4.3-2017: Innovative approaches for integrating urban nodes in the TEN-T core network corridors: Approaches for linking long-distance with last-mile freight delivery in urban areas.</p> <p>Connecting Europe Facility (CEF) urban nodes calls: Actions implementing transport infrastructure in nodes of the core network, including urban nodes.</p>

DOI #1: No clear evidences of implementation. Few cases*(No challenges in this category)***4.2.5. Better adapting the vehicles to innovative urban freight delivery systems**

The better integration of urban freight activities in the urban transport system requires the development of innovative vehicle solutions that are better fitted to innovative urban freight delivery systems, due to flexibility and modularity. There needs to be a decrease in the unwanted miles driven, unnecessary stops and time wasted in order to improve the overall efficiency of the system and decrease its impact on congestion.

DOI #5: Sufficient evidences of implementation	
Challenges	Specific contributions justifying DOI #5
Develop technologies to transfer loads between vehicles (large and small) as well as with other transport modes (architecture of vehicles, load units...) to allow a decoupling of the delivery processes between mass transport and last mile operations.	<p>Some solutions have been already introduced in the market.</p> <p>I.LOG City Logistics system, for integrating intermodal transport with the “last mile” with micro-swap bodies.</p> <p>Extensive work in transshipment: see SPECTRUM and INHOTRA for rail-road-sea systems. See also CITYLOG.</p> <p>BESTFACT Case: Electric freight vehicle with trailers: Cargohopper in Utrecht: multi-trailer, 16-metre long but narrow road train. It is powered by a solar & battery-electric motor</p> <p>BESTFACT Case: Citylog EMF (efficient, modular, flexibel) – Electro-Multifunction-Transportation vehicle: modular built vehicle, series of ‘self-driven’ vehicles and ‘trailers’ that can be coupled to a train, and un-coupled for loading and unloading operations</p> <p>CITY MOVE: Optimisation of the vehicle capacity and vehicle weight ratio. The vehicle responds to an urban and modular</p>

	<p>architecture, so it contributes to modular logistics units for a better load factor.</p> <p>CITYLAB: Amsterdam case: floating depot and clean vehicles</p> <p>STRAIGHTSOL: Mobile depot TNT</p> <p>VANECK GROUP: Solution of several boxes on trailer ready for urban distribution.</p> <p>Other projects on containers for urban logistics as PART, URBANCITY BOX or Transformer</p>
DOI #4: Experiences but not deployed a large scale	
Challenges	Specific contributions justifying DoI #4
Lowering the noise related to handling, loading and unloading of the goods to enable night deliveries	<p>PIEK project: funded by the Dutch government. It published a handbook on how to silence almost every part of loading, unloading and driving in cities at night.</p> <p>No recent examples from European research projects. National projects and tests in several countries (e.g. UK, Belgium, France, etc.)</p> <p>CERTIBRUIT standard: takes into account global noise from a delivery, from truck to shop material, including delivery operations</p>
DOI #3: Some research activities exist	
Challenges	Specific contributions justifying DoI #3
Define future optimal urban freight vehicle sizes and architectures from multi-stakeholder perspective.	<p>FURBOT: it proposed novel concept architectures of light-duty, full-electrical vehicles for efficient sustainable UFT and developed FURBOT, a vehicle prototype, to factually demonstrate the performances expected.</p> <p>V-FEATHER: it presented a complete electric vehicle architecture vision on how urban light</p>

	duty vehicles will be designed, built and run in the near future.
DOI #2: Potentially foreseen in forthcoming topics	
Challenges	Specific contributions justifying DoI #2
Develop standardized and modular logistics units (compatible with regular containers) for a better load factor and interoperability among different transport systems and modes	<p>MODULUSHCA TELLISYS: modular set of volume-optimised and traceable MegaSwapBoxes (MSB)</p> <p>MG-5.1-2016: Networked and efficient logistics clusters:</p> <p>Development of prototype Modular Load Units, optimised for automated handling and high load factors in all transport modes</p>
DOI #1: No clear evidences of implementation. Few cases	
Challenges	Specific contributions justifying DoI #1
Develop loading rate measurement systems (weight, volume...), to be linked with overall city access control and network management.	No clear evidence it has been addressed

4.3. BUSINESS MODELS AND INNOVATIVE SERVICES

Research and development on new business models associated to the smart urban logistics needs to tackle economic, environmental and social aspects that allow growth, and industry to run businesses, and at the same time guarantee well-being for citizens.

Traditionally, the last mile delivery has been outsourced to specialised companies (mail or express companies, local agents, etc.), and somehow the direct control of the physical operations gets lost or at least handed over to someone else. The shift in consumer trends towards e-commerce and the current demand for better environmental conditions in cities call for a closer look into this part of the supply chain.

E-commerce is becoming the new paradigm in retailing. Beyond being a new channel of sales for retailers, the internet gives the consumer new powers to influence what is sold and how. The problem with e-commerce is that it multiplies the number of deliveries, since trips saved by consumers have to be done by the commercial vehicles.

Reverse logistics focuses on the analysis of niches and opportunities to integrate direct and reverse flows, in order to increase the global efficiency. Reverse logistics associated to e-commerce also have to be considered for this potential flow integration.

Finally, there is a need to better understanding how to best build and manage infrastructures dedicated to freight delivery in the urban environment.

DOI #5: Sufficient evidences of implementation (No challenges in this category)	
DOI #4: Experiences but not deployed a large scale	
Challenges	Specific contributions justifying Dol #4
Business models for consolidation schemes, including fleet and freight sharing and pooling. New concepts for distribution centres, optimal utilization of infrastructure	<p>LAMILO: LBCC in London, Freight Cycle in Nijmegen and Consolidation Centre in Brussels.</p> <p>NOVELOG: develop the NOVELOG “Guidance” tool for facilitating stakeholders to implement the Strategy and enhance their SUMP, and enable developing their own Business Model.</p> <p>SMARTFUSION: Newcastle University working on consolidation scheme.</p> <p>SMILE: Valencia and Barcelona pilots</p> <p>SUCCESS: living labs to identify new business models</p>
Collaboration models for small businesses, e.g. out –of-office hour deliveries to retail and for specific logistics chains such as Hotel/Restaurant/Café (HORECA)	<p>CITYLAB: Brussels case: Increasing vehicle loading by utilising spare capacity</p> <p>Other examples: Bubble post Ben Hubble, Barcelona</p>
Optimisation, modularization and standardization of packaging and load units.	Refer to sub-challenge ‘better adapting the vehicles to innovative urban freight delivery services’-develop standardized & modular logistics units’
DOI #3: Some research activities exist (No challenges in this category)	
<p>E-commerce implications</p> <ul style="list-style-type: none"> Assessing the impact of e-commerce on urban freight delivery and the urban transport system. 	<p>CITYLAB: The Observatory of Strategic Developments Impacting Urban Logistics provides data and analyses on E-commerce, for</p>

<ul style="list-style-type: none"> Logistics for home deliveries. Decoupling delivery and reception. Service quality (requirements, perception, traceability) Integration of click-and-mortar distribution channels 	<p>a better understanding of these challenges and trends.</p> <p>EU non-binding guidance documents on urban logistics: European Commission's DG MOVE has launched a study to facilitate the preparation of non-binding guidance documents (NBGD) on six specific aspects of urban logistics policies. Topic #4 is Logistic schemes for e-commerce.</p> <p>Other examples:</p> <p>WS 5.2 Mines Paristech: The idea is to use taxis, as an available under-utilised transport capacities, to bring back unwanted products (bought through e-commerce) from the customer to the shop. Taxi drivers would receive an additional revenue, while congestion as well as energy consumption and emissions would diminish.</p>
<p>Packaging in last mile distribution for fresh, refrigerated and frozen goods.</p>	<p><i>Refer to sub-challenge 'better adapting the vehicles to innovative urban freight delivery services'-develop standardized & modular logistics units'</i></p>
Challenges	Specific contributions justifying DoI #2
<p>ICT tools to enable sharing and integration of data. Potential of Internet of Things (IoT) and Future Internet for logistics.</p> <p>Better integration of urban freight in main traffic models. C-ITS as support system.</p>	<p><i>Refer also to sub-challenge 'enabling a more efficient management of goods: ITS to better manage movement the movements of goods'</i></p> <p>MG-5.2-2017: Innovative ICT solutions for future logistics operations</p>
<p>Reverse logistics and transport of waste and recycling material</p> <p>Direct and reverse volume trends: waste, recycling and e-commerce. Current vs. new paradigms and business models of direct and reverse flows (recycling and returns)</p>	<p>FREVUE Stockholm case study</p> <p>CITYLAB Rome case</p> <p>SUCCESS: reverse logistics aim to collect construction waste, demolition debris, packaging waste, etc., recycle and sort material; to organize and perform unused and</p>

<p>Direct and reverse logistics models, integration and cargo pooling</p> <p>Beyond reverse logistics: urban freight for circular economy and service functionality economy</p>	<p>unsuitable material exit and return to sub-contractor or supplier.</p> <p>Forthcoming calls:</p> <p>CIRC-01-2016: Systemic, eco-innovative approaches for the circular economy: large-scale demonstration</p> <p>CIRC-01-2017: Systemic, eco-innovative approaches for the circular economy: large-scale demonstration</p> <p>CIRC-04-2016: New models and economic incentives for circular economy business</p>
<p>DOI #1: No clear evidences of implementation. Few cases</p> <p><i>(No challenges in this category)</i></p>	
Challenges	Specific contributions justifying DoI #1
<p>Designing and operating urban freight delivery infrastructures</p> <ul style="list-style-type: none"> Design and building of dedicated infrastructure, including vertical exploitation of space (storage and transport). Integration of infrastructure into other types of infrastructure and building Financing the operation of dedicated infrastructure 	<p>Chapelle International project from SOGARIS mixing a rail-connected urban distribution center with, offices, a data center, restaurant, urban gardens.</p> <p>Connecting Europe Facility (CEF) urban nodes calls: Actions implementing transport infrastructure in nodes of the core network, including urban nodes.</p>
<p>Implication of Physical Internet on the first and last mile: infrastructure, governance and business model</p>	<p>MG-5.4-2017. Potential of the Physical Internet</p>

4.4. CLEANER AND MORE EFFICIENT VEHICLES (FOCUS ON TRUCKS AS 3.5 TON)

More efficient organisation can lead to a decrease in the number of kilometers driven. But cleaner and more efficient vehicles can further enhance the positive trend to fuel consumption reduction and an improved urban environment. Besides air pollutants, the reduction of vehicle noise is an important research priority. The reduction of vehicle noise is also a condition for shifting deliveries to off-hours.

DOI #5: Sufficient evidences of implementation	
Challenges	Specific contributions justifying DoI #5
<p>Reduction of vehicle noise</p> <ul style="list-style-type: none"> Definition of a EU standard methodology for noise measurement for the overall delivery process Development of 'affordable' low noise solutions, including full vehicle equipment 	<p>PIEK standard</p> <p>GREEN POST. (IEE, 2008-2010) Studying the reduction of noise and air pollution emissions produced in the urban environment by the proposed vehicles.</p>
DOI #4: Experiences but not deployed a large scale	
Challenges	Specific contributions justifying DoI #4
<p>Definition of a common European standard, based on existing ones, and a common, shared framework for evaluating and changing the standard</p>	<p>Italian national project on "Active control devices for noise reduction of diesel shunting locomotives" carried out by CIRIAF and TRENITALIA.</p>
<p>Business and deployment models for alternative fuels</p> <ul style="list-style-type: none"> Develop alternative fuel proposals (including electricity). Residual value of vehicles. Integrate management of vehicle auxiliaries for a wider scope of implementation. Develop alternative fuel proposals for autonomous body modules (e.g. refrigerated units). Reduction of particulates from brakes and tyres. Address fuel availability and distribution, including the deployment of charging infrastructure for electric freight vehicles. Address the potential choice determinants for alternative fuels fleet composition. 	<p>SMARTFUSION, SMARTSET and FREVIEW pilots</p> <p>FURBOT</p> <p>Forthcoming calls:</p> <p>GV-08-2017: Electrified urban commercial vehicles integration with fast charging infrastructure.</p>
DOI #3: Some research activities exist	
(No challenges in this category)	
DOI #2: Potentially foreseen in forthcoming topics	
(No challenges in this category)	

DOI #1: No clear evidences of implementation. Few cases*(No challenges in this category)***4.5. SAFETY AND SECURITY IN URBAN FREIGHT**

A significant amount of goods are lost following security breaches. It is important to identify solutions to guarantee a safe urban delivery system which minimises the risk for the freight operators, in order to achieve the objective of reducing the amount of goods lost or stolen by 90%.

The delivery of goods in cities may lead to safety concerns for both Vulnerable Road Users (VRUs) and the drivers. There is indeed a high share of accidents of VRUs involving commercial vehicles in the urban environment. This is due, among other things, to the lack of visibility of VRUs in the urban environment when driving and maneuvering. Moreover, it is risky for the driver to leave the vehicle and manipulate packages and pallets close to heavy traffic.

DOI #5: Sufficient evidences of implementation	
Challenges	Specific contributions justifying DOI #5
Locks and seals to guarantee vehicle integrity.	There exist commercial solutions in place
Secure and reliable automated parcels lockers and delivery units.	<p>There exist lots of commercial solutions (e.g. DHL packstations), e.g. lockers for residential buildings, integrated with traditional post-boxes.</p> <p>BESTFACT Case: Urban distribution of small parcels using self-service terminals in Lithuanian towns and cities (LP EXPRESS 24). In market.</p> <p>BESTFACT Case: Post Receiving Box by Austrian Post AG. The “receiving box” has proved successful and proceeded to a roll-out-phase – it is available and has been implemented in all major urban areas in Austria: Vienna, St. Pölten, Graz, Linz, Salzburg, Klagenfurt, Villach, Innsbruck, Bregenz, Dornbirn, Feldkirch and rural areas bordering these cities</p>
DOI #4: Experiences but not deployed a large scale	

<p>DOI #3: Some research activities exist</p> <p><i>(No challenges in this category)</i></p>	
<p>DOI #2: Potentially foreseen in forthcoming topics</p>	
Challenges	Specific contributions justifying DOI #2
<p>Driver support and visibility equipment for a 360° safety around the vehicle when driving and manoeuvring.</p> <p>Include messages to vulnerable users, communication via lights, beeping sounds when backing up as in heavy duty vehicles, also when operating tail lifts...</p>	<p>SMARTFUSION: The first two are commercially available, fitted to trucks in the project trials. We just rung up and ordered them.</p> <p>ART-04-2016: Safety and end-user acceptance aspects of road automation in the transition period</p> <p>MG.3.4-2014. Traffic safety analysis and integrated approach towards the safety of Vulnerable Road Users</p> <p>Advanced safety measures involving vehicles, infrastructure and its environment, protective systems, training and development of behavioural knowledge to reduce the number and severity of accidents involving Vulnerable Road Users.</p> <ul style="list-style-type: none"> • SENIORS - Safety-ENhancing Innovations for Older Road users • InDeV - Depth understanding of accident causation for Vulnerable road users • PROSPECT - PROactive Safety for PEdestrians and CyclisTs • XCYCLE- Advanced measures to reduce cyclists' fatalities and increase comfort in the interaction with motorised vehicles • SafetyCube - Safety CaUsation, Benefits and Efficiency
<p>DOI #1: No clear evidences of implementation. Few cases</p> <p><i>(No challenges in this category)</i></p>	
<p>Increasing integrity of goods (perishable, electronic, high value).</p>	<p>Not actual research on how to ensure goods are not manipulated while urban freight transport. Maybe linked to urban modular load units</p>

5. PROPOSAL OF IMPLEMENTATION PLAN

Taking into account the implementation status and the research gaps from the EU projects and initiatives benchmark, new challenges and topics have been identified for the period 2018-2018. A proposal for an implementation plan is presented for eight intervention areas.

5.1. INTEGRATED DATA FRAMEWORK AND BIG DATA ANALYTICS AS OPPORTUNITY FOR IMPROVING DECISION-MAKING IN URBAN FREIGHT TRANSPORT

Challenge:

Smarter and holistic data collection and management need to be taken in proper consideration according two perspectives jointly affecting decision-making and overall efficiency of the urban transport system: business outlook and freight mobility planning / network management. Big data analytics will offer greater opportunities to link freight operator's decision making with city planners decision making (e.g. urban network planning) in order to achieve resilient, optimised, sustainable and cost-effective governance of the city and more competitive position of business actors.

Outcome:

- Structured knowledge base on current applications of Big Data in urban freight transport. Identification of good practices of value added applications of Big Data management and linked KPIs to elicit the potential and value of these application for improved decision making in urban freight transport (both private and public sectors);
- Developing and testing of evidence-based business cases, achieving positive impacts on energy use, environment and resilience of cities in facing megatrends impacts (e.g. sharing economy – crowd-sourcing; social and demographic evolutions; e-commerce, etc.).
- Roadmap of research to mitigate gaps between private & public decision-making and improve the adoption of suitable methods. Incentive schemes will be supporting optimal and integrated use of big data in freight transport decision making for both private and public sectors.

Impacts & Targets:

- Better use of predictive analysis to achieve economies of scale in accessing data (accessibility of public sector to private data - lower cost than 20% - 30% and lower time);
- Faster development of big data program and regulation frameworks in public sector and reduced procurement time frame for the use of private big data;
- Resilient use of city transport network (optimal network capacity with increased use of 15-20%);
- Engage with the public sector to profit from potential collaboration / dialogue with private sector.

Motivation/Challenge:

The impact of mega trends, such as e-commerce, sharing economy, fast demographic transformation of society and digital economy (connectivity everywhere, GALILEO, Social media, etc.) generate a

disruptive evolution of changes in data availability (smartphones, GPS, Social Networks,) requirements and opportunities leaving huge amount of unstructured data and information to process.

Better knowledge on how to manage data assets for holistic and seamless interactions between city transport planning and business sector can lead to unbiased forecast (better decision planning), higher production factors, stronger competitive position of operators (better routing, asset management, operational capacity, etc.).

Behavioural foundations (e.g. reluctance on data sharing), clear and seamless regulation, demand management and planning are the impact domains that could benefit from integrated urban freight data collection framework using big data. It will strongly support policy-making and concretely lead to new generation of decision making in urban areas.

Relations with the following initiatives should be established: MG 6.3-2016 Pan European logistics solutions, Urban Mobility KPIs identification (tender launched by DG MOVE in 2015), Digital Transport and Logistics Forum.

Scope and Content:

The following aspects have to be addressed by integrated Big Data management for private and public sectors:

- Structured knowledge base on current applications of Big Data in urban freight transport. Identification of good practices of value added applications of Big Data management and linked KPIs to elicit the potential and added value of such applications to improve decision making in urban freight transport (both private and public sectors); Develop and testing of meaningful use cases at different scales and market purposes (private and public) on: connectivity, procurement, pooling of assets, vehicles and fleet management, etc. These should have a positive impact (e.g. socio-economic, congestion, environment). Different data sources have to be identified, such as vehicles / fleets, private cars, open data platforms, crowdsourcing, social networks, etc. When looking at motivations to share the data and incentive schemes, new possible collaborative models could be investigated (e.g. PPP) and which market opportunities to match (e.g. sharing economy, e-commerce, circular economy – i.e. waste management and recycling). This will evidence main barriers, prospects and emerging requirements for resource-effective use of Big Data in urban freight.
- Roadmap for wide-scale deployment of R&I solutions for integrated knowledge and adoption of Big Data management in urban freight. They will be pathways towards “New generation” of Big Data management (intended as new business models on how to adopt freight Big Data not in silos). They need to improve: 1) freight demand management and overall efficiency of sustainable urban transport system (networks capacity, vehicles’ / fleets optimisation); 2) value creation of companies’ assets and new business opportunities generated by better decisions as lever for increasing competitive advantage; and 3) regulatory framework facilitating economies of scale in procurement and accessibility to big data at lower cost and time.

Expected Impacts:

- Better use of predictive analysis to achieve economies of scale in accessing data (accessibility of public sector to private data - lower cost than 20% - 30% and lower time);
- Faster development of big data program and regulation frameworks in public sector and reduced procurement time frame for the use of private big data;
- Resilient use of city transport network (optimal network capacity with increased use of 15-20%);
- Engage with the public sector to profit from potential collaboration / dialogue with private sector.

Type of Actions:

Select the type(s): *Coordination and support Actions*

5.2. EXPLORING NEW OPPORTUNITIES FOR ACHIEVING EFFECTIVE INTEGRATION OF URBAN FREIGHT AND PERSONAL MOBILITY: SERVICES AND NETWORKS

Challenge:

Further exploitation of the potential of integration between urban freight and passenger transport systems and networks is needed to optimize the use of road, rail and inland waterways infrastructures in space and time, contribution to get healthier cities in terms of less traffic and congestion. This requires a change of paradigm towards a freight/passenger integrated mobility planning and explore more opportunities and new business models for integration of urban freight with private or public transport at infrastructure and transport vehicle levels.

Outcome:

- Tools, methods and data sources to identify opportunities of flows integration and support the development of integrated mobility plans.
- Evaluation of different measures for freight and passenger integration and define resilient governance models and incentives/enforcement system. Evaluation in terms of environmental and social impact, level of traffic decongestion, job creation, economic impacts, through pilot testing at different type and size of cities is needed
- New concepts and technologies contributing to a better integration of freight and passenger flows including: IT, vehicle architecture, containers and logistics unit design and operation, transshipment and handling technologies.
- Development of business models offering mobility as a service (MaaS) to connect people and goods movements.

Impacts & Targets:

- Increased use of assets and infrastructures by 10%
- Reduction of congestion and CO2 emissions by 15% through use of public transport network for freight deliveries

Motivation/Challenge:

Urban mobility planning should take into proportioned consideration passenger and freight (deliveries and servicing plans) transport. Freight activity needs to be considered for as a part of the overall transport system in a city, but is often neglected or diminished. Freight is sometimes looked up only as a pure business (private) problem and not a social one. However, the increased number of (parcel) deliveries is more and more impacting transport in cities. It is thus necessary to change paradigm towards integrated planning between mobility management and logistics management. Although some experiences have been implemented in some EU cities (e.g. multipurpose lanes for freight distribution), there is still room for potentially more integration between urban freight and passengers transport networks optimizing the use of the road, rail and inland waterways infrastructures in space and time, contribution to get healthier cities in terms of less traffic and congestion. This requires to explore more opportunities and new business models for integration of urban freight with private or public transport at infrastructure and transport vehicle level (private cars, taxi, bus, rail, tramp, etc.).

Scope and Content:

- Tools methods and data sources to identify opportunities of flows integration and support the development of integrated mobility plans. This tools should:
 - Identify potential network capacity and technological / non technological constraints / enablers to multipurpose use for freight and passengers
 - Adopt probabilistic models to match demand and supply
 - Identify new methods for data visualization for different nature of traffic (e.g. services, goods, parcel, shopping trips)
 - Find effective stakeholders engagement (multi-actor) approach for accepted governance and mutual benefits
 - Design simulation tools to evaluate the potentialities of integration and prediction.
- Evaluate different measures for freight and passenger integration and define resilient governance models and incentives/enforcement system. Evaluation in terms of environmental and social impact, level of traffic decongestion achieved, job creation, economic impacts, through pilot testing at different type and size of cities. Legal, security, privacy, and societal aspects should also be evaluated. Measures should involve solution at terminals or junction points between goods and people (e.g. locks in metro or bus stations), links with neighbourhoods and districts, control / monitoring systems of urban spaces, etc. New concepts and technologies contributing to a better integration of freight and passenger flows including: IT, vehicle architecture, containers and logistics unit design, transshipment and handling technologies.
- Development of business models offering mobility as a service (MaaS) to connect people and goods movements.

Expected Impacts:

- Increased the use of assets and infrastructures by 15%

- Reduction of congestion and CO2 emissions by 15% through use of public transport network for freight deliveries

Type of Actions:

Research and Innovation actions

5.3. IMPROVING THE LINK BETWEEN URBAN AND LONG DISTANCE FREIGHT TRANSPORT SERVICES AND INFRASTRUCTURES

Challenge:

A major challenge to reduce freight transport movements, congestion and to increase the load factor in urban areas is the optimization of the links between urban and long distance transport. This suggests the exploration of new delivery models where connected hubs at different levels are shared by different retailers/suppliers to enter the city, and green vehicles are used for the last mile. A number of soft barriers including business models and collaboration need to be tackled to achieve a full realization.

Outcome:

- Analytics models and tools for urban planners to decide on optimal location and size of connected hubs and transport means taking into consideration current and future flow demand, demography, etc. for different city segments and scenarios.
- Pilot solutions for optimising the use of UCCs and micro platforms exploiting horizontal and vertical collaboration and supported by IT solutions, enabling visibility of flow data for all actors.
- Pilot and evaluate different business and governance models by defining roles and responsibilities for all actors, rules for hubs, ownership of the services and interactions between actors.

Impacts & Targets:

- Increased use of assets and infrastructures by 30%
- Reduction of congestion and CO2 emissions by 30% through optimization of traffic between hubs and urban areas, improvement of load factor and use of green vehicles

Motivation/Challenge:

A major challenge to reduce freight transport movements, congestion and to increase the load factor in urban areas is the optimization of the links between urban and long distance freight transport services and infrastructures (airports, seaports, intermodal terminals, dry ports, logistics platforms, etc.). A major challenge is the coordination and efficient link of two opposite flows towards and from the city. This suggests the exploration of new delivery models where facilities, transport means and logistic services to consolidate freight at different levels can be shared by different retailers or suppliers to enter the city. For example, linking hubs or logistics platform (which are connected to core network of transport) to urban consolidation centers (UCCs) through heavy/middle trucks. These UCCs could

organize directly the final delivery or link to other urban micro platforms at district or neighbourhood level from where final delivery is made preferable with green vehicles i.e. small electric vans, e-bikes or by walking. A number of soft barriers including business models and collaboration need to be tackled to achieve a full realization.

Scope and Content:

- Analytics models and tools for urban planners to assess bottlenecks, existing infrastructures and constraints for optimal location and size of connected hubs taking into consideration current and future flow demand, demography, etc. for different city segments and scenarios. Studies on land use and assessment of the impact of the multiplicity of logistics hubs and networks should be required
- Pilot solutions for optimising the use of UCCs and micro platforms exploiting horizontal and vertical collaboration and supported by IT solutions enabling visibility of flow data for all actors with emphasis on the use of green vehicles for the last mile. Define measurement methods and KPIs to evaluate the performance of different solutions in terms of cost efficiency and environmental impacts. Guides for decision on appropriate type of vehicles, vehicle architectures, sizes and weights limits to optimize efficiency and sustainability depending on different cases and characteristics of city/district/area and logistics traffic. New design concepts for containers, boxes, modular units and handling solutions to ease transshipment operations between long distance and last mile legs and both flows directions
- Pilot and evaluate different business and governance models by defining roles and responsibilities for all actors, rules for hubs, ownership of the services and interactions between actors.
- Measures for public involvement and procurement strategies

Expected Impacts:

- Increased use of assets and infrastructures by 30%
- Reduction of congestion and CO2 emissions by 30% through optimization of traffic between hubs and urban areas, improvement of load factor and use of green vehicles
- Reduced transshipment and handling costs/times in hubs

Type of Actions:

Research and Innovation actions

5.4. NEW BUSINESS MODELS FOR LOGISTICS SERVICES BASED ON SHARING ECONOMY

Challenge:

Consumers and other stakeholders are showing a strong interest in the sharing-based economy. Re-thinking the value of “ownership” favoring the one of “use” is the new disruption, especially in urban logistics. There is the need to find new approaches to find unexplored potentials or emerging peer-to-peer (P2P) business / business – to – consumers (B2C) opportunities in freight market, making them

attractive and widely accepted. This lead to find solutions to increase reliability, trust in transactions, higher investments and assets / payoffs sharing, in order to find new multi-stakeholders metrics for urban logistics sector sustainability.

Outcome:

- Truly, innovative, sustainable and long lasting forms of cooperation, business and social models for urban logistics services (vehicles and fleet sharing and pooling, infrastructures and networks sharing) that are adequate to new market evolutions and trends.
- New multi-actor assessment framework able to evaluate safety, economic and financial sustainability, societal acceptance, operational efficiency, level of innovation, labour and environmental impacts.
- New governance models and related marketplace rules of the game - affecting all stakeholders – enabling a win-win collaboration able to remove barriers and eliminate any possible conflicts but rather encouraging cross-sectorial cooperation among competing services and capitalise all underutilized assets.
- Business-led roadmaps ensuring a seamless and significant market take up and roll out of collaborative meta-business models in different frameworks with measures and incentives.

Impacts & Targets:

- Increased load factors (20%)
- Operational cost reduction (10-15%)
- Reduction of lead-time (5-10%)
- better infrastructures capacity use (better capacity 20%)
- new jobs creation
- Increased customer satisfaction

Motivation/Challenge:

European cities are growing and evolving and the dynamics of distribution of goods and service has led in the very recent years to an increasing interest for sharing assets (including infrastructure) towards cost-effective and sustainable logistics processes in urban areas. Consumers and other stakeholders are showing a strong interest in the sharing-based economy. The evolution of people lifestyles – i.e. new social and economic trends – will change significantly urban freight mobility patterns. Factors such as teleworking, ageing population, and especially the significant growth of e-commerce have a direct impact on mobility in cities. Re-thinking the value of “ownership” favouring the one of “use” is a consolidated trend. Shared mobility is definitely an economic mega-trend: public transport is no more the only collective transport mode but vehicles and infrastructures are now shared in urban context following peer-to-peer (P2P) and business to consumer (B2C) models.

To be sustainable, business models needs to be adequately developed and tested in different market conditions and urban contexts. European cities to properly face mobility challenges and need to

implement new collaborative systems and develop new mobility concepts with a proper involvement of all stakeholders.

Scope and Content:

Proposals should cover the development and integration of all the following issues:

- Truly, innovative, sustainable and long lasting forms of cooperation business and social models (e.g. public-public, public-private, customer-customer, private-private and private-customer) for urban logistics services that are adequate to new market evolutions and trends.
- Truly, innovative, sustainable and long lasting business models for vehicles and fleet sharing and pooling, infrastructures and networks sharing
- New multi-actor assessment framework able to evaluate safety, economic and financial sustainability, societal acceptance, operational efficiency, level of innovation, labour and environmental impacts. It will evidence implications on business and society, regulatory aspects/legal, reliability, security, insurance aspects and ethical issues.
- New governance models and related marketplace rules of the game - affecting all stakeholders – enabling a win-win collaboration able to remove barriers and eliminate any possible conflicts but rather encouraging cross-sectorial cooperation among competing services and capitalise all underutilized assets. Development of profit sharing and compensation / incentives schemes and tools to measure the effectiveness and sustainability of models. Governance models indicates priorities and accessibility conditions for sharing of public infrastructures.
- Business-led roadmaps ensuring a seamless and significant market take up and roll out of collaborative meta-business models in different frameworks with measures and incentives (especially for early adopters). Roadmaps may include communication action and participation to the public about the potential of business models in improving sustainability and foster the acceptance of the stakeholders across Europe

Expected Impacts (for reference):

- Increased sustainability of the overall supply chain including cost-efficiency, policy and aspects
- Increased loading factors and operational efficiency,
- reduction of lead time and congestion,
- better asset management and infrastructures use,
- new jobs creation and better working condition,
- Increased trust and higher level of investments
- resilient use of available financial resources
- increased customer satisfaction

Type of Actions:

Research and Innovation actions

5.5. LOGISTICS IN THE FULL CIRCULAR ECONOMY: NEW BUSINESS MODELS FOR HORIZONTAL AND VERTICAL COLLABORATION

Challenge:

Logistics is a key enabler to ensure sustainability of circular economy by providing smart and sustainable logistics networks and services. This requires to develop new business models, including bundled services, after-market and reverse supply chains, addressed with an integral approach not only in the geographical sense (urban versus rural and combined) but also integration of end-to-end supply chain processes addressing scarce resources management. The challenge is to integrate supply networks, including the reverse part of the chains, to make full utilization of resources within and across supply chains. Cities, as major consumption areas are key to further develop circular economy, specially by smart combining direct and reverse flows

Outcome:

- New (business) models and cases demonstrating a substantial increase of supply network efficiency and sustainability of direct and reverse flows management, that currently are operated separately but could be integrated seamlessly. Determine costs and economic values of such integration and collaboration.
- Overcome regulation barriers and definition of incentive schemes for sustainable businesses cases in the circular economy.
- Demonstrators of hub operations, transport, packaging systems containerization, handling technologies management, monitoring and tracing of resources throughout supply cycles for direct and reverse flows integration.
- Better understanding of relationships within and across sectorial supply chains, identification of material flows, and barriers and opportunities for synergies in the circular economy paradigm.
- Measure the impact of logistics in the sustainability of circular economy in supply cycles. Measuring and modelling the logistics performance of different circular economy value chains. Building on existing research on indicators, this requires new sets of widely supported KPI's especially addressing rebound effects, and recognised labelling and certification in value chains.

Impacts & Targets:

- Energy efficiency gains by 20%
- Reduction of environmental impact and continuous reintegration of resources by 20%
- Reduction of logistics costs thanks to opportunities of synergic flows by 20%
- Saving resources and materials thanks to reusing and recycling strategies by 30%
- Increase asset availability and quality. Upscaling of existing circular economy approaches by providing standardised logistics systems

- (real time) transparency on freight flows and demand
- Increasing customer and market acceptance of more circular business models

Motivation/Challenge:

Economy is slowly moving to be circular, i.e. that the raw materials in products at the end of life or that by-products and or residuals in manufacturing processes are used again and keeping all resources into a new value chain¹. This includes the use of water, energy, biotics and abiotics used within scope of supply cycles.

The circular economy allows making a better (re-)use of resources. In order to bring these resources back in the loop, reverse logistics is often seen as a not directly pertinent and separate part of the supply chain. The challenge is on how to integrate the concept of circular economy in the supply chain (including the reverse part of the chain) and how to stimulate and improve vertical collaboration between all actors to facilitate this integration. The aim is to realise the paradigm shift: “From supply chain management to supply cycle management”.

Logistics structures for the re-circulation of end of life products (container systems, information flows, organisational structures) are often incompatible with the supply logistics of manufacturing companies as they are not designed to meet SCM requirements. But to improve the utilisation rate of secondary materials (coming from industry or from final consumers), the necessary prerequisites must be created both in terms of processing technology and of logistics structures.

This topic focuses on the analysis of supply chains and their opportunities of integrating direct and reverse flows going from a supply chain management to a supply cycle management.

Scope and Content:

This research starts from the need to identify and build models that increase the global efficiency of supply chains and understand how flows, that currently operate separately, could be made seamless. This research applies to waste streams from producers to recycling, as well as repairs, returns, garbage, recycling waste from final consumers such private households or businesses.

A proper understanding of relationships within sectorial supply chains and opportunities for synergies between supply chains for the same or for different sectors should be part of this research, and new models to integrate direct and reverse logistics.

The research should cover all the following issues:

- Understanding of the streams and links between subsequent actors in the same supply chain, considering the different types of reverse flows: repairs, returns, garbage, recycling waste.

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<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-ind-ce-2016-17.html#c,topics=call&identifier/t/H2020-IND-CE-2016-17/1/1/1/default-group&callStatus/t/Forthcoming/1/1/0/default-group&callStatus/t/Open/1/1/0/default-group&callStatus/t/Closed/1/1/0/default-group&+identifier/desc>

- Develop new approaches to eventually reintegrate goods (and waste) into the circular loop (e.g. waste recycling, reverse logistics) and effective after-market supply chains that ensure prolonged 'life-time' of products in-use.
- Understand who are the right actors and the possible interrelations among their roles in the chain. Trust issues and possible actions to unlock barriers and change behaviour. Determine and give full visibility of real costs for manufacturers, retailers, distributors
- Address legal issues and restrictions, e.g. restrictions when mixing different cargo (food with non-food)
- Develop meta business models associated to the efficiency gains thanks to integration of existing separated flows and determine costs and economic values of collaboration. Define incentive schemes for sustainable businesses cases
- Demonstrators of design of hub operations, transport, packaging systems and handling technologies to efficiently integrate direct and reverse flows specially addressing food supply chain in cities.
- Recommendations for standards and certification schemes for circular logistics

Expected Impacts:

- Energy efficiency gains by 20%
- Reduction of environmental impact and continuous reintegration of resources by 20%
- Reduction of logistics costs thanks to opportunities of synergic flows by 20%
- Saving resources and materials thanks to reusing and recycling strategies by 30%
- Increase asset availability and quality
- (real time) transparency on freight flows and demand
- Increasing customer and market acceptance of more circular business models

Type of Actions:

Research and Innovation actions

5.6. BRINGING LOGISTICS INTO URBAN PLANNING

Challenge:

Today, a general transport infrastructure plan for both people and logistics is missing in the city plan. It is necessary to define conditions towards proper consideration of urban logistics infrastructure needs and urban design aspects in Sustainable Urban Logistics Plans. The involvement of all key stakeholders: business actors, local administration and local politicians is crucial to achieve awareness and consensus on urban design decisions. Business models for building and operating facilities, how to

get financial support and how to get greater efficiency in the management of the infrastructure are the main challenges of this topic.

Outcome:

- Recommendations on architectural design and integration of logistic facilities in urban areas, as well as the business models supporting them. This means understanding of how to best build and manage – in an optimal and resilient way – logistics city infrastructures (loading/unloading areas, consolidation centres, pick up points, warehouses, etc.) and urban design adequate to (evolving) dynamics of urban delivery services.
- Analytical economic models to support stakeholder analysis, balancing logistic efficiency and life quality.
- Large-scale demonstrators on logistics planning for urban city planners showing the impact of concepts, tools and innovations.

Impacts & Targets:

- Increased use of assets and infrastructures by 20%
- Reduction of congestion and CO2 emissions by 20% through optimization of traffic and better vehicle utilisation

Motivation/Challenge:

Currently, consideration of urban logistics dynamics is neglected in urban planning (e.g. in SUMPs), as evidenced in the Urban Mobility Package. It is necessary to define conditions towards proper consideration of urban logistics infrastructure needs and urban design aspects in Sustainable Urban Logistics Plans, taking into account: traffic and emissions reduction objectives, citizens behaviour, modular design, waste collection services, reuse of existing facilities, sharing infrastructure between people and goods, how to make logistics invisible. This topic includes research activities on risk assessment, procurement, business models for building and operating facilities and how to get financial support and the research for greater efficiency in the management of the infrastructure, for different purposes, different logistics chains, at different times of the day.

Specific challenges to be addressed include:

- Involvement of all key stakeholders: business actors, local administration and citizens. Political representatives are particularly important to achieve awareness and consensus on urban design topics; so far they have not been involved in city logistics projects.
- Design of the infrastructure, including the distribution nodes network and logistic platforms serving the city and business models to make the infrastructure economically sustainable. Design should be based on strategic scenarios modelling and visualization, to demonstrate and test different scenarios and to help understand what is already being done well (best practices). Scenario evaluation criteria should include: use of infrastructure 24h a day, understanding total demand (in/outs), taking out what can be done outside the city, development of new infrastructure vs. use of existing infrastructure.

Scope and Content:

- Recommendations on architectural design and integration of logistic facilities in urban areas, as well as the business models supporting them. This means understanding of how to best build and manage – in an optimal and resilient way – logistics city infrastructures (loading/unloading areas, consolidation centres, pick up points, warehouses, etc.) and urban design adequate to (evolving) dynamics of urban delivery services. This involves:
 - Research on use of brown fields for urban freight deliveries, or the architectural design and integration of logistic facilities in urban areas, as well as the business models supporting them.
 - Research on the vertical exploitation of space for goods storage and transport.
 - Development of an adequate tool for simulating impacts / benchmarking and set use cases.
 - Good practices handbook for decision makers, to allow understanding what has already been done well, for different typologies of cities, as there are very different urban situations.
- Analytical economic models to support stakeholder analysis, balancing logistic efficiency and life quality.
- Large-scale demonstrators on logistics planning for urban city planners showing the impact of concepts, tools and innovations. Providing the blueprint for optimal standardised developments (Best Practices) applied as case-by-case solutions to current planning problems of cities, demonstrating logistics planning importance for urban cities.

Expected Impacts:

- Increased use of assets and infrastructures by 20%
- Reduction of congestion and CO2 emissions by 20% through optimization of traffic and better vehicle utilisation

Type of Actions:

Research and Innovation actions

5.7. INTEROPERABLE STANDARD MODULAR URBAN LOADING UNITS: AUTONOMOUS DELIVERIES

Challenge:

Modularization of logistic (smaller) units suggests similar benefits at urban level to those ISO-container has already demonstrated in maritime transport: improved load factor and interoperability among different transport systems and modes, less logistics costs and handling times, more secure and safe cargo, etc. Modular loading units used in the urban context will seek for interconnectivity, optimization and last mile cost efficiency: (semi)autonomous deliveries. However, these units need to be designed

and tested for different urban scenarios and demonstrate the full advantages to industry and society. Additionally, it is necessary to pave the way towards a global standardisation to realize full benefits.

Outcome:

- Development of modular urban load unit compatible with regular containers and vehicles, as well as, new proposal for vehicle architectures and sizes compatible to urban load units (i.e. small van with capacity optimized for multiple or submultiple of pallet-size/modular box).
- Development of technologies to transfer standard loads between vehicles (large and small) as well as with other transport modes. Enabling distributed self-control of objects through networks, as well as, cooperation and consolidation among various LSP and LSC.
- Large scale pilot project (including various business cases), together with an impact assessment (economical and environmental) will be demonstrated on autonomous operations using modular logistics units

Impacts & Targets:

- Improvement of load factors and vehicle utilization by 15%
- Reduction of CO2 emission thanks to traffic reduction by 15%
- Reduction of handling costs and time in last mile operations thanks to standardization of load units and interoperability by 30%
- Increase safety and security of cargo by 30%

Motivation/Challenge:

The use of modularization of logistic units together with (semi) autonomous transport at urban level suggests similar benefits to those ISO-container has already demonstrated: improved load factor and interoperability among different transport systems and modes, less logistics costs and handling times, more secure and safe cargo, etc. Modular urban loading units will seek for interconnectivity, optimization and last mile cost efficiency. However, these logistics units, starting from the experience undertaken in the past research projects such as MODULUSHCA for fast moving consumer goods, need to be designed and tested for different urban scenarios and demonstrate the full advantages to industry and society. Additionally, it is necessary to pave the way towards a global standardisation to realize full benefits.

Scope and Content:

- Development of modular urban load unit compatible with regular containers and vehicles, as well as, new proposal for vehicle architectures and sizes compatible to urban load units (i.e. small van with capacity optimized for multiple or submultiple of pallet-size/modular boxes). The scope of the research has to also cover market acceptance of modular urban load unit and the whole urban logistics system including aspect and develop tools and techniques for awareness rising. Recommendations for standardised modular urban load units will be developed together with standardisation implementation process.

- Develop technologies to transfer loads between vehicles (large and small) as well as with other transport modes (architecture of vehicles, load units...), to allow decoupling of the delivery processes between mass transport and last mile operations, and technologies for vehicle C-ITS connectivity.
- Technologies, algorithms and tools that allow better planning, tracking and tracing of embedded materials and components, which reduce costs and consequently increases the margin for recycling materials at the end of their current use.
- Develop loading rate measurement systems (weight, volume...), to be connected with city access control, and network management.
- Enabling distributed self-control of objects through networks, independently of the way they are actually transported (and generally handled) as well as, cooperation and consolidation among various LSP and LSC are considered important features for the development of interconnected networks using iso-modular units.
- Large scale pilot project (including various business cases), together with an impact assessment (economical and environmental) will be demonstrated. Developed modular urban load units need to be easily adapted and accepted by all actors in the urban logistics, including postal companies. There should be no significant increase on complexity or cost for the market players in order to ensure the success on the deployment of developed modular urban load units.

Expected Impacts (for reference):

- Improvement of load factors and vehicle utilization by 15%
- Reduction of CO2 emission thanks to traffic reduction by 15%
- Reduction of handling costs and time in last mile operations thanks to standardization of load units and interoperability by 30%
- Increase safety and security of cargo by 30%

Type of Actions:

Research and Innovation actions

5.8. SAFETY AND SECURITY IN URBAN FREIGHT

Challenge:

A significant amount of goods gets lost following security breaches. It is therefore important to identify solutions to guarantee a safe urban delivery system minimizing the risk for freight operators and ensuring peoples' privacy at the same time. Research efforts should be extended to systems enabling the decoupling of the delivery and the collection of the goods with efficient, reliable and safe solutions. Logistics service providers, carriers and receivers need to work together in order to improve the security (mainly data and information, loss or damage of goods), the safety for workers (health) and

the environment (dangerous goods) by introducing state-of-the-art technologies and further developments.

Outcome:

- Efficient, reliable and safe solutions enabling the decoupling of the delivery and the collection of the goods.
- Solutions to improve security and safety by assessing the potentials of improvements of human machine interfaces, policies, vehicles and information and ICT.
- Innovative solutions to ensure the resiliency and robustness of urban freight systems.
- Impact assessment and roadmap with mitigation measures to ensure safer and more secure urban mobility and logistics

Impacts & Targets:

- Increased customer satisfaction by 30%
- Reductions of failed deliveries by 30%
- Reduction of cargo loss due to theft or damage by 30%
- Improvement of resilience and robustness of urban freight systems by 30%

Motivation/Challenge:

The security of goods and freight operations in urban environments in terms of crime and terrorism remains a challenge. A significant amount of goods gets lost following security breaches. It is therefore important to identify solutions to guarantee a safe urban delivery system minimizing the risk for freight operators and ensuring peoples' privacy and convenience at the same time.

The first obvious challenge is to put even more effort in tracking and tracing consignments throughout the delivery process in order to avoid loss and damage of goods.

A second challenge is the high number of failed deliveries tempting the logistics service providers to leave consignments with neighbours or on doorsteps. From that time, the consignment is no longer tracked and traced but the final consignee does not have the parcel in his hands yet. Research efforts should focus on systems allowing that time of delivery does not necessarily has to coincide with the moment the consignee lays hold of his goods, e.g. deliveries in pack stations or in vehicles, autonomous vehicle deliveries, drone deliveries or other similar systems that will be developed in the near future. These systems will only deliver their full potential if they are proven as safe and reliable and are perceived like that by citizens.

Other challenges are health issues for people working in urban distribution and environmental risks linked to the transport of dangerous goods in cities. Introducing state-of-the-art technologies and further developing them can be an answer to that.

A final challenge is the resilience and robustness of urban freight systems under normal conditions and in times of disaster (natural and anthroposopical disasters, terrorist attacks, etc.) to guarantee the supply of goods to urban areas.

Scope and Content:

- Efficient, reliable and safe solutions enabling the decoupling of the delivery and the collection of the goods.
- Research on technological, societal and ecological impact of failures in supply chains and development of solutions to improve security and safety by assessing the potentials of improvements of human machine interfaces, policies, vehicles and information and communication technologies.
- Innovative solutions to ensure the resiliency and robustness of urban freight systems. Induced traffic, by using smaller light duty vehicles in combination with UCCs (urban consolidation centres), can be expected.
- An impact assessment is needed to understand existing safety and security issues related to urban logistics today and tomorrow, followed by the roadmap with mitigation measures to ensure safer and more secure urban mobility.

Expected Impacts:

- Increased customer satisfaction by 30%
- Reductions of failed deliveries by 30%
- Reduction of cargo loss due to theft or damage by 30%
- Improvement of resilience and robustness of urban freight systems by 30%

Type of Actions:

Research and Innovation actions

ANNEX I: LIST OF RESEARCH AND INNOVATION ACTIVITIES ASSESSED

Benchmark research & innovation activities	General description activity
EUROPEAN PROJECTS/CASES DOCUMENTED IN EU PROJECTS	
BESTFACT case: Binnenstadservice http://www.bestfact.net	Binnenstadservice is based on a new business model introducing a “last mile as a service” concept in which the shopkeeper has to pay for the final delivery service. Binnenstadservice is organised as a franchise service that allows for a scalability and transferability of the concept. Public benefits are achieved due to a bundling of shipment at city limits and the consolidated delivery on demand of the shopkeeper. .
BESTFACT case: Cityporto Padova http://www.bestfact.net	City Port Padova is a successful example for a commercial viable Urban Consolidation Centres (UCC) starting with public money in the startup phase and becoming financial self-sustainable after a 3 year period. Planning aspects such as geographical location as well as accompanying support measures are success factors for this UCC. Padova is operated by a neutral management and uses low emission LNG vehicles.
BESTFACT case: Stadsleveransen in Gothenburg http://www.bestfact.net	The Gothenburg City logistics Initiative aims to establish a micro-consolidation centre in combination with delivery using electric vehicles. Therefore, the Gothenburg case is an approach which is tested in similar layouts in different other cities in Europe, such as Brussels, Berlin. Here the initiative is working in different directions establishing a non-profit based public private partnership or transfer to a private service provider.
BESTFACT Case: Use of battery-electric tricycles and vans for retail distribution in London: Gnewt Cargo http://www.bestfact.net	Electrically-assisted cargo tricycles and electric vans are used to deliver parcels from a small urban consolidation centre to customers in the centre of London.
BESTFACT Case: Distripolis: Urban Consolidation Centres and battery-electric vehicles for last-mile deliveries http://www.bestfact.net	In order to replace the use of standard diesel trucks, GEODIS, a large road transport operator, is testing UCCs and electric vehicles in a large scale trial in France. In the project (called Distripolis) new, small UCCs are located in the city centre of Paris, and receive goods from a central depot by Euro 5, Hybrid or CNG trucks. From these UCCs, the final deliveries are performed with low emission vehicles (battery powered - electric vans and tricycles) on short distance trips.
BESTFACT Case: Supermarket stores deliveries using waterways in Paris http://www.bestfact.net	Franprix supermarket stores in Paris are being supplied through a new multi-modal and urban transport chain solution. In this innovation, the last transport leg between regional distribution centre and retail shop occurs via waterways. The shipment is transported in a special container, sent from the warehouse to a river port in the periphery by truck, then by barge to the centre of Paris, from there another truck transports the containers to the shop on a very short trip.
BESTFACT Case: Multiuse lanes for freight distribution in Bilbao http://www.bestfact.net	‘Multiuse lanes’ is one of the initiatives developed in Bilbao by the local authority and local stakeholders to improve goods distribution in the city. This initiative consists of the more efficient use of lanes in the city centre streets. In this approach, one of the road lanes will be provided for the loading and unloading of goods at certain time slots, and used for other vehicle activities during the rest of the day.
BESTFACT Case: New loading/unloading regulation and parking meter/loading bay surveillance technology in Lisbon http://www.bestfact.net	The Lisbon Transport Authority (known as EMEL) has developed a new solution that helps mitigate specific traffic problems. The solution consists in the development and implementation of two technology based schemes: a) Adapted Parking Meters that issue special tickets for 30 minutes of unloading/loading operations; b) Detection sensors that detect the presence of a vehicle in the loading bay and send a message to the control centre of the Transport Authority.

BESTFACT Case: Electric freight vehicle with trailers: Cargohopper in Utrecht http://www.bestfact.net	Cargohopper is a dedicated inner city delivery service using clean freight vehicles in Utrecht, Netherlands. The service was introduced in 1996 in order to efficiently perform last mile operations for local businesses, especially for tourist venues, restaurants and catering facilities. Currently, an electric powered road train is running on the streets of Utrecht for parcels deliveries using the Cargohopper name. Other innovative vehicles are also used or under development as part of Cargohopper.
BESTFACT Case: Zero-Emission Beer Boat in Utrecht http://www.bestfact.net	The beer boat concept was introduced in Utrecht in 1996 in order to perform efficient last mile operations in the delivery of beer to catering and drinking establishments, thereby preserving the historical city centre, relieving the pressure on road traffic and complying to labour laws. In 2010, the City of Utrecht updated the beer boat with an environmentally-friendly electric boat and in 2012 another zero-emission boat was introduced for use in carrying other products including waste
BESTFACT Case: Urban distribution network of four major grocery retailers in Lithuania http://www.bestfact.net	Four chains operate most of the supermarkets across the country, from small to large scale stores, which are located in every town and city. All these supermarkets are serviced from strategically located logistics centres, at which goods are loaded as consolidated shipments onto large vehicles, thus reducing the number of trips made to supply each shop and by using optimised routes.
BESTFACT Case: Citylog EMF (efficient, modular, flexible) – Electro-Multifunction-Transportation vehicle http://www.bestfact.net	Citylog EMF is a new type of electric freight vehicle developed in Austria by a consortium led by HET. The electric motor propulsion is fuel-cell based, and the vehicle concept consists of a series of 'self-driven' vehicles and 'trailers' that can be coupled to a train, and un-coupled for loading and unloading operations. The trials in Klagenfurt follow the prototype phase in which the technical feasibility has been demonstrated
BESTFACT Case: ILOS - Intelligent Freight Logistics in Urban Areas: Freight Routing Optimisation in Vienna http://www.bestfact.net	The objective of ILOS is the development and definition of indicators to describe the saving potential of transport journeys in urban areas using traffic information obtained through floating car data, as well as the development of appropriate quantification methods to determine these indicators from route analyses in order to achieve a possible saving potential in terms of time or distance. This in turn leads to savings in fuel, emissions and operating costs.
BESTFACT Case: i-Ladezone: Intelligent monitoring of loading bays in Vienna	The project i-Ladezone focuses on two major topics: a) development of management methods in order to open delivery opportunities through the efficient and effective monitoring of the occupancy of loading bays and b) the development of a management system for keeping the loading bays at maximum availability and reducing impacts on traffic caused by the loading activities. An intelligent routing application for mobile use by the drivers of the goods vehicles was also developed.
BESTFACT Case: Urban distribution of small parcels using self-service terminals in Lithuanian towns and cities (LP EXPRESS 24) http://www.bestfact.net	LP EXPRESS, a branch of the state-owned enterprise AB "Lietuvos paštas", adopted an innovative urban distribution system of self-service terminals. This self-service system, referred to as "LP EXPRESS", is the latest addition to the company's service offer, providing terminals that are available 24/7, located in 41 cities and town in Lithuania.
BESTFACT Case: Marleenkookt meal deliveries in Amsterdam http://www.bestfact.net	MarleenKookt cooks meals for those who are short of time or have other reasons not to cook for themselves. People have to order their meals on a website. The meals are then delivered to the consumers by e-cargobikes. The operating area is limited to the centre of Amsterdam. Most customers are private individuals; only about 10% of deliveries are made to companies.
BESTFACT Case: Post Receiving Box by Austrian Post AG http://www.bestfact.net	The "receiving box" allows the deposit of registered mail at the customer's residence. If a shipment cannot be delivered the postman deposits it in the receiving box and notifies the recipient with an RFID-Card in the letter box. The recipient removes the notification card from the letter box and uses it to open the receiving box.

BESTFACT Case: Parcel and small cargo delivery using interurban coach system between Lithuanian urban areas http://www.bestfact.net	This system is provided by the private bus operator Kautra. Parcels and small cargo are delivered using interurban bus services. Most of the parcels and cargo are delivered the same day or however long the bus journey takes between origin and destination. Parcels may be taken by customers to designated terminals, or given directly to the bus driver if there is no terminal in the city. The parcels can be collected by customers either from the terminal or directly from the bus driver.
BESTFACT Case: Combipakt – combined passenger and goods transport in Nijmegen, the Netherlands http://www.bestfact.net	Combipakt combines school transport and patient transport with supplying medicine and agricultural products. A taxi company for special target groups and patient transport delivers medicines from the city of Nijmegen to rural areas. On the return trip they pick up agricultural products from small farms and transport these to the city. The service also intends to implement a switch from diesel to electric vehicles.
BESTFACT Case: LOGeco – eco-friendly logistics in Rome, Italy http://www.bestfact.net	The LOGeco project deals with design and validation of a new model for urban logistics solutions that entails innovative and sustainable actions. The innovative aspect relies on the adoption of an unconventional public-private decision making process towards city logistics solutions. The aim is to reduce the impact of freight entering the historical area of city of Rome without penalizing economic activities, but rather creating business opportunities for companies in the area.
BESTFACT Case: PLANZER operating and E-FORCE truck http://www.bestfact.net	Transport and logistics service provider PLANZER in Switzerland ordered and E_FORCE truck from Swiss manufacturer. The daily tour of the E-FORCE truck averages about 125 km. The yearly mileage around 30,000km. The trucks does 15-20 stops per tour.
BESTFACT Case: Verhuis elektrisch http://www.bestfact.net	Aad de Wit, a removals company, uses two fully electric trucks for its removals operations. The electricity used by the trucks is 100% green energy (solar and wind sources).
BESTFACT Case: Vert chez vous http://www.bestfact.net	Vert chez vous has a fleet of vehicles for the next-day distribution of food in the cities of Paris and Toulouse, operating only on electrical power or NGV. A river shuttle ('Vokoli' barge) provides multimodal distribution for packages via the Seine.
BESTFACT Case: Operation of GreenWay electric fleet at a distributor of pharmaceutical and medical materials -Med-art http://www.bestfact.net	GreenWay transforms expensive and somehow complicated technology into a convenient and affordable services. It offers their vehicles in the category of vans up to 3.5t (converted Citroen jumper). They are available for a comprehensive rental service package, not for sale.
PROEBIKE www.pro-e-bike.org	Use of e-cargo bikes to deliver fresh food at home from municipal market.
CITY MOVE http://cordis.europa.eu/result/rcn/59248_en.html	Innovative integrated vehicle solution fitting with the integrated city transport solution approach for a secure, flexible, reliable, clean, energy efficient and safe road transportation of goods across European cities. CITY MOVE has - among others - as key objectives the optimisation of the vehicle capacity and vehicle weight ratio.

CITYLAB http://www.citylab-project.eu/	City Logistics in Living Laboratories: The objectives are: improve basic knowledge and understanding on areas of freight distribution and service trips in urban areas that have received little attention to date; test and implement seven innovative solutions that are promising in terms of impact on traffic, externalities and business profitability and have a high potential for future growth; provide a platform for replication and spreading supported solutions.
CITYLOG http://www.city-log.eu/	The CITYLOG main objective is to increase the sustainability and the efficiency of urban delivery of goods through an adaptive and integrated mission management and innovative vehicle and transport solutions.
CIVITAS: Urban freight logistics and clean fuels and vehicles thematic groups. http://www.civitas-initiative.org	Support cities to introduce ambitious transport measures and policies towards sustainable urban mobility.
CIVITAS: Optimising freight deliveries at construction sites http://www.civitas.eu/content/optimising-freight-deliveries-construction-sites	A logistics centre was established to reduce the number of deliveries to target sites, reducing congestion and improving quality of life
CIVITAS: Malmo http://www.civitas.eu/content/sustainable-logistics-food-industry	A web-based coordinated logistics system optimally linking 40 to 50 food producers in the region with five purchasers in Malmo and using vehicles running on cleaner fuels. The website allows purchasers to see the availability of different fresh products planned throughout the season, and producers are able to identify market demand. Coordinated orders are fed into the system so that deliveries can be made maximising vehicle capacity.
CIVITAS: Utrecht http://www.civitas.eu/content/distribution-centres-fresh-and-perishable-goods	The concept is based on bundling fresh and perishable goods in an Urban Distribution Centre (UDC) and using cleaner freight transport vehicles for the distribution to catering businesses. The overall objective of the measure was to contribute to reduce freight traffic and therefore to improve air quality in the inner-city of Utrecht.
C-LIEGE www.c-liege.eu	C-LIEGE will promote cleaner and energy efficient freight movements in urban areas. A novel set of integrated solutions and "push-and-pull" demand-oriented measures will be tested and shared in roadmaps for the implementation in European cities.
CO-GISTICS http://www.cogistics.eu	CO-GISTICS will deploy cooperative ITS services for logistics, deploying 5 services: · Intelligent parking and delivery areas · Eco-drive support · Priority and Speed advice · Multimodal cargo CO2 emission estimation and monitoring
CYCLELOGISTICS www.cyclelogistics.eu	CycleLogistics aims to reduce energy used in urban freight transport by replacing unnecessary motorised vehicles with cargo bikes for intra-urban delivery and goods transport in Europe.

<p>ECOMOVE http://www.ecomove-project.eu/</p> <p>DOROTHY: Development Of RegiOnal clusTers for research and implementation of environmental friendly urban logistics http://www.clusterdorothy.com/</p>	<p>eCoMove will develop core technologies and applications based on vehicle-to-vehicle and vehicle-to-infrastructure communication or so called “cooperative systems”, where vehicle eco-relevant data can be shared real time with other vehicles and traffic controllers as a basis for fuel-efficient driving support and traffic management</p> <p>DOROTHY has the mission to enhance the distribution process of urban goods by reducing the number of vehicles and enhancing environmental standards, the project will help to improve the quality of life in European cities.</p> <p>By using the approach of clustering around innovation DOROTHY project aims to develop the potential of innovation and research in urban logistics across the European regions of Tuscany (Italy), Valencia (Spain), Lisbon & Tagus Valley (Portugal) and Oltenia (Romania)</p>
<p>ECOMPASS http://www.ecompass-project.eu/</p>	<p>eCOMPASS introduces new mobility concepts and establishes a methodological framework for route planning optimization following a holistic approach in addressing the environmental impact of urban mobility. eCOMPASS aims at delivering a comprehensive set of tools and services for end users to enable eco-awareness in urban multi-modal transportations.</p>
<p>ECOSTARS http://www.ecostars-europe.eu/en/</p>	<p>ECOSTARS is setting different fleet schemes that rate vehicles and operating practices using star rating criteria, to recognise levels of environmental and energy savings performance. Operators will then receive tailor-made support to ensure the fleet is running as efficiently and economically as possible.</p>
<p>ENCLOSE www.enclose.eu</p>	<p>ENCLOSE main objective of raising awareness about the challenges of energy efficient and sustainable urban logistics in European Small-/Mid-size Historic Towns.</p>
<p>FREVUE www.frevue.eu</p>	<p>Will provide evidence for electric vehicles' day-to-day reliability and suitability across a wide range of urban freight schemes. Pilots include: Amsterdam/Rotterdam (Heavy duty trucks for beer distribution), parcel services and expansion UCC; Lisbon EFV for parking and post companies; London introduction EFV into existing CC, expansion CC and conversion UPS fleet); Madrid 'UCC' for EFVs; Milan EFVs pharmaceutical chain; Oslo EFVs for parcel/post services; Stockholm CCC and UCC.</p>
<p>FURBOT: Freight Urban RoBotic vehicle http://www.furbot.eu/</p>	<p>Novel concept architectures of light-duty, full-electrical vehicles for efficient sustainable urban freight transport and will develop FURBOT, a vehicle prototype, to factually demonstrate the performances expected.</p>
<p>GALENA http://www.galenaproject.eu/en/project-objectives</p>	<p>Cross supply chain orchestration of stakeholders in freight pooling and indoor and outdoor localisation of freight.</p>
<p>GET SERVICE http://getservice-project.eu/</p>	<p>The GET Service platform provides transportation planners with the means to plan transportation routes more efficiently and to respond quickly to unexpected events during transportation. To this end, it connects to existing transportation management systems and improves on their performance by enabling sharing of selected information between transportation partners, logistics service providers and authorities.</p>

<p>INSTANT MOBILITY http://www.instant-mobility.eu/</p>	<p>In the Instant Mobility vision, every journey and every transport movement is part of a fully connected and self-optimising ecosystem. Whatever the traveller's situation (office, home, on-trip...) Instant Mobility will deliver useful Future Internet enabled information and services</p>
<p>Lamilo: Brussels city http://www.lamiloproject.eu/smart-city-logistics/</p>	<p>The Brussels case: a public sector run consolidation centre pilot in Brussels that is managing retailers' goods for consolidated delivery using low emission vehicles and demonstrating how both private and public sector organisations can work together towards efficient and sustainable urban logistics.</p>
<p>Lamilo: Netherlands Case http://www.lamiloproject.eu/smart-city-logistics/</p>	<p>Working with Binnenstadservice, LaMiLo partner Eco2City is undertaking a B2C (business to consumer) pilot in two Dutch cities. This will allow customers who order goods online to select a city logistics service hub as the delivery address. Logistics operators then transport the goods by bike to the city hub. In the same roundtrip, the bike courier takes back waste for resource recovery.</p>
<p>Lamilo: Paris The green link http://www.lamiloproject.eu/smart-city-logistics/</p>	<p>The Green Link, a Paris based organisation which delivers goods using electric bikes and vans, is trialling innovative solutions to improve the efficiency of last mile logistics. The first work stream involves testing a new ICT system that maps both road and cycle routes. The second work stream pilot involves using temperature controlled cargo bikes to deliver food in the city of Paris.</p>
<p>MODULUSHCA http://www.modulushca.eu/</p>	<p>"The objective of Modulushca is to achieve the first genuine contribution to the development of interconnected logistics at the European level, in close coordination with North American partners and the international Physical Internet Initiative.</p>
<p>NOVELOG http://novelog.eu/</p>	<p>New cooperative business models and guidance for sustainable city logistics: enabling of knowledge and understanding of freight distribution and service trips by providing guidance for implementing effective and sustainable policies and measures. This guidance will support the choice of the most optimal and applicable solutions for urban freight and service transport and will facilitate stakeholder collaboration and the development, field testing and transfer of best governance and business models.</p>
<p>OPTICITIES http://www.opticities.com/</p>	<p>OPTICITIES is aiming high, intending to develop and test interoperable ITS solutions in six different cities in order to provide urban citizens with the best possible journey conditions and to optimize urban logistics operations.</p>
<p>SELECT http://www.select-project.eu</p>	<p>The project aims to identify potential for electromobility in commercial transport and investigates how electric vehicles could contribute to an environmentally sustainable alternative to current patterns of urban commercial transport.</p>
<p>SMARTFUSION http://www.smartfusion.eu/</p>	<p>A public-private partnership aims to evaluate the technical and logistical feasibility of introducing fully electric vehicles and the second generation of hybrid truck technology in last mile operations and the related urban/inter-urban shipment processes. Part of the Green Cars Initiative. Test-sites: Como, Berlin and Newcastle</p>

SMARTIE: Secure and sMArter ciTies data management www.smartie-project.eu	The SMARTIE project works on security, privacy and trust for data exchange between IoT devices and consumers of their information. Results are demonstrated in smart cities in Germany, Serbia and Spain. Further partners are from Portugal and the UK.
SMARTSET http://smartset-project.eu/	SMARTSET is structured around three core aspects for creating successful and attractive terminals: Market based business models, energy efficient vehicles, Incentives and regulations.
SMILE Valencia pilot http://smile-urbanlogistics.eu/	A new system for the distribution of goods by using electric tricycles and through the creation of a micro-distribution platform for the loading and unloading operation, and for the loading and parking of the tricycles. Four private shippers (ASM, TNT, SEUR and DHL) accepted to participate to the pilot, and to pool their deliveries within two electric tricycles.
SMILE Rijeka pilot http://smile-urbanlogistics.eu/	The city of Rijeka has set up a wide pilot project aiming at installing automatic rising bollards at the entering points of the pedestrian zone, and integrate them into an IT traffic management system which enable data collection on deliveries of goods in the pedestrian zone. Thanks to these information, city of Rijeka wished to better organize the system of deliveries and improve the traffic situation in the old city centre.
SMILE Bologna city http://smile-urbanlogistics.eu/	The pilot tested an optimized IT-supported planning methodology for waste collection. This new system for planning the waste collection is organized in three steps: first, the demand analysis (encompassing a forecast of the waste production foreseen), then a strategic planning, with the generation of alternative zones of collections' scenarios, and eventually, the definition of optimal routes for the waste collection, which can be generated on a daily basis, by a specific software.
SMILE Citygoods model http://smile-urbanlogistics.eu/	The Citygoods model has been initially developed within the City Ports project, an European Project led by the Emilia-Romagna Region (observer in SMILE). Within SMILE the model has been updated and upgraded by the Institute for Transport and Logistics (ITL) in order to address Public Administrations (Municipality, Province and Region) to design and assess City Logistics Actions (Infrastructures, Policies and regulations). Technically Citygoods analyses the urban freight demand of an urban area by analysing separately different supply chains in different traffic zones of the city.
SMP: The sustainable mobility planner http://cordis.europa.eu/project/rcn/196168_en.html	The Sustainable Mobility Planner (SMP) is a specialized innovative IT software (tool) that enables environmental, financial and social impact assessments of sustainable transport initiatives taken in an urban environment
SPIDERPLUS http://www.spiderplus-project.eu	SPIDER PLUS aims to deliver a passenger & freight mobility Vision by 2050 encompassing seamless transportation where electrified High Speed Rail has a central role. Such Vision incorporates the envisaged technological innovations, the needs of an evolved European Society where environmental sustainability, energy saving, safety and security, noise abatement and life-quality are fundamental values.
STRAIGHTSOL http://www.strightsol.eu	Develop an impact assessment framework for measures applied to urban-interurban freight transport interfaces. Part of the European Green Cars Initiative. Pilots related to ITS supply chain/last mile, loading/unloading policies, night deliveries, mobile depot.

<p>SUCCESS http://www.success-urbanlogistics.eu/</p>	<p>The project addresses the different requirements for transferability of supply chain optimization concepts as well as CCCs and new ways of working between supply chain stakeholders. The approach is to identify an integrated collaborative approach and business model among construction supply chain actors.</p>
<p>TRAILBLAZER www.trailblazer.eu</p>	<p>TRAILBLAZER aims to showcase existing good practices and promote public sector policy interventions which can bring about a reduction in energy used in urban freight transport. This will be achieved by municipalities, in partnership with their suppliers and the private sector through the implementation of Delivery and Servicing Plans (DSPs).</p>
<p>U-TURN http://www.u-turn-project.eu/</p>	<p>The U-TURN project aims at addressing freight urban distribution, focusing on food logistics. The project will contribute to our understanding of freight distribution in urban areas, especially addressing the special requirements and needs of food transportation, and will suggest innovative collaboration practices and tools towards achieving more efficient operations from both an environmental and cost perspective.</p>

EXAMPLES NON-EU FUNDED INITIATIVES	
<p>CARGO HITCHING</p> <p>http://www.dinalog.nl/en/projects/r_d_projects/cargo_hitching_/</p>	<p>Combining people and freight flows creates attractive business opportunities because the same transportation needs can be met with fewer vehicles and drivers.</p>
<p>CERTIBRUIT standard</p> <p>http://www.certibruit.fr</p>	<p>This standard takes into account global noise from a delivery, from truck to shop material including delivery operations.</p>
<p>CONCOORD</p> <p>http://www.dinalog.nl/en/projects/international/concoord/</p>	<p>CONCOORD investigates an integrated urban freight simulation environment, a unique measurement framework for the environmental footprint of transport and logistics, and the performance measurement of new innovative urban transport and logistics concepts. Its results, simulation tools, and insights are, among others, disseminated via an important CONCOORD deliverable: the European Urban Transportation Experience Lab.</p>
<p>GREEN FREIGHT EUROPE</p> <p>http://www.greenfreighteurope.eu/</p>	<p>Group directed at measuring CO2 and sharing best practices. Representatives of the European Parliament and the European commission recently welcomed the industry-driven approach to establish a pan-European standard system for collecting, analyzing and monitoring CO2 emissions from road freight operations. The initiators of the programme, HEINEKEN, The Dow Chemical Company, DHL and TNT informed key European officials about the progress made towards a uniquely European version of the comparable SmartWay Partnership programme in the US.</p>
<p>iLLOG City Logistics</p> <p>http://www.ilog.it/index.php/en/solutions/i-log-city-logistics</p>	<p>Integrating intermodal transport with the 'last mile' with micro-swap bodies</p>
<p>Lindholmen Science Park</p> <p>http://www.lindholmen.se</p>	<p>Workshop series organised in Sweden as a basis for understanding data needs to better support freight planning in urban area.</p>
<p>Mines Paristech</p> <p>http://www.researchgate.net/publication/273127980_A_crowdsourcing_solution_to_collect_e-commerce_reverse_flows_in_metropolitan_areas</p>	<p>Presented an interesting simulation study of use of crowdsourcing for returns using drop-off shops and taxi fleet.</p>

<p>PIEK http://www.piek-international.com/</p>	<p>Certification scheme for vehicles and equipment operating under 60dB(A) which will be suitable for use in night time deliveries without causing noise disturbance.</p>
<p>Research company CIRRELT https://www.cirrelt.ca/DocumentsTravail/CIRRELT-2011-03.pdf https://www.cirrelt.ca/DocumentsTravail/CIRRELT-2015-13.pdf</p>	<p>Research activity regarding “share economy”, and an empirical model to analyze impacts of share economy in physical internet.</p>
<p>SILOGUES http://tra2014.traconference.eu/papers/pdfs/TRA2014_Fom_29508.pdf</p>	<p>French National Research Program on Land Transport (Predit) project which aims to provide a decision support framework to simulate the impacts of urban policies on goods transport. The physical scope is that of the entire urban area, and the stakeholders targeted in priority public authorities and technical services.</p>
<p>VANECK GROUP https://www.vaneckgroup.com/en/make-choice/save-costs-toll-fuel-environment/eckstreme-twin-deck-box/</p>	<p>A solution of several boxes on trailer ready for urban distribution. Mentioned other projects on containers for urban logistics as PART, URBANCITY BOX or Transformer.</p>

ANNEX II: ALICE-ETRAC WORKSHOP, BRUSSELS 26 JANUARY 2016

The workshop is organised by ALICE and ETRAC within SETRIS (Strengthening European Transport Research and Innovation Strategies) project financed by H2020. Project Number 653739.

alice

Alliance for
Logistics Innovation
through Collaboration
in Europe



Urban freight working group Agenda

26th of January 2016

Venue: POLIS. Rue du Trône 98, 1050 Brussels, Belgium

- 10:30–11:00 **Welcome to participants and agenda.** Dario Biggi (chair of WG5 ALICE)
- 11:00–11:30 **Presentation of “Integrated End-to-End Logistics System”, a first relevant outcome from SETRIS project.** Fernando Liesa (ALICE)
- 11:30–12:00 **Presentation of initial conclusions of the benchmark analysis of the current UF roadmap to identify coverage of challenges by projects or WP topics between 2014 and 2017.** Gabriela Barrera (POLIS) and Emilio González (vice-chair of WG5 ALICE)

Working session: New challenges for UF Roadmap

Participants will be organized in groups of 4-5 max to identify new challenges for UF working group after a short intro.

- 12:00–12:30 **Introduction to the session.** Paola Cossu (vice-chair of WG5 ALICE)
- 12:30–13:30 **Lunch Break**
- 13:30–15:00 **Working session to identify new challenges before and beyond 2020.** All participants
- 15:00–16:15 **Share and present outcomes.** All participants
- 16:15–16:30 **Conclusions and next steps.** Dario Biggi (chair of WG5 ALICE)
- 16:30 **End of the meeting**

List of participants

Surname	Name	Organization
Aertsents	Xavier	ERTRAC
Andersen	Jardar	TOI
Barrera	Gabriela	POLIS
Biggi	Dario	Poste Italiane S.p.A.
Caldevilla	Andres	DENSO/CLEPA
Congiusta	Antonio	UNICAL
Cossu	Paola	FIT CONSULTING
González	Emilio	CNC-LOGISTICA/ITENE
Guerlain	Cindy	LIST
Johnson	Anders	SP
Kalev	Aleksandar	LIST
Kassyda	Christian	VWN (commercial vehicles
Konstantinopoulou	Lina	ERTICO
Kraaijenhagen	Ben	MAN
Rudolph	Christian	ECTRI/DLR
Liesa	Fernando	ENIDE / ALICE
Lozzi	Giacomo	POLIS
Macharis	Cathy	VUB
Moesch	Emmanuelle	Cluster Paca - Logistique
Rodrigues	Maria	PANTEIA
Schrampf	Juergen	LRA/Econsult Betriebsberatungsges.m.b.H.

Souhait	Patrick	Muses (Member of Cluster Paca Logistique)
Stephens	Julian	MJC ²
Vancluysen	Karen	POLIS
Vennersten	Sofie	Lindholmen Science Park/EUCAR
Zunder	Tom	NewRail
Lapillonne	Gregoire	FN Logistics
Routhin	Clemence	LUTB
Gatta	Valerio	University of Roma
Val	Susana	Zaragoza Logistics Center
Catini	Giulia	IVECO (CNH Industrial)

ANNEX III: ALICE WORKSHOP, VIENNA 2-3 FEBRUARY 2016

The Meeting will be organised by ALICE with the support of SETRIS (Strengthening European Transport Research and Innovation Strategies) project financed by H2020. Project Number 653739.



ALICE members and experts workshop

Date: February 2-3, 2016

Venue: Wirtschaftsuniversität Wien, Welthandelsplatz 1, 1020 Vienna, Austria

AGENDA for Day 1: 2nd of February

10:00-10:30	Welcome coffee
10:30-10:45	Workshop overview: welcome, agenda, targets and expected results.
10:45-11:30	Definition of Truly Integrated Transport System for Efficient and Sustainable Logistics. An updated document with comments received will be shared second half of January.
11:30-11:45	Research and Innovation progress monitoring. Fernando Liesa. ALICE Secretary General, Logistics Innovation Leader, ENIDE.
11:45-12:45	Implementation Plan. Topics discussed with all attendees (1) All participants working in parallel on selected topics.
12:45-13:45	Lunch
13:45-14:45	Implementation Plan. Topics discussed with all attendees (2 Continuation)
14:45-15:15	Coffee Break
15:15-16:00	Plenary session to share outcomes
16:00-18:30	Public event organized with LRA
18:30	End of the day
20:00	Networking Dinner

AGENDA for Day 1: 3rd of February

9:00-9:15	Warm up and introduction to the day
9:15-10:30	<i>Implementation Plan. Topics discussed in parallel session (1)</i>
10:30-11:00	Coffee Break
11:00-12:00	<i>Implementation Plan. Topics discussed in parallel session (2)</i>
12:00-13:00	Lunch
13:00-14:00	Plenary session to share outcomes
14:00-16:00	ALICE Research and Innovation Roadmap on the Physical Internet
16:00	End of the workshop

List of participants

First name	Last name	Company / Organisation
Waqas	Ahsen	PostEurop
Juan	Alcaraz	ITENE
Angelos	Amditis	ICCS
Corrado	Andrean	AJA REGISTRARS EUROPE
Angelo	Aulicino	Interporto Bologna SpA
Jannicke	Baalsrud Hauge	biba
Peter	Bachl	Industrie-Logistik-Linz GmbH
Eric	Ballot	Mines ParisTech
Sergio	Barbarino	P&G
Immacolata	Battaglia	Meware
Pierre	Beran	Jones Lang Lasalle
Jan	Bergstrand	Trafikverket
John	Berry	ELUPEG
Dario	Biggi	fondazione proPosta \ Poste Italiane SpA
Christian	Blobner	Fraunhofer IFF
Frédéric	Buyse	IFB
Franco	Castagnetti	NEWOPERA
Paola	Cossu	FIT CONSULTING

Frans	Cruijssen	Argusl
Alfons	Dachs-Wiesinger	MAGNA STEYR AG & Co KG
Yves	David	COMACAS - CASINO
Lieven	Deketele	P&G Sevrices Company SA
JUAN MANUEL	DÍEZ OREJAS	AUTORIDAD PORTUARIA DE VALENCIA
Verena Charlotte	Ehrler	DLR Institute of Transport Research
Olav	Eidhammer	Institute of Transport Economics
Rikard	Engström	Swedish Transport Admin
Eric	Feyen	UIRR scrI
Fabiana	Fournier	IBM Research - Haifa
Jean Francois	Fusco	EALTH
Pierre	Gabaud	EUCAR
Lukas	Gerhold	Siemens
Emilio	Gonzales	ITENE
Marcin	Hajdul	ILiM
Arni	Halldorsson	Chalmers University of TEchnology
Maria Dolores	Herrero Tomás	ITENE
Wout	Hofman	TNO
Indrek	Ilves	ALICE/Interlogistics
John	Ingram	Transport Systems Catapult
Werner	Jammerneegg	WU Vienna
Mats	Johansson	Chalmers University of Technology
Anders	Johnson	SP Technical Research institute of Sweden
Mats	Johnsson	Lund University
Herman	Journee	ECO Sustainable Logistic Chain Foundation
Christian	Kassyda	Volkswagen Commercial Vehicles
Panayotis	Katsoulakos	INLECOM
Ralph	Keck	Procter & Gamble Purchases
Christoph	Kern	Austrian Logistics Network
Gosia	Kirchner	Institute of Logistics and Warehousing
Ben	Kraaijenhagen	MAN Truck & Bus AG
Tobias	Kutzler	Fraunhofer IFF

Alessandra	Laghi	University of Bologna
Heikki	Lahtinen	LIMOWA
Jorge	Leon	ITENE
Chiara	Lepori	Consorzio IB Innovation
Alan	Lewis	Smart Freight Centre
Fernando	Liesa	ALICE/ENIDE
Edoardo	Marcucci	university of roma tre
Nils	Meyer-Larsen	ISL Institute of Shipping Economics and Logistics
Andreas	Nettsträter	Fraunhofer IML
Carina	Neveling	Fraunhofer IML
Pernilla	Ngo	Closer
Nico	Nuerbchen	HARTMANN Group
Murat	Ozemre	Bimar ARKAS
Paolo	Paganelli	Bluegreen Strategy
Alfonso	Pagliuca	AJA REGISTRARS EUROPE
Gianmarco	Pagliuca	AJA REGISTRARS EUROPE
Stefano	Persi	ENIDE
Norbert	Peto	Mondelez
Andreas	Pichler	Gebrüder Weiss GmbH
Matthias	Prandtstetter	AIT Austrian Institute of Technology GmbH
Sylvain	Prevot	TRAXENS
Katrin	Reschwamm	Verein Netzwerk Logistik Schweiz
Michael	Reske	duisport agency GmbH
Mar	Rodriguez	KALEIDO IDEAS & LOGISTICS
Emeline	Rousselet	CHEP Europe
Clémence	Routhiau	LUTB Transport and Mobility Systems
Oscar	Ruiz	ITENE
Maria Jesus	Saenz Gil De Gomez	Zaragoza Logistics Center
Oliver	Schauer	FH OÖ -LOGISTIKUM
Jürgen	Schrampf	ECONSULT
Antonino	Scribellito	PostEurop
Jerker	Sjögren	Jesjo Konsult
Julian	Stephens	MJC2
Dirk	t Hooft	ETP-ALICE
Horst	Treiblmaier	University of Applied Sciences, Upper Austria
Athanasia	Tsertou	ICCS

Nil	Tunasar	ASSOCIATION OF INTERNATIONAL FORWARDING AND LOGISTICS SERVICE PROVIDERS
Luca	Urciuoli	Zaragoza Logistics Center
Bas	van Bree	TKI Dinalog
Nicolette	van der Jagt	CLECAT
Robert	Vasenda	Advantech-DLoG
Alan	Waller	ELUPEG
Hans	Westerheim	SINTEF ICT
Henk	Zijm	Univ. of Twente / DINALOG
Marcel	Huschebeck	PTV Group
Lahtinen	Heikki	LIMOWA - Logistics Centre Cluster Finland
Dominik	Ruttke	ECTRI/DLR
Thomas	Zunder	ERTICO / NewRail, Newcastle University
Florian	Maurer	FH Vorarlberg