

# URBAN NODE

## NEW ROLE FOR EUROPEAN LOGISTICS PLATFORMS

Vicente Gavara, ITE



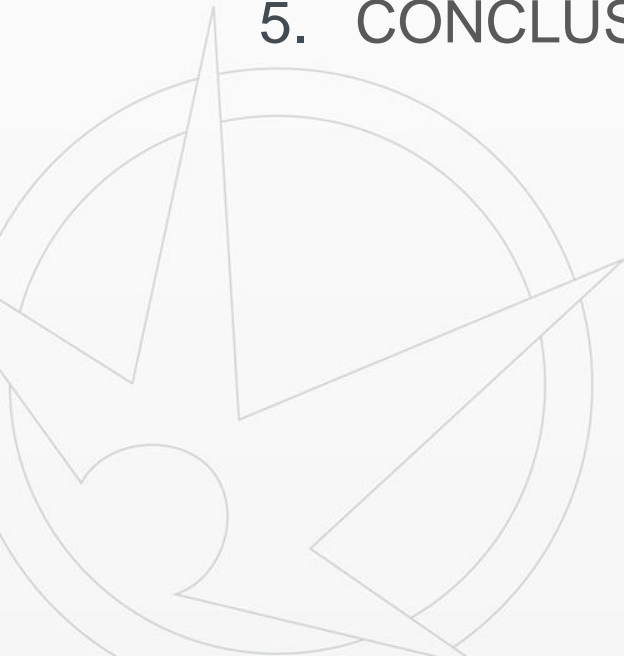
## 1. ABOUT ITE

2. LOGISTICS IN URBAN AREAS

3. STRATEGIES COCKTAIL

4. THE EUROPEAN COMMISSION VISION

5. CONCLUSIONS



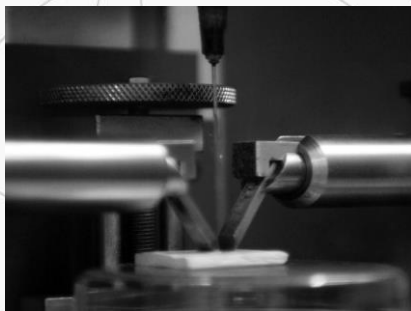
# About ITE



- ITE is a private, non profit Research and Development institute located in Valencia, Spain
- 70-100 workers, 83% investigators
- More than 150 companies associated, more than 1000 customers since its opening in 1994



- Focused on energy solutions, among others sustainable and electric mobility



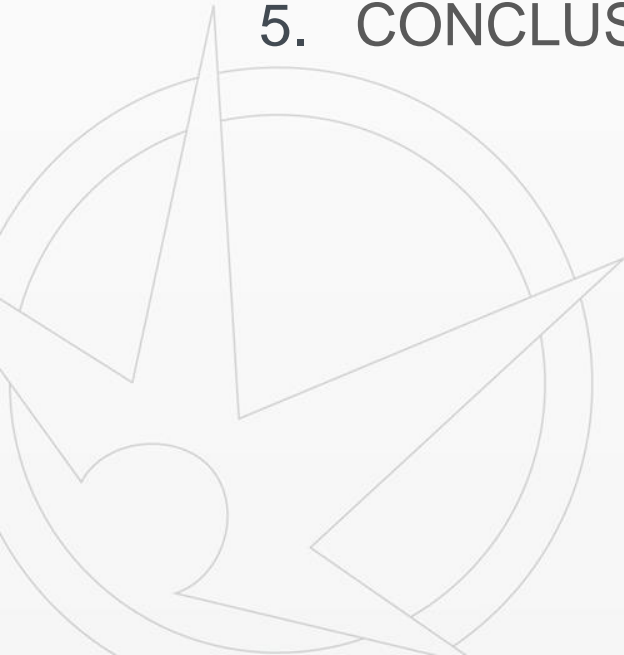
- Services: Technical consulting, research and development, calibration and certification, learning in public and private fields



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# LOGISTICS IN URBAN AREAS

The world is becoming urban: About 52% of population lives in cities, and that amount will grow to 67% by 2050

The most of the traffic is, therefore, located in urban areas: 64% of all travels happens within urban environments

e-Commerce is the fastest-growing driver of urban logistics: urban goods mobility is expected to increase up to 300% by 2050

... what is really cool for logistics companies!



HOWEVER...

European Commission and therefore local Authorities face as a challenge the pollution (gases, noise) reduction, specially in urban areas, what means:

- Less Greenhouse Gases emissions
- Less traffic congestion
- Less noise emissions associated to traffic

# LOGISTICS IN URBAN AREAS

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... and HOWEVER...

- e\_Commerce
- shorter product lifecycles
- streamline reverse logistics (Amazon Returns Center)
- and consumer demand anxiety (today, not tomorrow)

...has increased the delivery complexity, so **new procedures must be developed** in order to keep costs under control while increasing the service levels

# LOGISTICS IN URBAN AREAS



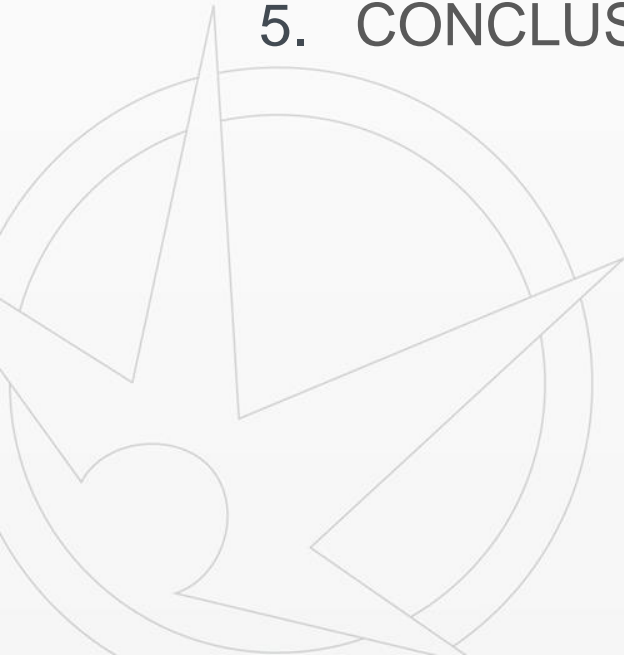
REGULATORY AND LAND PLANNING, INFRASTRUCTURE, FINANCIAL AND TECHNOLOGICAL **STRATEGIES COCKTAIL** MUST BE DEVELOPED IN ORDER TO BOTH SURVIVING AND FINDING NEW BUSINESS OPPORTUNITIES



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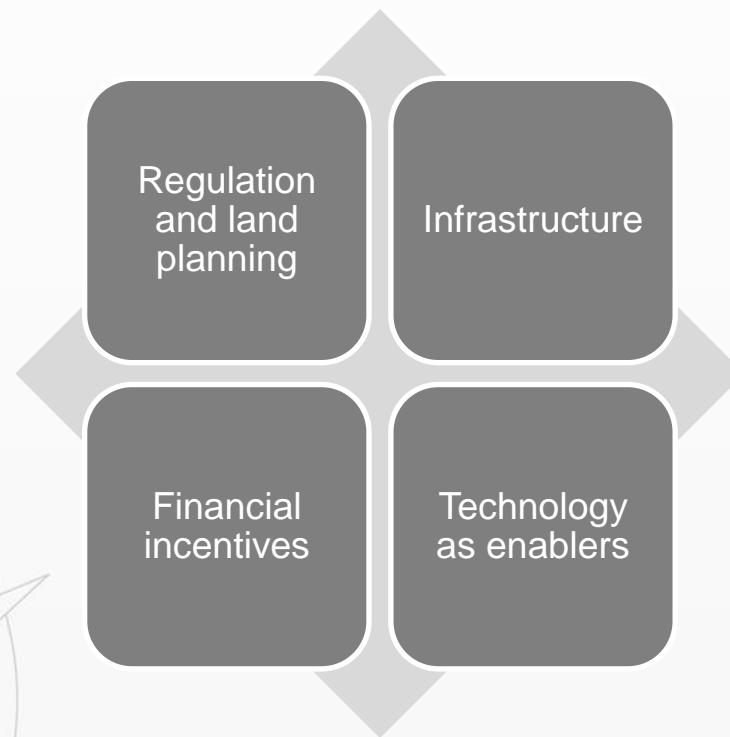
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# STRATEGIES COCKTAIL

A set of measures from different fields are proposed in order to face the challenges in urban freight logistics:



## STRATEGIES COCKTAIL. REGULATION AND LAND PLANNING

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Measures addressed to allow authorities imposing rules and restrictions on the use of urban transportation and land planning

- Restricted access to certain areas, based on vehicle emissions, weight, size, ...
- Time slots for when certain vehicles can circulate
- Exclusivity zones for urban deliveries
- Urban land planning to cluster zones of retail and logistics (for sprawl reduction)



## STRATEGIES COCKTAIL. INFRASTRUCTURE

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Alternative infrastructures can be created or adapted in order to give a better response to the urban freight transport

- Urban distribution centers (UDC) at the edge of the city
- Direct injection from mass transportation means to UDC
- Dedicated parking spaces for logistics trucks loading and unloading
- e-Commerce pickup points



## STRATEGIES COCKTAIL. FINANCIAL INCENTIVES

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Given to urban transportation providers based on supply demand mechanisms for steering their transportation decisions while lowering externalities

- Urban congestion charges in order to reduce traffic in certain areas and hence lowering congestion and reducing air pollution
- Smart fares based on distance traveled in the city, load volume, traffic conditions,...



# STRATEGIES COCKTAIL. TECHNOLOGY SOLUTIONS

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Applying already in the market or near to market solutions in order to meet the challenges previously exposed

1. Robotics and automation
2. Green vehicles
3. Alternative transport means (co-modality) combined with ITC
4. Big data analytics for optimizing freight distribution vs traffic conditions
5. Internet of things for event-driven logistics processes
6. Digital identifiers for smart labels and better traceability
7. Self-driving vehicles
8. Self-learning systems
9. Unmanned aerial vehicles

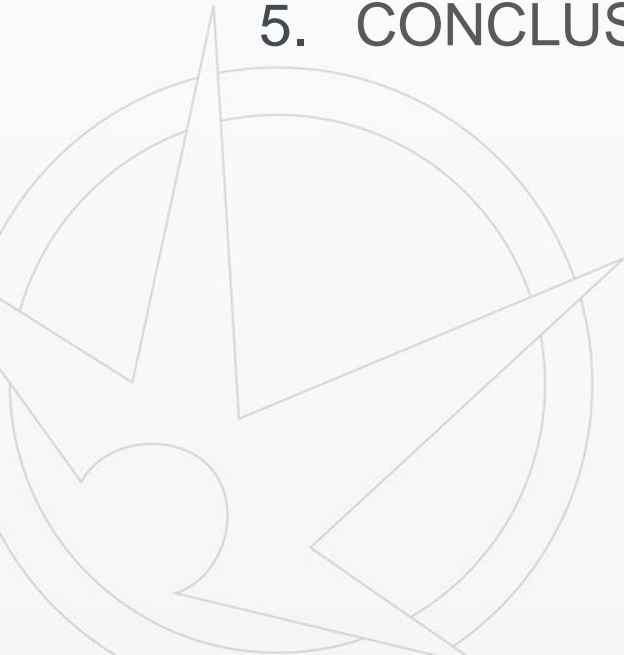
(Sorted by expected time-to-market)



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# THE EUROPEAN COMISSION VISION

## Challenge: **Smart, Green and Integrated Transport**



Objectives bound to that challenge:

1. Respect to the environment by developing a resource efficient tranport
2. Better mobility for people and freight, less congestion, more safety and security
3. Global leadership for the European transport Industry by reinforcing competitiveness and performance of (among others) logistics





# THE EUROPEAN COMISSION VISION

## How do they face the challenge?

- Investing in Research and Investigation in technologies
- Supporting the development of governance (laws) and business models
- Putting all together in demonstrators to evaluate its feasibility



Analyzing what the EC is impulsing is a good way of knowing how to put together all the strategies cocktail ingredients

... but relax, since the matter is really complex just a light overview is enough by now (we have just 30 minutes!!!)



# THE EUROPEAN COMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 1: NETWORKED AND EFFICIENT LOGISTICS CLUSTERS

(MG-5.1-2016)



### CHALLENGE

Reinforcing the role of hubs connecting the Trans-European Freight Transport Networks and last mile delivery by using dedicated vehicles with freight bundling to maximise equipment utilisation

### ISSUES TO BE ADDRESSED (among others)

- Formation of logistics clusters integrating manufacturing (e.g. postponed assembly) and advanced logistics services (e.g. kitting for just in time delivery)
- Development of Modular Load Units for automated, high load handling
- Development of governance and business models
- Optimise environmental performance on logistics clusters



# THE EUROPEAN COMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 1: NETWORKED AND EFFICIENT LOGISTICS CLUSTERS

(MG-5.1-2016)



### EXPECTED IMPACTS (OBJECTIVES)

- Increased added value of hubs and logistics clusters with a much higher impact on local economies
- Less congestion, energy, emissions, carbon footprint, noise and land-use
- Improved door-to-door logistics performance (faster, cheaper and more reliable)
- More efficient goods handling (cost reduction) stimulating multi-modal transport solutions
- Increased inter-modality and higher resilience of the transport system



# THE EUROPEAN COMMISSION VISION. SOME FUNDED TOPICS.

EXAMPLE 2: INNOVATIVE ICT SOLUTIONS FOR FUTURE LOGISTICS OPERATIONS  
(MG-5.2-2017)



## CHALLENGE

Exploiting ICT advances (Internet of Things, Big Data, Satellite navigation...) for planning, booking and executing freight flows

## ISSUES TO BE ADDRESSED (among others)

- Develop algorithms to increase load factors and optimise the route
- Develop real-time exception management for faster traffic reconfiguration and increased resilience...
- ...together with business models for dynamic transport services
- Develop simple, low-cost connection tools that allow integration of SMEs in the supply chain



# THE EUROPEAN COMMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 2: INNOVATIVE ICT SOLUTIONS FOR FUTURE LOGISTICS OPERATIONS (MG-5.2-2017)



### EXPECTED IMPACTS (OBJECTIVES)

- Better, more flexible integration of ICT solutions and operational processes, linking the digital and physical flows.
- Seamless freight transport execution across Member States and modes of transport.
- Increased reliability and reduced transit times.
- Higher load factors and shorter delivery routes resulting in respective reductions in fuel consumption and in lower emissions.
- Viable business models for collaborative and dynamic transport services



# THE EUROPEAN COMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 3: ELECTRIFIED URBAN COMMERCIAL VEHICLES WITH FAST CHARGING INFRASTRUCTURE

(GV-08-2017)



### CHALLENGE

Developing hybrid medium-duty trucks for urban operations together with their charging infrastructure

### ISSUES TO BE ADDRESSED (among others)

- Reducing urban noise and gas pollution by introducing electric medium-duty trucks in, among others, logistics tasks
- Allowing urban and peri-urban operations by allowing on demand electric and conventional driving
- Developing charging infrastructure to allow trucks fully charge their batteries while loading or unloading goods (between 5 and 15 minutes)



# THE EUROPEAN COMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 3: ELECTRIFIED URBAN COMMERCIAL VEHICLES WITH FAST CHARGING INFRASTRUCTURE

(GV-08-2017)



### EXPECTED IMPACTS (OBJECTIVES)

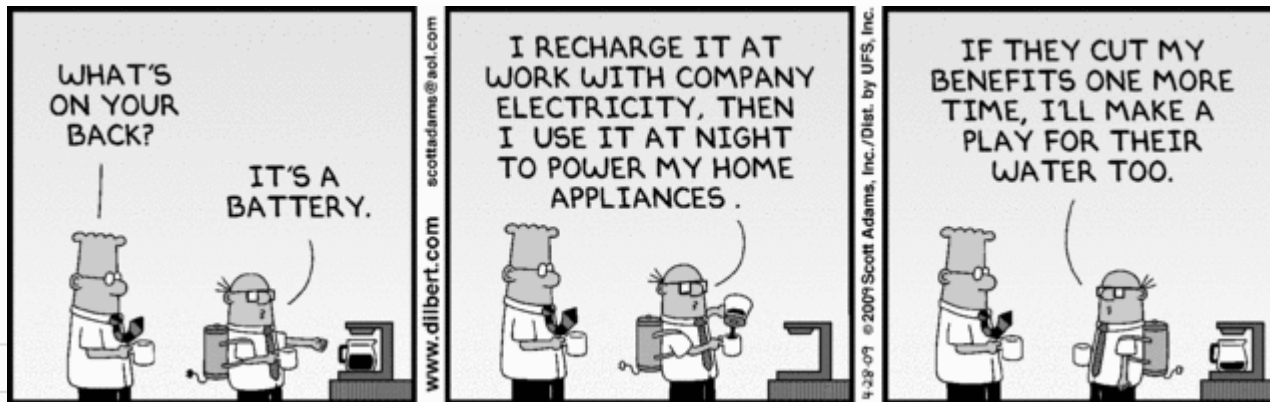
- Less pollution (noise and gases) in urban areas, less greenhouse gases emissions and hence better health conditions for people and the whole planet (global warming)
- Increased driving range for medium-duty trucks, allowing not just urban but peri-urban operations
- Fast (less than 15 minutes) and superfast (less than 5 minutes) battery full charge, enabling oportunistic charging when loading or unloading goods
- Ensuring logistics service availability in urban areas even in case of traffic restrictions due to high pollution levels



# THE EUROPEAN COMISSION VISION. SOME FUNDED TOPICS.

## EXAMPLE 3: ELECTRIFIED URBAN COMMERCIAL VEHICLES WITH FAST CHARGING INFRASTRUCTURE

(GV-08-2017)



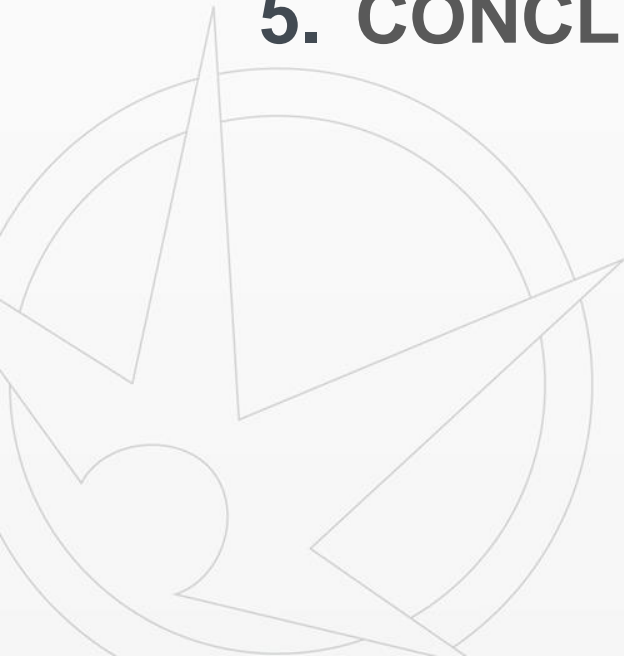
Just the opposite! Allowing e-trucks charging while loading/unloading opens new business opportunities for logistics infrastructures managers



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# CONCLUSIONS

- **Clean emissions (gases, noise) together with traffic optimization** are being imposed by governance
- **e-Commerce and new customer consuming habits** imposes new challenges to logistics in urban areas
- **Not a single solution but a combination of them** (technological, regulatory, financial,...) must be applied in order to overcome the challenge
- **New business opportunities** arises:
  - **Urban distribution hubs and multimodal/multiactor last-mile delivery** emerge as new trends and, therefore, promising business opportunities
  - Use of **(peri) urban electric vehicles** with opportunistic (load-unload) charging open the door to new business models for the logistics hubs managers
- **European Commission, national and local policies** (and therefore funding lines) are aligned with the above facts

# CONCLUSIONS



New challenges must be faced! Emerging revisited solutions are enablers to successfully convert the challenges in successful business opportunities.

(i.e. don't follow the Dilbert's way)

Thanks for your attention  
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