

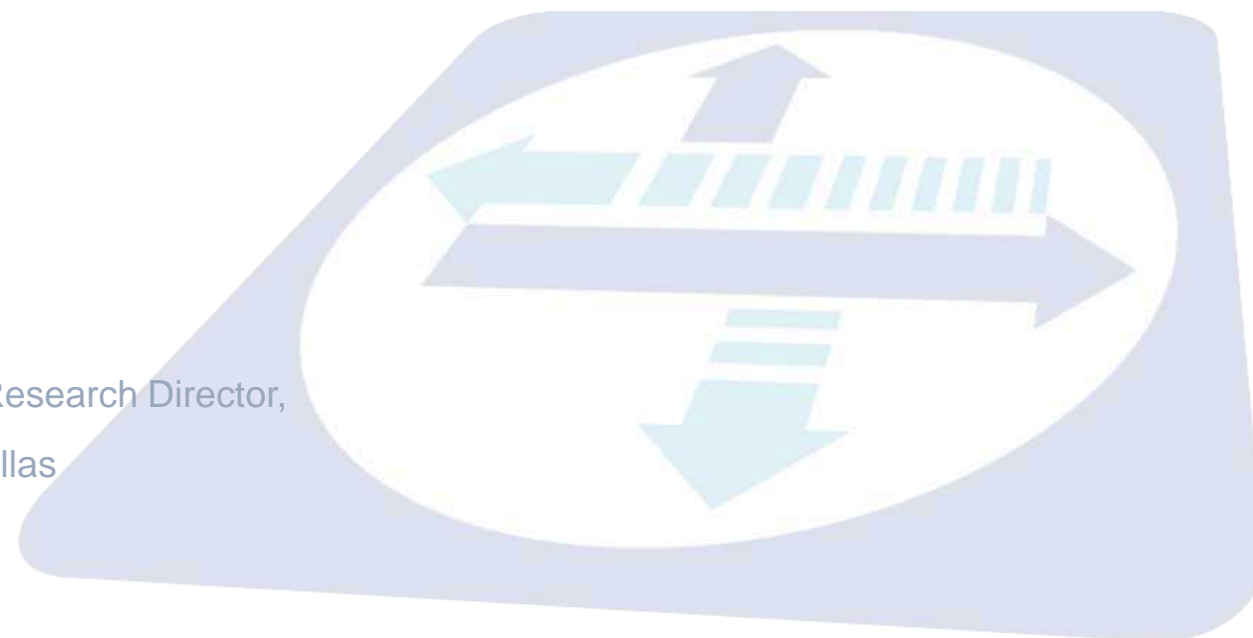


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HELLAS



Challenges in sustainable city logistics & good practices for their efficient management in the future

- Georgia Ayfantopoulou (gea@certh.gr) Deputy Director, Research Director,
- Hellenic Institute of Transport of Centre for Research and Technology Hellas



THE HELLENIC INSTITUTE OF TRANSPORT (HIT)

The **Centre for Research and Technology-Hellas** is one of the leading research centers in Greece with important scientific and technological achievements in many areas.

Hellenic Institute of Transport-HIT, established in 2000, is part of the greater team of CERTH. HIT is a highly recognized research body offering specialized basic and applied research and highly technical services in all fields of transport.



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No 17 in EU

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EIT-Urban Mobility core member Regional Innovation Hub

Mobility Living Labs Group leader

European Network of Living Labs

thessaloniki smart mobility living lab

ELTIS Sustainable Urban Mobility Editorial Board

Smart Mobility & city logistics cluster



This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation





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**Logistics are facing challenges &
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CITY Logistics are changing**

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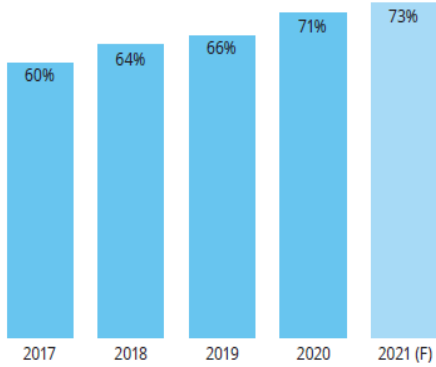
**City Led innovation for sustainable mobility & logistics
How to develop a Sulp
Measure city readiness for innovation**

3. Best practices to select



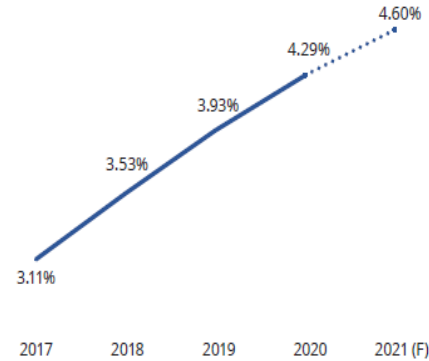
Logistics and Supply Chain living in disruptive times

E-SHOPPERS, EUROPE



SOURCE: EUROSTAT; NATIONAL E-COMMERCE ASSOCIATIONS; PARTNERS; STATISTA; UNITED NATIONS

E-GDP, EUROPE

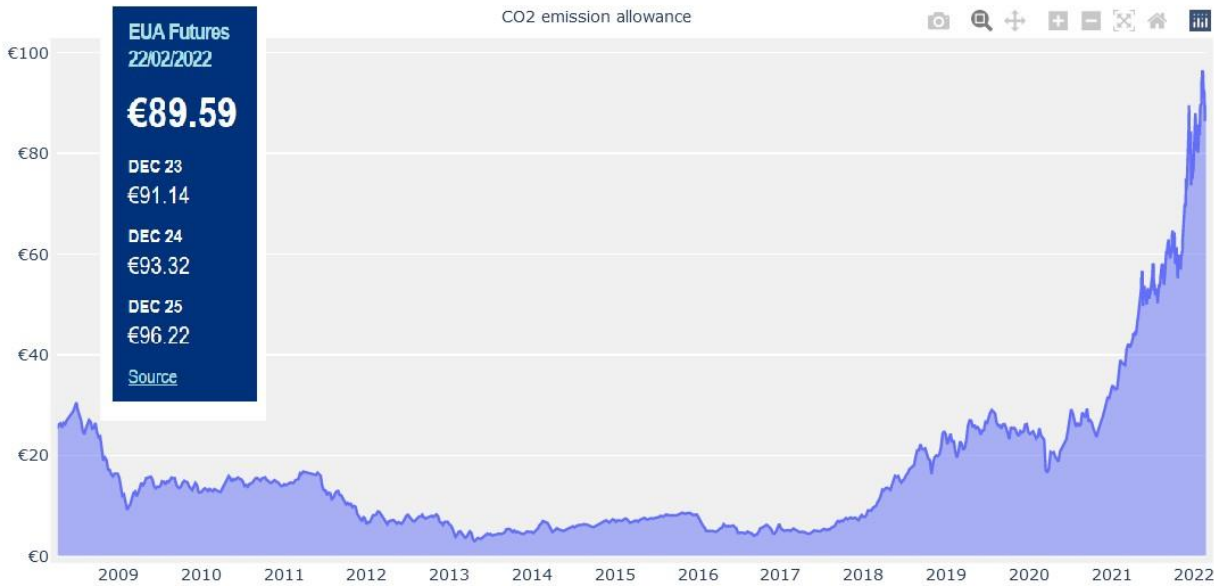


SOURCE: CMI ANALYSIS

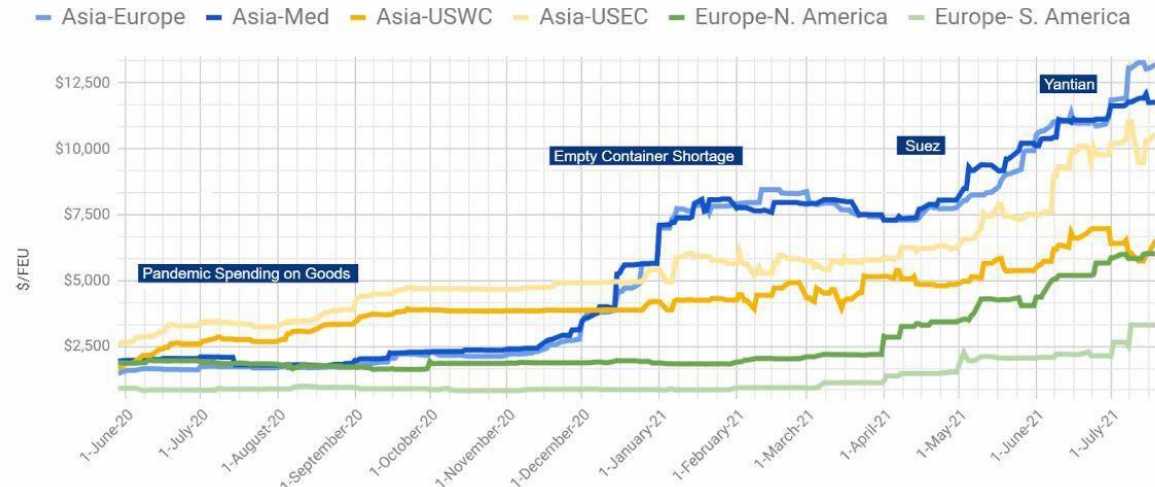
Source: [2021 EUROPEAN E-COMMERCE REPORT – Ecommerce Europe](#)

Wanted: 80,000 truck drivers to help fix the supply chain

By Vanessa Yurkevich, CNN
Updated 23:49 GMT (07:49 HKT) October 19, 2021



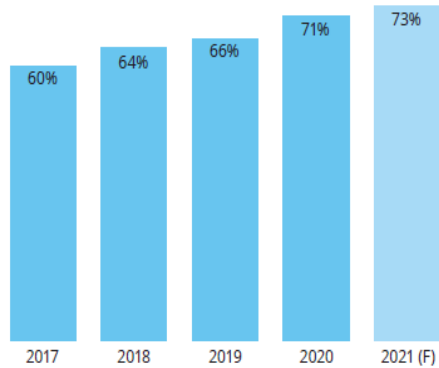
Container freight rates & unbalanced flows



Source: Freightos – [fbx.freightos.com](https://www.hellenicshippingnews.com/) powered by: <https://www.hellenicshippingnews.com/>

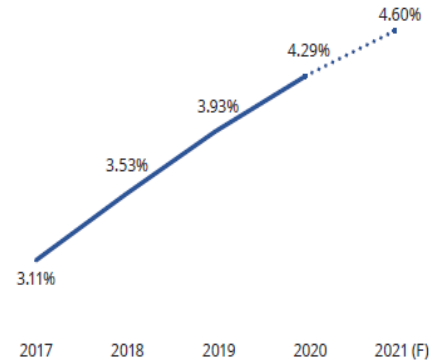
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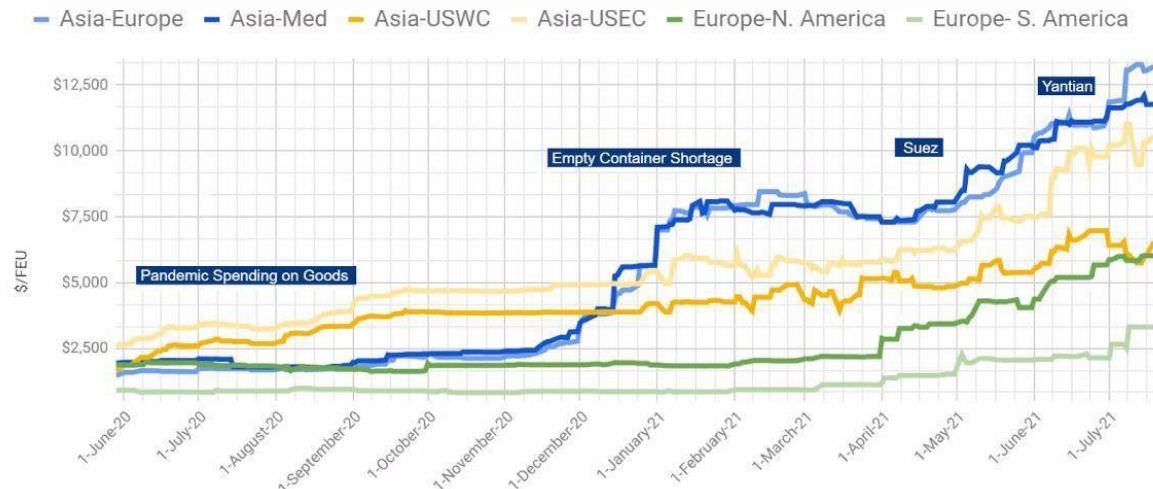
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Uncertainties create new trends :

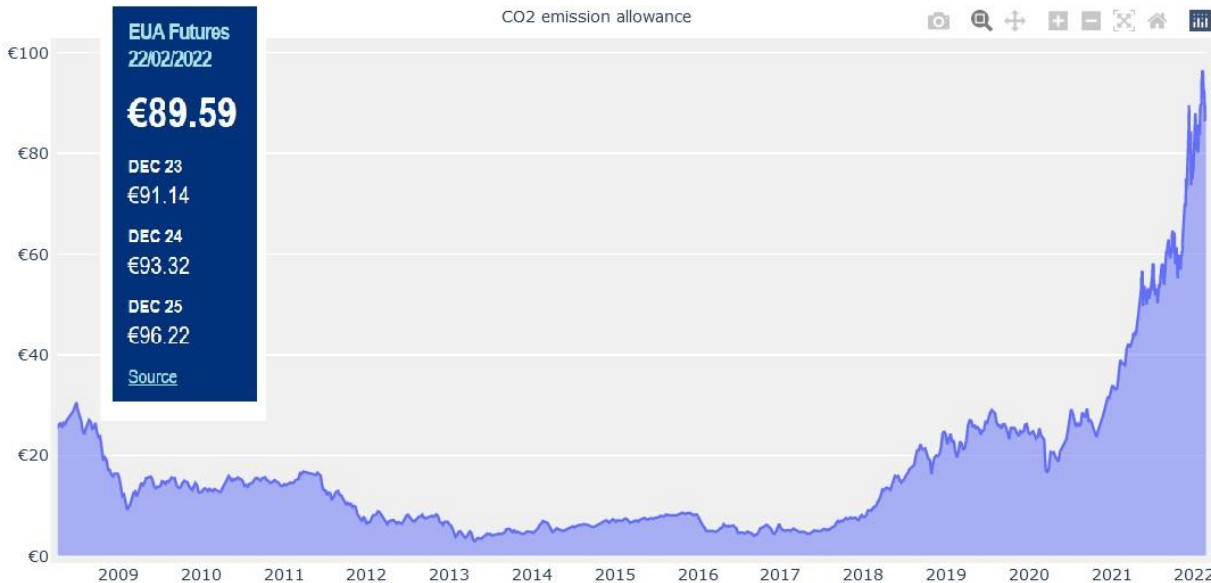
- Short supply chains vs long
- Regionalization of production vs globalization
- Speedy rail in stand of slow maritime transport

Container freight rates & unbalanced flows



Source: Freightos – [fbx.freightos.com](https://www.hellenicshippingnews.com/) powered by: <https://www.hellenicshippingnews.com/>

CO2 emission allowance



City Logistics are changing



The customers' needs are changing:

- Same or next hour deliveries are required
- More customized solutions are required
- Consumers are more familiar with new technologies and tools while omni channel logistics are required
- Special trend towards Ethical and sustainable buying

The Logistics providers try to fill in this demand while taking down the competition:

- Testing new shared city logistics solutions: micro-consolidation centers, logistics hotels, UCCs
- Greener modes are a necessity (e-LCVs, cargo bikes, etc.)
- Testing new technologies for optimizing their operational efficiency
- Start-ups popping up showing new crowdsourced and more flexible business models



City Logistics way forward

Innovation is considered the solution to complex problems.... BUT

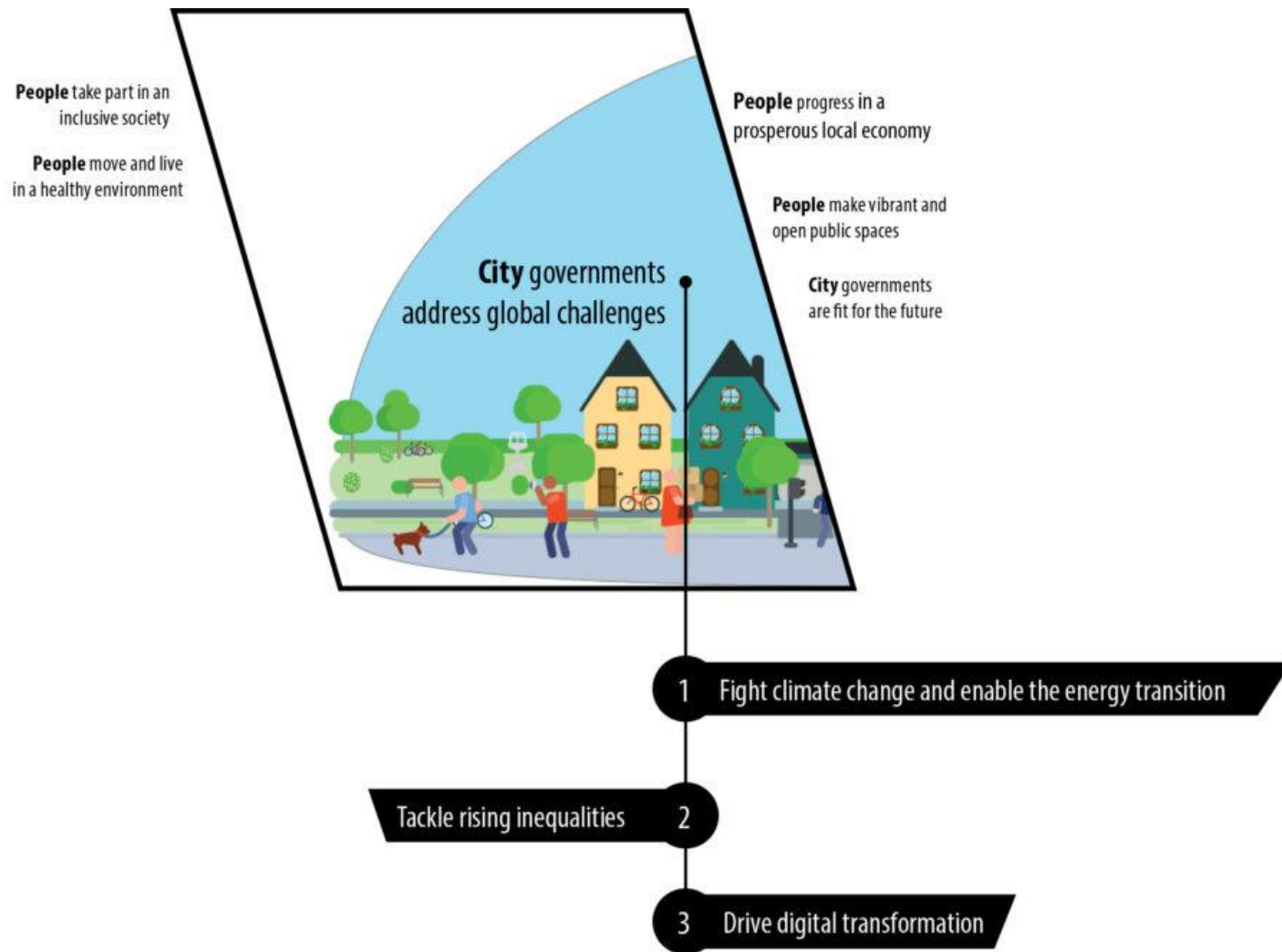
Innovative solutions are emerging in cities, being industry driven, with no regulation framework and proper planning.

The cities around Europe clearly understand that their role is crucial in developing the appropriate policy response to steer innovation in urban mobility & logistics

Successful pilots are not best practices
Measures integrated in robust plan (SULP) and long term engagement of the city is the good way forward

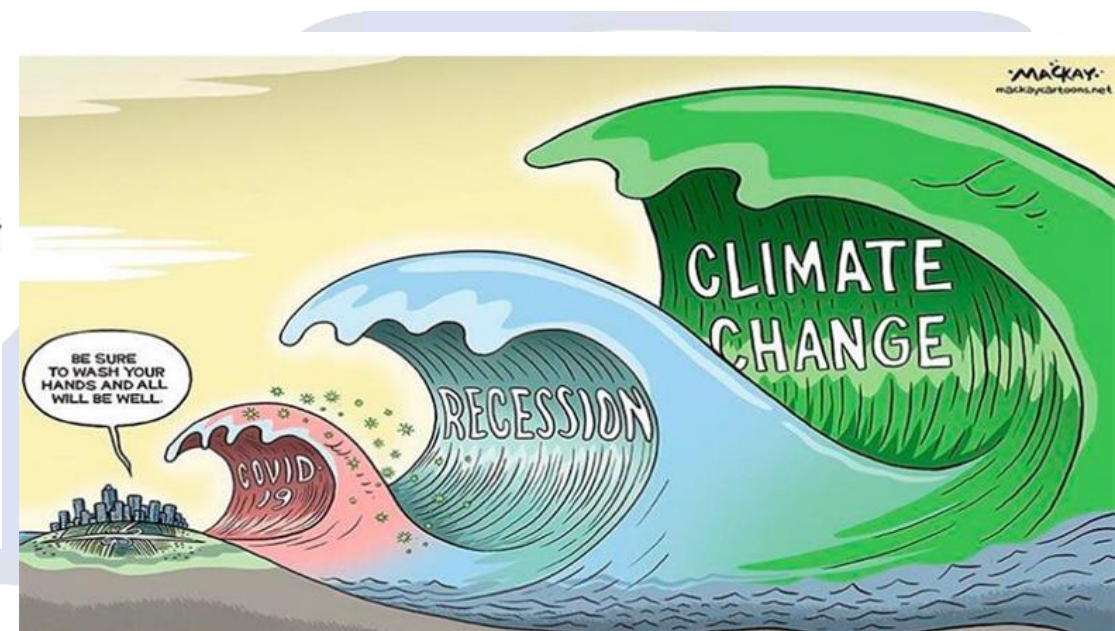


Cities are facing global challenges



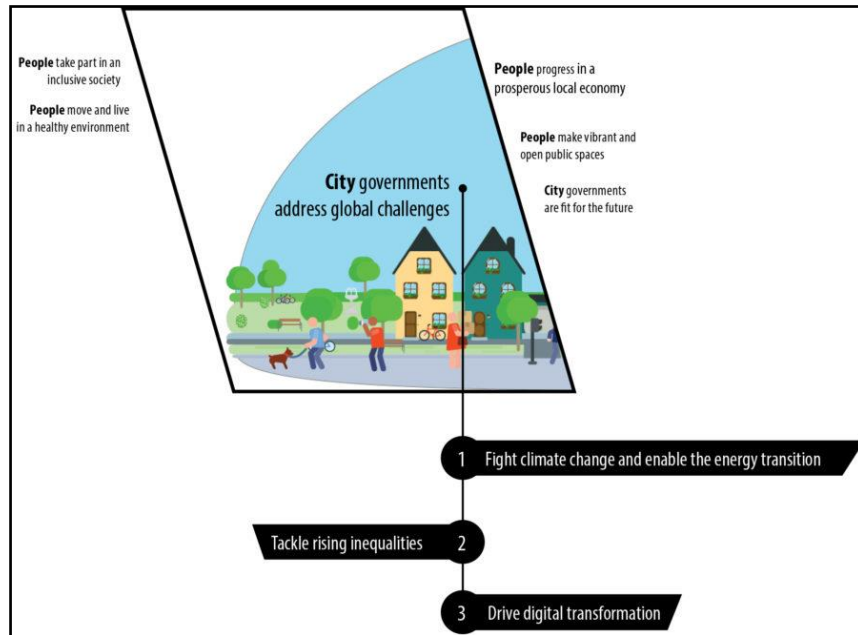
So many things to be performed by the cities in :

- so little time (2030)
- with reduced authorization &
- limited budgets





Cities way forward for sustainable mobility & logistics



1. Manage the transition to smart, climate neutral, affordable & digital urban mobility & logistics (act in areas or intervene in agreements with actors in one sector, achieve paradigm shift through emblematic projects).
2. Action Plan for innovation adoption & of new generation infrastructure
3. Prepare for Sustainable Policy Response to Urban mobility Transition & innovation adoption
4. Resilience by design in Urban planning
5. Do not select measures by analogy from other cities
6. City logistics operators are global and wish for common solutions to all cities. However there is not 'one size fits all' solution for city logistics & urban mobility
7. Consider regional dimension of logistics infrastructure & measures when solving problem in urban environment





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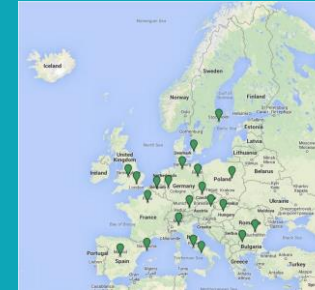




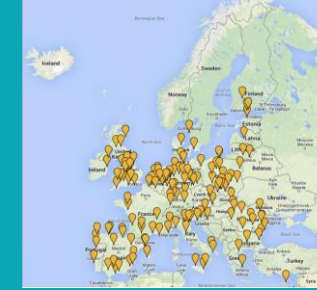
1. City-Led innovation for mobility & city logistic

1. Develop the conditions for adopting innovation in City logistics through problem common Understanding & planning as part of the mobility planning

- Both large and smaller economies encounter three primary city logistics challenges: **urban growth**, **traffic congestion**, and **environmental problems**
- What cities should do for City Logistics:
 - To **increase the efficiency** of freight transport system in urban areas and **reduce the environmental impact**
 - To **address the changes** underway in the urban mobility scene.
 - Need to **address the impacts** of the emerging mobility patterns, digitally-enabled operating & business models, and transport users' needs.
 - To select **appropriate measures and policies** in order to harness and accelerate the innovation
 - Need for paying special attention to the needs of **vulnerable users**
 - Need for active **participation and engagement of numerous representatives** from authorities of small & medium-sized cities



Large cities



Medium-sized cities



Small cities

In larger cities:

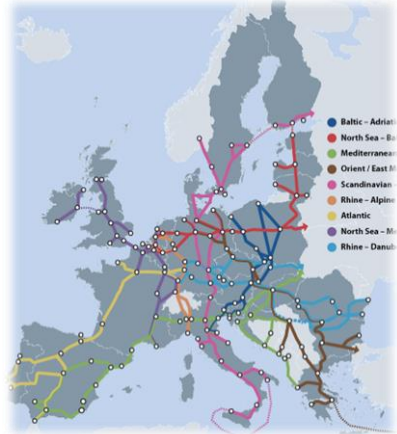
- **More complex systems**, encompassing a number of not necessarily integrated sub-system
 - **Several public administrations, municipalities and regions** are involved in mobility planning
 - **Several different logistics actors with different needs**
 - **Higher demand for on-demand deliveries, flexible loading/unloading space, flexible warehousing e.tc.**
 - **Great need for integrated and inter-connected transport infrastructure**
- Complex systems requires systemic approaches**

2 . City-led Innovation in city logistics: Towards a highly inter-connected network



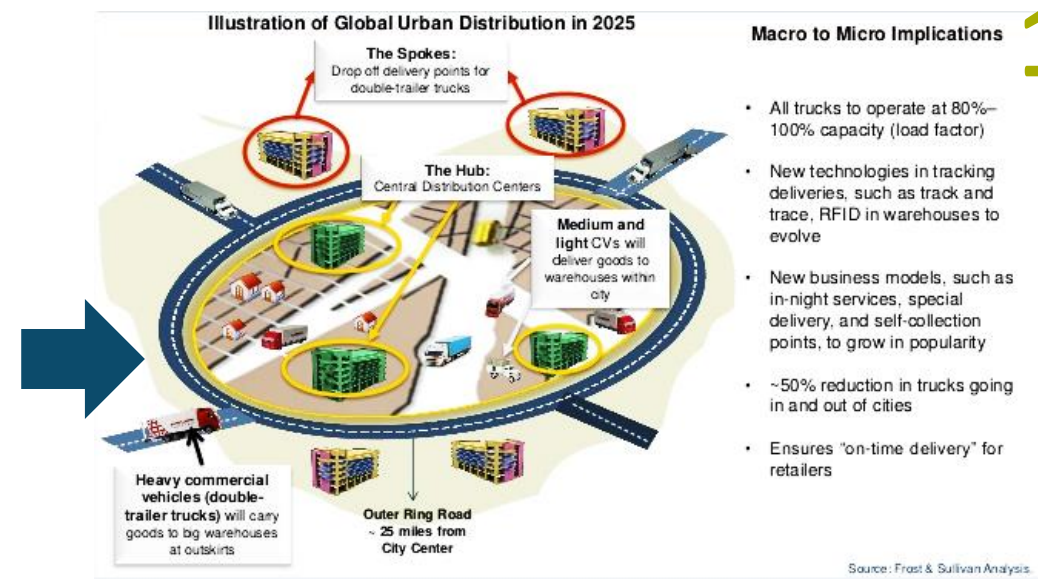
- A 'core network' to be completed by 2030. A comprehensive network by 2050.
- TEN nodes & corridors will be the reference network for infrastructure & ICT connectivity
- Pan European Logistics Platforms & Information exchange in an easier and more efficient way –AEOLIX HORIZON 2020 project
- **Need to invest in urban nodes** → Issue paper on "Efficient integrating urban nodes"
- Closing gaps between transport modes of the TEN-T
- Alleviating the negative effects on inhabitants & urban environment

PI
corridors
along
Core
Network
Corridor



Integrate TENT-T in the urban realities!

Freight Corridors need doors for entrance and exit in urban areas.



- Macro to Micro Implications**
- All trucks to operate at 80%–100% capacity (load factor)
 - New technologies in tracking deliveries, such as track and trace, RFID in warehouses to evolve
 - New business models, such as in-night services, special delivery, and self-collection points, to grow in popularity
 - ~50% reduction in trucks going in and out of cities
 - Ensures "on-time delivery" for retailers

1 **Mega size Warehouses on Outskirts of Cities & Smaller Decentralized Warehouses Inside the city perimeter**



pushes towards:

Change in urban land use development

2 **Multipurpose districts – optimizing the potential mix of strategically positioned public land**

Optimal mix distribution of land uses – both in city centers and peripheries

15 minutes city , Low Traffic zones, city blocks....???

3. Systemic approach: Analyse Urban Mobility elements dynamics to drive transition....study the “veto” actors behaviour

READINESS: Inter-departmental coordination, Mobility Planning, Liaise, Public Investments

LIVEABILITY: Policy making & additional investments

Indicative Questions for Readiness:

- What is the level of inter-departmental coordination and flexibility in the procurement process for innovative solutions?
- What is the level of Sustainable mobility Planning & implementation process?

READINESS: Culture, Industry Diversity

LIVEABILITY: Behaviour and Smartness

Indicative Questions for Readiness:

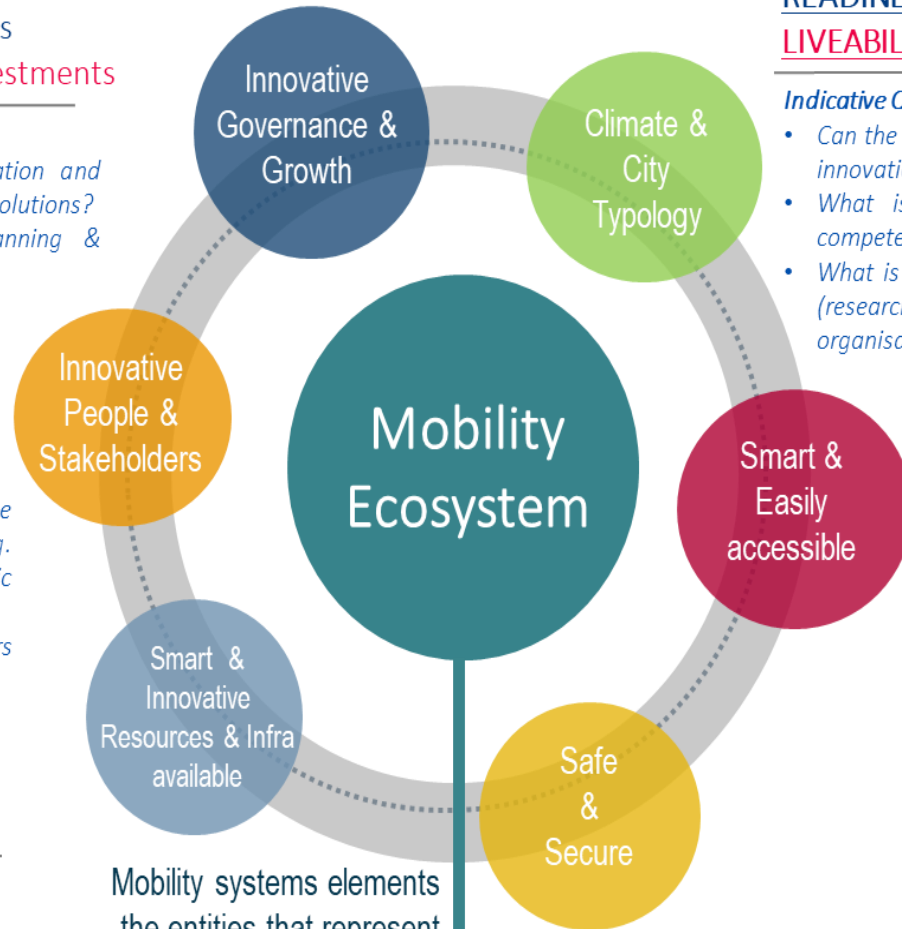
- To what extent are citizens adopting the new sustainable mobility services and the green modes of transport, (e.g. less car-use, more walking, cycling and use of Public Transport)?
- How rich is the city in terms of number of big innovators and high-tech start-up companies?

READINESS: Data availability, Cities Capacity

LIVEABILITY: Efficiency, Convenience

Indicative Questions for Readiness:

- How mature and smart is the data collection for understanding the current situation of a mobility system for passenger transport (Smart infrastructure, ITS, survey)?
- To what extent is the current passenger transport of city's policy making is data and evidence driven?



Mobility systems elements the entities that represent city's main characteristics & the domain for innovation implementation

READINESS: Openness, Science & Education

LIVEABILITY: Sustainability

Indicative Questions for Readiness:

- Can the city be characterized as a University Town with Research & innovation activities?
- What is the city's population educational level and digital competence?
- What is the level of (inter)national synergies with neutral partners (research institutions, universities) and other cities and organisations for knowledge transfer (e.g. POLIS, Eurocities, EIT)?

READINESS: Transparency & Accountability

LIVEABILITY: Accessibility, Affordability, Availability

Indicative Questions for Readiness:

- What is the level of smartness and transparency of your city's Government processes (e-tools, e-Governance practices, data transparency)?
- Is city's mobility data open source, safe and easily accessible?

READINESS:

LIVEABILITY: Safety and security

Indicative Questions for Readiness:

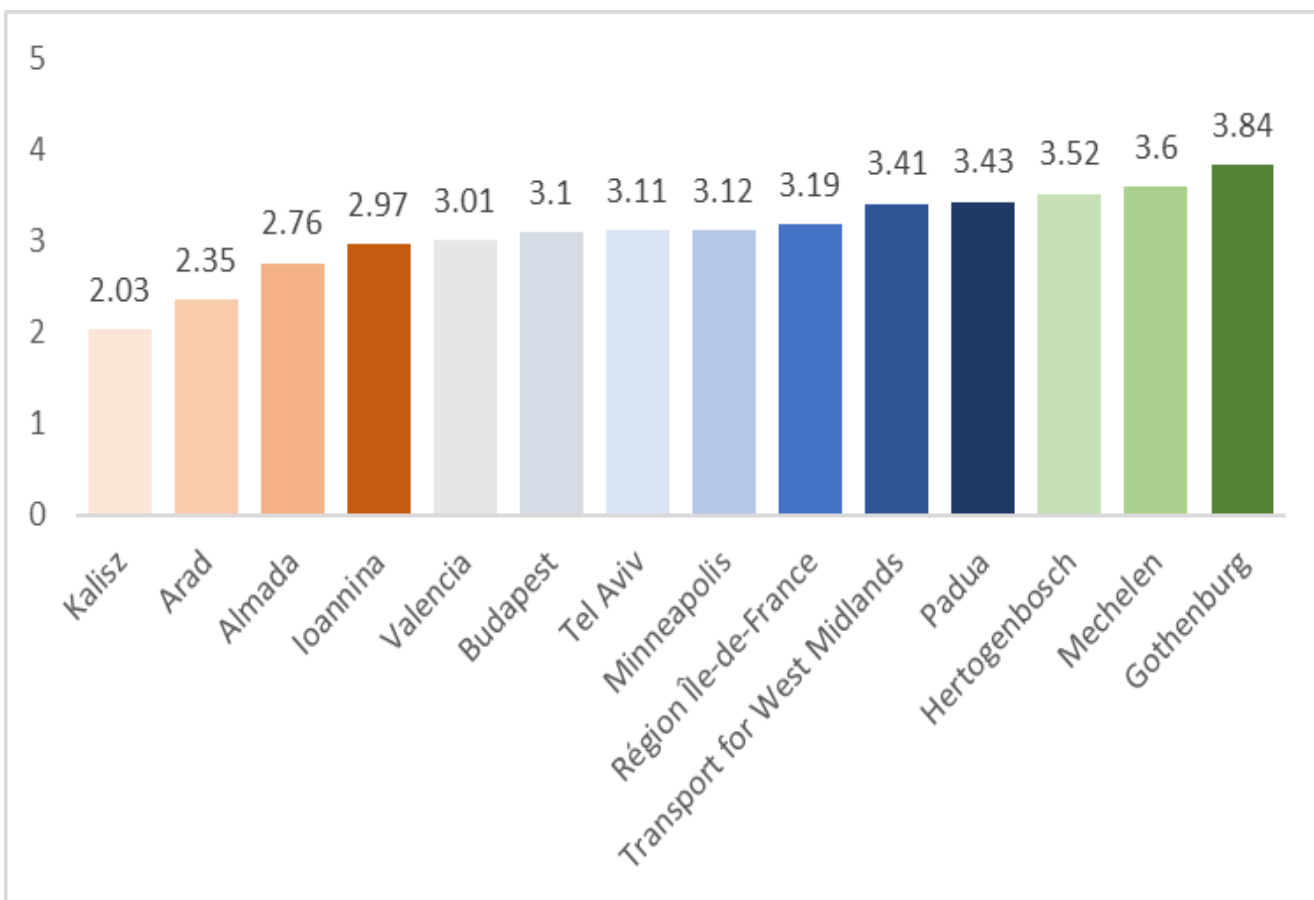


11 Subelements for Readiness

21 Subelements for Liveability



Innovation Index in European cities



Calculate your cities' Score:

<https://phvd21kpofa.typeform.com/to/LUU36Eft>



Strong points

- **Liaison – Openness – Science & Education & Industry diversity:**
 - Citizens' engagement in platforms open and available in the city is strong
 - Cities are open for **international collaborations and synergies**
 - In many cities, there are institutes with high reputation, start-up companies, research centres, technology parks.
 - The citizens have a **high level of education** and are fully adopted with the use of technology
 - In the city there are **synergies with big innovators**, new models are implemented, such as MaaS

Weak points

- **Data availability:** The data collection is not mature yet especially for city logistics. Most cities implement rare surveys and collected few or even no data.
- **Cities capacity:** Many cities lack in knowledge and expertise and only few people in the sector have the know-how
- **Smart and Integrated Infrastructure:** Lack of infrastructure and poor penetration of technology in the mobility services



4. Develop Sulp with innovation & technology focus

A new Topic Guide for Sustainable Urban Logistics Planning

in the frame of the second edition of SUMP 2.0

Cities need to become SMART, CLIMATE NEUTRAL, ZERO POLLUTED until 2030/2050

Sustainable Urban logistics Plan & Transition to Innovation Action Plan is required to be developed

- Offering the conditions for common regulations & measures adoption in cities for the benefit of the citizens and the sustainable & easy operation of the industry
- Prioritizing actions in agreement with the public & private stakeholders
- Build capacity & dedicate responsibility of city logistics to Municipal & national authorities
- Speed up quick wins implementation

Frameworks

Tools

Milestones & Checklists

Best practices

A tool for sustainable and efficient urban logistics planning

FIND IT HERE:



https://www.eltis.org/sites/default/files/sustainable_urban_logistics_planning_0.pdf

European Platform
on Sustainable Urban
Mobility Plans



TOPIC GUIDE

**SUSTAINABLE URBAN
LOGISTICS PLANNING**

Authors:

Georgia Ayfantopoulou (CERTH/HIT)

Elpida Xenou (CERTH/HIT)



Awarded with ALICE Gold award

ALICE Logistics Innovation Award

The Sulp key message:

Sustainable Urban Logistics Planning aims at dealing with the complexity of urban transport. Its core goal is to **improve accessibility and quality of life** by achieving a shift towards **sustainable transport and logistics**.

What should the cities do?

- Evaluate effectively the current situation of the city logistics
- Identify the main characteristics and factors influencing the environment of the city logistics
- Analyse the problems and opportunities
- Cooperate with the actors in order to collect data that is mostly private, then analyse it
- Involve external actors in the policy-making process
- Specify concrete and measurable future objectives focusing on selected areas (indicators) and set priorities
- Develop future scenarios and assess their impact
- Take into consideration best practices and soft measures benchmarking to promote sustainable urban logistics



Thessaloniki (On- going)



- **SULP is developed at regional & at local level**
- First SUMP implemented by the Municipality of Thessaloniki in 2019
- Decarbonization Strategy for the urban freight sector developed in 2017

By 2025:

- Development of SULP & demand assessment for new conditions after the end of the pandemic.
- Establishment of nigh- distribution- hours for goods in off-center areas for supermarkets and department stores.

By 2030:

- Implementation of 50% of the measures proposed in SULP in the time horizon 2025
- Installation of telematics in approximately 125-150 loading and unloading locations in the historic center of the municipality.
- Provision of space and support for the creation of small consolidation centers and implementation of distributions by alternative means.
- Incentives for electric business fleets e.g. free parking and access to restricted areas.

- The city is quite active in research innovation. Innovations tested today related to city logistics:
 - Micro-consolidation centers / Lockers for last mile deliveries
 - Testing new electric modular fleet for last mile deliveries in the HORECA sector
 - Creating multipurpose districts for collaborative warehousing and cargo consolidation

Strong support by neutral bodies –
HIT/CERTH



1. How to build a Sulp: a practical methodology

- 1 Set up working structures
- 2 Define the development process and scope of the plan
- 3 Analyse the current UFT situation
- 4 Build the jointly assess scenarios
- 5 Develop vision and objectives with stakeholders
- 6 Set targets and indicators
- 7 Select measure packages with stakeholders
- 8 Agree actions and responsibilities

Including the UFT stakeholders in the Sulp implementation.

Consult Guidelines & Best Practices



Set up working structures (I)

✓ **Create inter-departmental core team, consider getting external support & Ensure Political and institutional ownership & plan stakeholder and citizen involvement**

- Formation of a **small team on City Logistics inside the municipality with relevant expertise** in the given domain and familiarity with **UFT policy and regulation frameworks**
- Identify your city's relevant Urban Freight Transport actors

• Establish a **Multi Stakeholder Platform (MSP)** *Who should be involved?*

Recommendation:
Mixture of a Multi-stakeholder platform

Stakeholder's Category	Proportion
Supply Chain Stakeholders (Transport Operators, Freight Forwarders, Retail chains, Shop owners e.tc.)	25%
Public Authorities (Local % National government e.tc.)	25%
Other Stakeholders (Industry % Commerce Associations, Research % Academia, Consumer Associations e.tc.)	38%
Experts	12%

Recommendation:
Engage a neutral partner as facilitator and for arguments provisioning



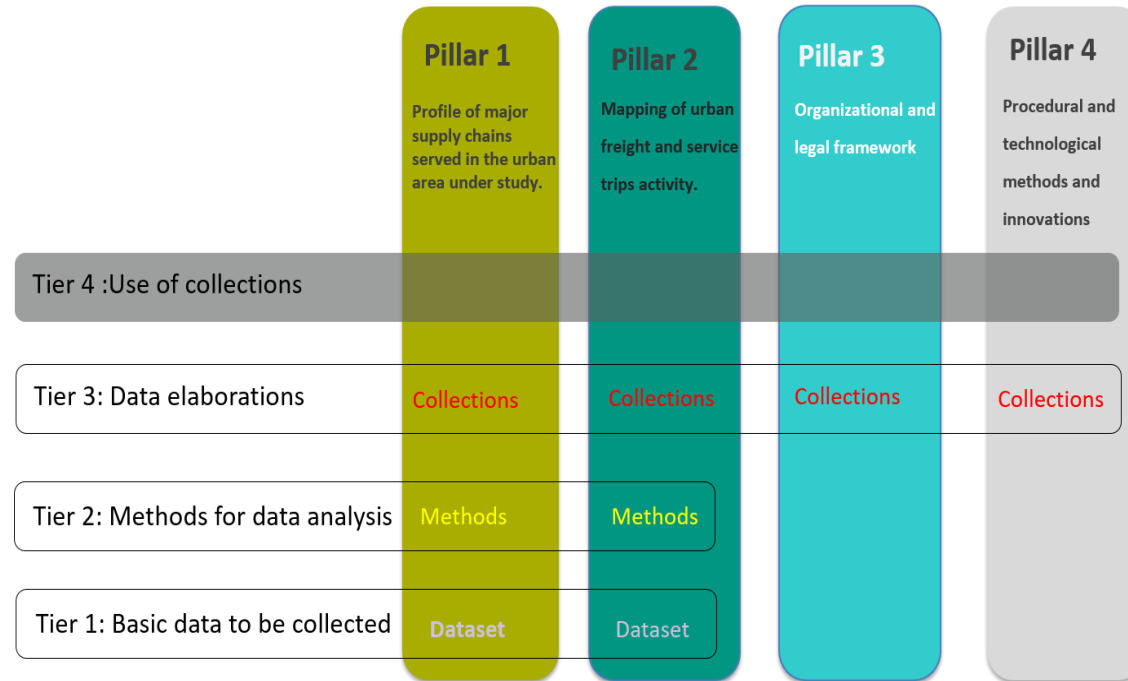
Turin-Italy

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

Set up working structures (II)

✓ Identify the data/information & tools required for identifying the current and future state of city's UFT

1. Confirm in the MSP meeting the tools and data that are available for UFT planning
2. Compare the data proposed in Data Collection Frameworks with your own resources, to identify which further data should be collected.
3. Verify that the working structures and the contribution of each stakeholder involved in the MSP



Pisa-Italy

- RFID gates & passes
- Flow sensors
- Draft SUMP

You may develop Service Level Agreements with different Urban Freight networks/ecosystems:

- With all UFT stakeholders focusing to an Area of intervention for achieving sustainable city logistics (i.e. in city center)
- With some UFT stakeholders representing/serving specific sector for dedicated measures (i.e. super markets, construction logistics etc)
- With all UFT stakeholders for horizontal policies , incentives (i.e. e-vehicles)

How to start working on a strategy?

Analyse the current UFT situation (I)

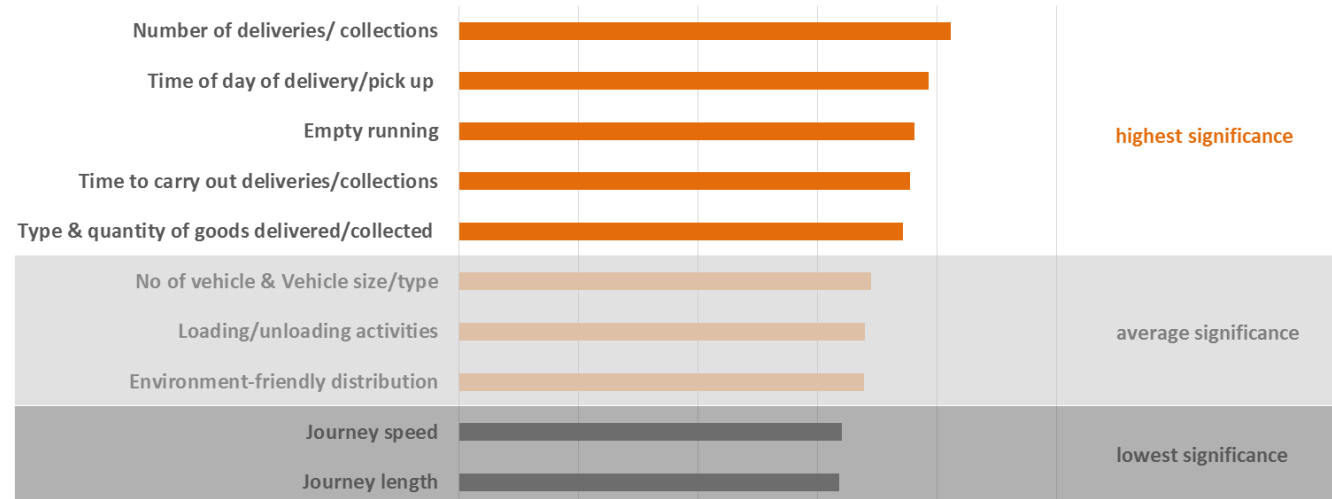
✓ Identify information sources and cooperate with data owners

The majority of the data are private and dedicated surveys are not executed regularly. Additionally, cities are wondering which data and with which method they should be collected and analysed for supporting the planning process for sustainable city logistics.

Recommendations:

1. Use the minimum set of data as proposed here for
2. Engage the transport and logistics industry actors in a regular data provision through MOU process
3. Conduct expert's workshops
4. Use online databases such as: CityLab Observatory

Minimum set of data for understanding a city's UFT



No of cities: 12
No of stakeholders: 174



Don't ask for all data ...
but the minimum set of data for planning & impact assessment

Best Practice in data gathering and use for urban mobility & logistics

European
Network of
Living Labs

A living platform

for testing new technological & innovative solutions for mobility & city logistics

<https://www.smartmlab.imet.gr/index.php>



Transport Observatory

Search and retrieve transportation related content.

Traffic & Routing Management

Provides information about traffic status in a region.
Gives the ability to schedule a route from one point to another by different means of transport.

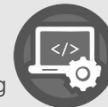


Network modeling and simulation

Provides tools to model and simulate transportation networks.

Application Development & Testing Platform

Enables users to develop and test their own applications using H.I.T. Portal.



Freight routing and logistics fleet management algorithms

Thessaloniki



Strong support by neutral bodies –
HIT/CERTH



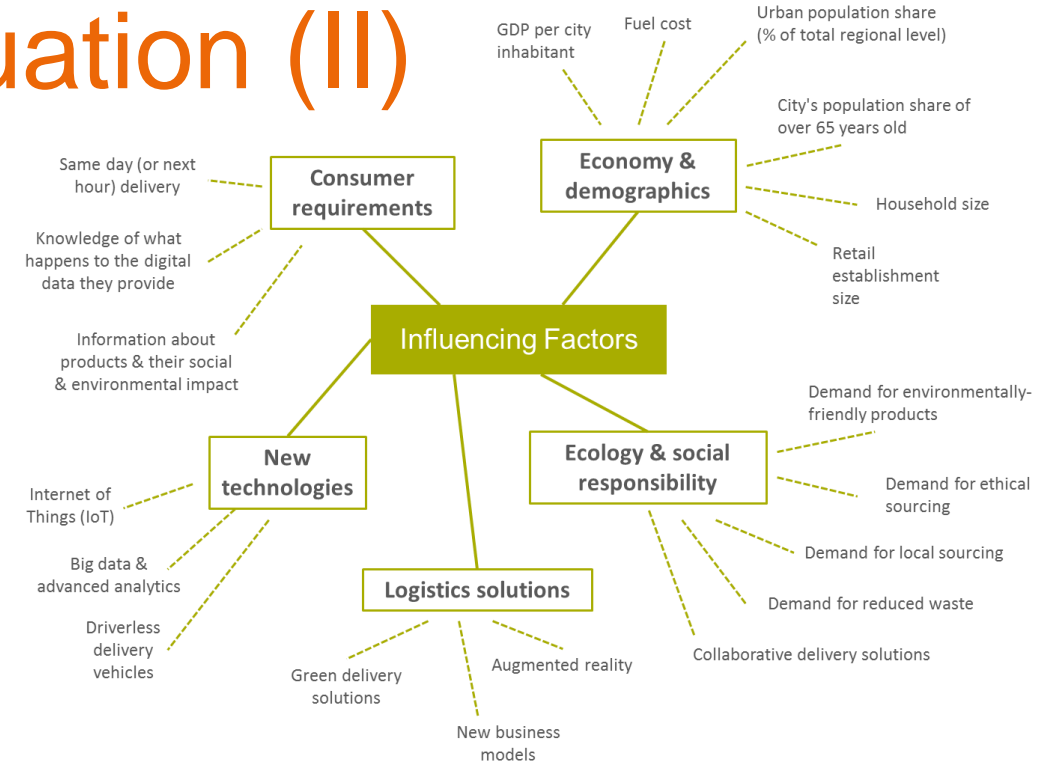
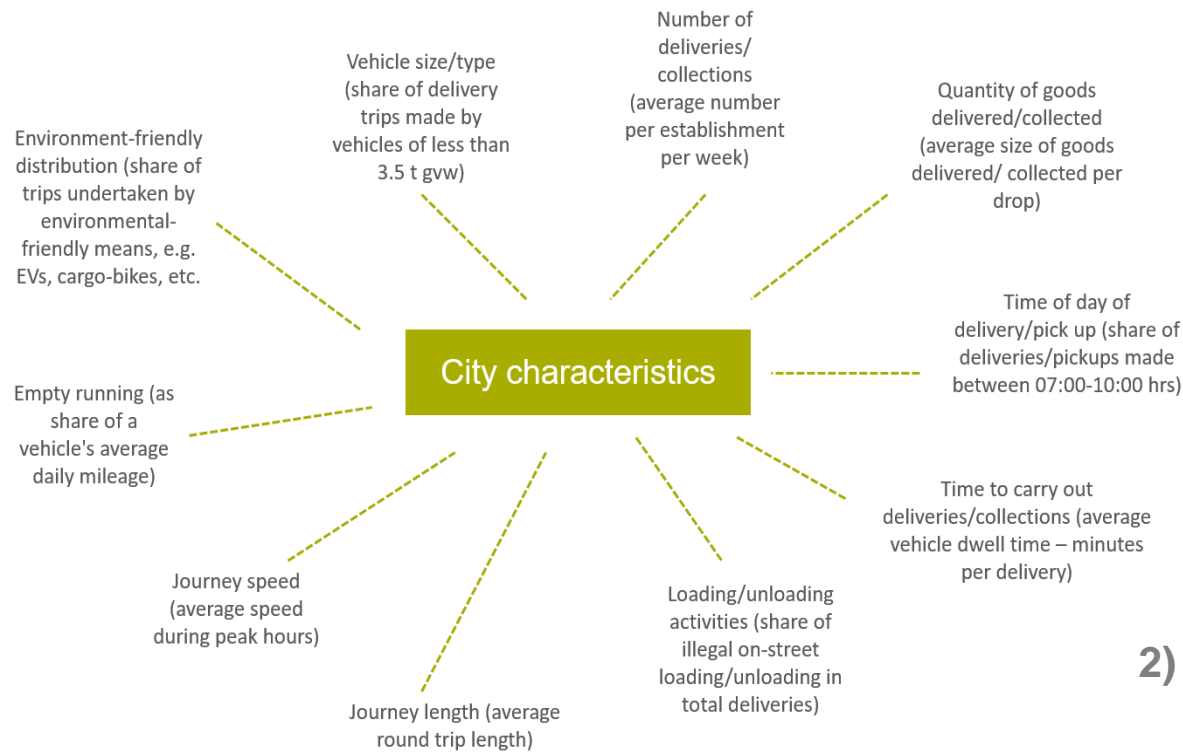
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Analyse the current UFT situation (II)

✓ Analyze problems and opportunities

- Which are the factors influencing UFT?
- Which are my city's main UFT characteristics?



How to formulate the goal of the strategy?

Recommendations:

- 1) Use of consensus building tools such as the UCT of NOVELOG (uct.imet.gr)
- 2) Simulation models & freight generation / freight trip generation models for describing the current and future urban freight transport demand



Define goals & vision meaningful for industry

How to formulate the goal of the strategy?



Turin, Italy

Main factors influencing the city's UFT (in order of significance)

Today	2020	2030
1. Consumer requirements for same day (or next hour) delivery	1. Consumer requirements for same day (or next hour) delivery	1. Consumer requirements for Information about products & their social/ environmental impact
2. Green delivery solutions	2. Internet of Things	2. Internet of Things
3. Fuel cost	3. Fuel cost	3. Green delivery solutions
4. Internet of Things	4. Consumer requirement for knowing what happens to the digital data they provide	4. Consumer requirement for knowing what happens to the digital data they provide
5. Consumer requirement for knowing what happens to the digital data they provide	5. Green delivery solutions	5. Green delivery solutions

The city's main UFT characteristics

	Today	2020	2030
1. Number of deliveries per establishment per week	6-10	± 5%	± 5%
2. Time to carry out deliveries (mins)	5-10	± 5%	± 5%
3. Average size of goods delivered per drop	½ pallet	± 5%	± 5%
4. Share of trips undertaken by environmental-friendly means (EVs, cargo-bikes)	n/a	+5-15%	>15%
5. Empty running	<20%	± 5%	± 5%
6. Average round trip length (kms)	31-40	+5-15%	

Define
ALL TOGETHER
the vision
of your city's
city logistics system.



Expert support

Agree actions & responsibilities in collaborative business models for city logistics

Describe all actions to the MSPs participants

Estimate costs and identify funding sources

1. Adapt the city logistics **Business Model Canvas** for mapping the value of cooperation for the different stakeholders
2. **Revise the cooperative business model** for increasing robustness and resilience of cooperation
3. **Evaluate the Business models**

Consolidation scheme	Customer (offering)	Value proposition	Reduced value proposition	Revenue stream	Cost structure
Urban consolidation centre (UCC)	LSP (UCC services)	Green branding Responsiveness to delivery (due to proximity) Value-added services	Additional fixed costs Additional handling	Subscription model	Existing UCC to be renovated Operational costs
	LSP (EV rental solutions)	Green branding EV rental (and recharging) For receivers – higher availability and therefore convenience	Additional transport costs	Subscription model	Purchase of vehicles and charging system
Micro-consolidation centre (MCC)	LSP (Light goods delivery)	Reduced transport cost Access to restricted area Pick-up point for parcels	Additional handling	Long-term contract with LSP No extra cost to receiver Charged for parcel pick-up	Investment and operational costs for MCC Real estate (provided by municipality)
	(Other) LMO (Bicycle servicing)	Bicycle repair, recharge, City council (Delivery/transport data)	None (additional service)	Per use -	Investment and operational cost for cargobike deliveries ICT fleet management system
Receiver-led consolidation (RLC)	Retailers in shopping (replenishment with consolidated transport)	Delivery flexibility Delivery reliability and punctuality "Basic" transport service cost reduced Value-added services	None	Base service – paid by shopping centre owners Extra services – paid by tenants	Use of existing UCC/warehouse -> no new investment cost Operational costs
Automated locker system (ALS)	LSP (Light goods delivery)	Reduced failed deliveries Reduced costs for transport Access to city Green branding	Extra costs for usage	Pay-per-use charged to LSP	Real estate (fully funded by municipality) Installation of lockers
	Receivers (Light goods delivery)	Reception flexibility Reception accessibility No extra cost	May not fit every receiver due to travelling	None	Operating costs (maintenance, surveillance, energy, ICT system)

- Responsibilities and budget for monitoring and evaluation agreed on
- All actions identified, defined, and described
- Relationships between actions identified
- Financial analysis and financial resources secured
- Timeline defined
- Political support ensured



Agree priorities, responsibilities & timeline

Ensure wide political and public support





Best practices to consider: Indicative examples for industrial innovation

Consolidation & Decentralized Warehousing



La Rochelle, FR: Congestion -8% to -30%

Urban Consolidation Centers

Brussels (BELG), Hassel (BELG), La Rochelle (FR), Brescia (IT), Padova (IT), London (UK), Nijmegen (NL), Oslo (NO)

London, UK: GHG emissions -20% to -50%

Micro-consolidation centres

Tallinn (EE): 30-40% cheaper than home deliveries

Matkahuolto (FI): 34-49% cheaper than home deliveries

Parcel Lockers



Kiev (UKR), Tallinn (EE), Tampere (FI), Bristol (UK), Malmo/Gothenburg (SE), Zagreb (HR), Leuven (BELG)

New Technologies & Automation

Autopilot Robot Vehicles

Cheaper, Faster, Real-time tracking, Environmentally friendly

Cambridge, UK

Drones



-12.8% reduction in energy consumption; +81% fleet energy

Multi-purpose & Flexible Electric Commercial Van

Amsterdam (NL), Utrecht (NL), London (UK)

Padua (IT): +96% environmental quality improvement

Low/ Zero-emission fleets

Electric self-driving pods



Cargo Bikes

Amsterdam, NL: 60% faster deliveries; -90% carbon emissions



Zero-emission boats

Utrecht (NL): -13% CO2 emissions; -10% of PM10; 6% NOx emissions



Utrecht, The Netherlands
Amsterdam, The Netherlands
Venice, Italy

London (UK), Hamburg (DE)
Isle of Portland (UK), Frankfurt (DE), Amsterdam (NL)





Best practices to consider by Public Administration



EU direction



Micro-consolidation centres in multimodal nodes

Valencia (ES): -2.8% GHG emissions

Space management optimization

Padova, IT: -47% to -88% energy consumption; -100% CO2 emissions; -100% air-pollutants

E-PT for Cargo hitching

Crisis Alternative Urban Logistics Plans to be developed locally

Multimodality & Mix distribution of land uses

Smart parking

Kalisz (PL): +66% efficiency; -25% road congestion; +22% growth of safety; 28% of cargo delivered by using the app

Smart Infrastructure & Multimodality

Sensors on street

Resilient Collaborative Planning

LaaS & MaaS

• Region of Macedonia – MaaS app

Communication Infrastructure for enhanced visibility

Logistics and Supply Chain Observatories
Digital Twins

Optimizing potential mix of strategically positioned land (owned by PA) EU direction
- Multi purpose districts

Regulation

Stockholm (SE): -2.7 to 3.6 lt/100km; -8 to 11% less emissions than morning operations

Off peak deliveries

Stockholm (SE): -40% CO₂ emissions
-57% Nox emissions

Night deliveries

Freight Quality Partnerships

Gothenburg (Sweden) regulations validation by goods veh -95%



New SUMP 2.0. Resilient Topic Guide to be published authors of Urban freight Chapter & contributors to ITS Chapter





Key messages for adoption of innovation

Additional policy responses needed for supporting the adoption level of the measure & harnessing innovation

Problems / Obstacles occurred:

- Lack of Inter-departmental coordination for facilitating the implementation and monitoring of the measure
- Major delays due to the Lack of Innovative Procurement processes
- Lack of data availability on urban freight transportation

Need for INNOVATIVE POLICY RESPONSE:

- **Organizational restructuring & capacity building** for managing non-standard procurement procedure to support innovation
- **Organizational restructuring:** re-examine decentralization in the public sector.
- **Innovative public procurement**
- **Including common questions/strategies that cities** could follow to structure their policy response supporting innovative solutions
- **Engaging the stakeholders and cultivating collaboration**



Other policies highlighted by the cities:

- Provision of incentives
- Urban space reallocation
- Public investments for urban traffic data collection



E-course on data-driven policy making by SPROUT will be published by CIVITAS ELEVATE

STAY TUNED!!!



Thank you 😊

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