SUGAR
The trends of City Logistics: learning from past experiments

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Agenda

- ***City Logistics trends***

- So.Nor.A Project: Business Case Emilia-Romagna

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City logistics: an open problem (1)

The issue of sustainable urban mobility has not yet find effective solutions

Italian major metropolitan cities have still significant pollution problems: the press these days, tells us of increasing traffic blocking rules or introducing of "no traffic zone" in large portions of the historic centers, etc..


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SABATO 10 dicembre 2011 | Aggiornato alle 18:03 | Meteo | Il mio comune | Il mio oroscopo

SMOG

Milano, secondo giorno di blocco: ma il Pm10 risale

CRONACA | Nonostante le auto ferme dalle 10 alle 18, polveri oltre la soglia Di' la tua

Metrò preso d'assalto ■ I commercianti: «Un massacro»

in times of austerity budget (tax rises and spending cuts), it should be noted that a rigorous ENEA's research of some years ago (still current), estimated the total cost of externalities related to urban mobility in about 49 billion/year (pollution, congestion, accidents, noise, global warming)


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Sei in: Repubblica Bologna / Cronaca / La città sotto una cappa di smog ...

AMBIENTE

La città sotto una cappa di smog
Errani convoca i Comuni a rischio

Dopo Milano e Roma, anche l'aria di Bologna preoccupa amministratori e cittadini. Legambiente: "Stop a tutte le auto". L'Arpa: "Servono limitazioni". Il sindaco di San Lazzaro parte prima con i divieti di circolazione

di BEPPE PERSICHELLA

Si respira male in città. Colpa delle polveri sottili, che hanno largamente superato la soglia massima. E colpa della pioggia, che manca da settimane. Sono infatti 18 i giorni consecutivi di sforamento delle Pm 10. In alcuni casi la concentrazione ha raggiunto il doppio del valore consentito. Una situazione difficile, che ha costretto l'Emilia Romagna a convocare urgentemente per lunedì prossimo tutti i comuni che hanno sottoscritto i provvedimenti per la qualità dell'aria, compresa Bologna (in città, dopo le vacanze natalizie, arriveranno i giovedì senz'auto).

<u>30% of this cost was due to freight transport</u>, which, however, is responsible for <u>almost 50% of the only air pollution total cost</u> (due to particulate).

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City logistics: an open problem (2)

Any effective and stable solution for these problems have not been yet identified:

- **Many of the City Logistics projects are still experimental and are also often characterized by a strictly local approach**
- **Bibliographic analysis developed as part of the initial activities of the "Business Case Emilia-Romagna" of So.Nor.A. project shows that many of the City Logistics projects developed in Europe in recent years have generally been defined successful**
- **However, only 25% of them are still active, while the remaining 75% ended without having become operational**

if it was successful why it hasn't been implemented?

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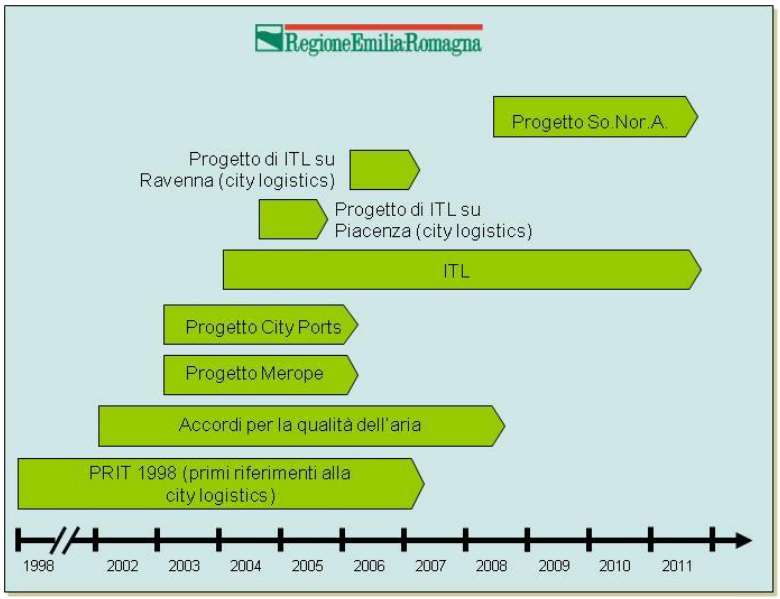
Experiences of the Emilia-Romagna

The Emilia Romagna region was among the first in Italy, about 10 years ago, to address the issue of sustainable logistics, developing its policy actions on territorial mobility through projects, regulatory interventions, program agreements, support measures, etc..

Since 2002, SCS Azioninnova has been technical partner of the Emilia-Romagna and the Institute for Transport and Logistics in some important projects of City Logistics.



Starting from these experiences, I would give my contribution to the solution of the problem, explaining what they taught me and what I learned from them.

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First concept: The system should be regulated

The concept which should be placed at the base of any intervention on the sustainability of urban logistics is that in the current market structure of transport logistics, the provider and the customer define the value of their transaction (for example the cost of transport) without taking into account the externalities transferred to the community

It is therefore a market distorted because much of the cost of the process, is largely eluded

In this condition, if we don't bring out the external costs, rebalancing the market, no project will ever have of City Logistics economic consistency.

The fundamental role of public administration is therefore:

- **not to replace the actors of the process and to transfer their costs to itself (that is becoming, directly or indirectly, logistics provider)**
- **but to operate as a regulator to balance the system, defining the rules that make sustainability of transport system more economically compatible**

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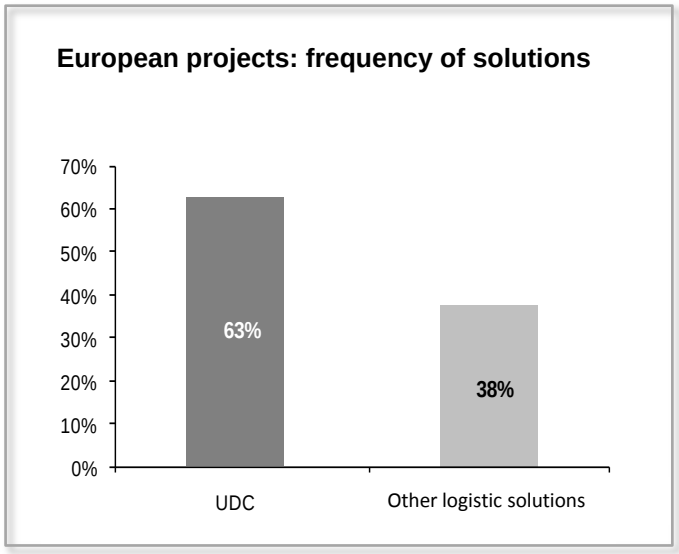
2nd concept: The integrated solution (1/2)

By analyzing several City Logistics projects developed in Europe and in Italy, we see that they are often focused on the use of a single action lever, giving simplistic answers to this problem and then often only theoretical

For example, the introduction of UDC (often public) results to be the solution most widely used. But that solution often result also:

- **expensive, because it duplicates existing infrastructure in the territory**
- **with limited effectiveness, because it is often inadequate in many supply chains (eg: perishable goods)**
- **inefficient, compared to many of the specialized provider which it aims to replace**
- **economically unsustainable, because it breaks up the supply chain, increasing costs and process time**



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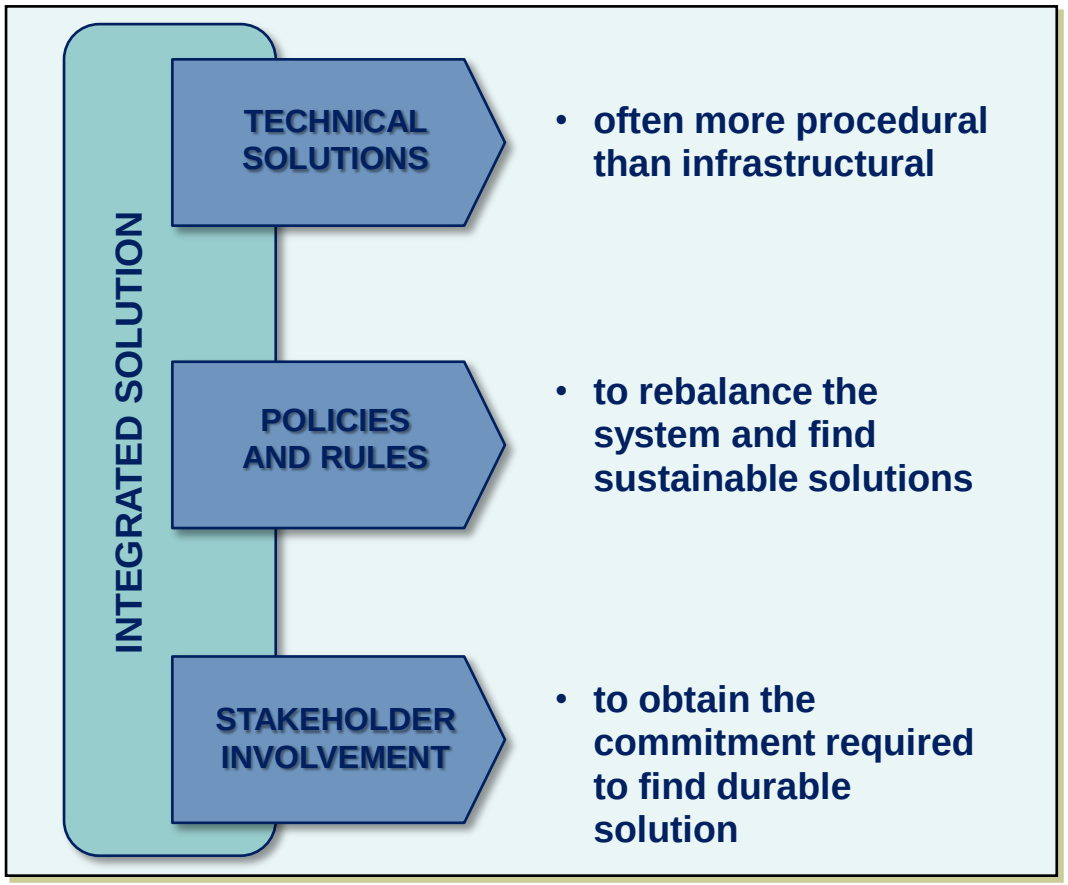
2nd concept: The integrated solution (2/2)

To complex problems, such as those of urban logistics, has to be given answers that integrate several levers of action:



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3rd concept: The limits of local approach

It is certainly true that the municipalities are now responsible authorities for the government of the transport processes developed in urban areas. But it is also true that, in a local perspective, we cannot handle supply chains and logistics processes that always have wider territorial size

The decision makers of logistics solutions are often outside the Municipality	**The Local Authorities are able to interact only with the addresses of goods (shopkeepers, etc.) which, however, often do not coincide with the decision makers of logistics solutions**
Often the big players are not involved	**The local focus of interventions restricts the possibility of involving operators at national or international level (both for their wider territorial approach and for the "distance" from the center of decision)** **So we look only to small local operators, which are often the cause of the problem and not the solution**
Different Municipality can take on different solutions, "not coherent" with each other	**This leads to operational difficulties for large operators within regional scale (eg: a not coherent management of schedules between two cities may make difficult to plan routes touching both cities)**
Difficult to translate into economic benefits possible logistics benefits	**Municipalities cannot translate any logistics benefits into economic benefits for the citizens (in terms of advantages in freight costs, etc..) and often, the further "break" in the supply chain produces overcosts**

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4th concept: Rewarding logistic efficiency

The public administration approach the problem by regulating access to their infrastructures basically referring only to the objective characteristics of the vehicles and not to the sustainability of processes and to the behaviors of the operators.

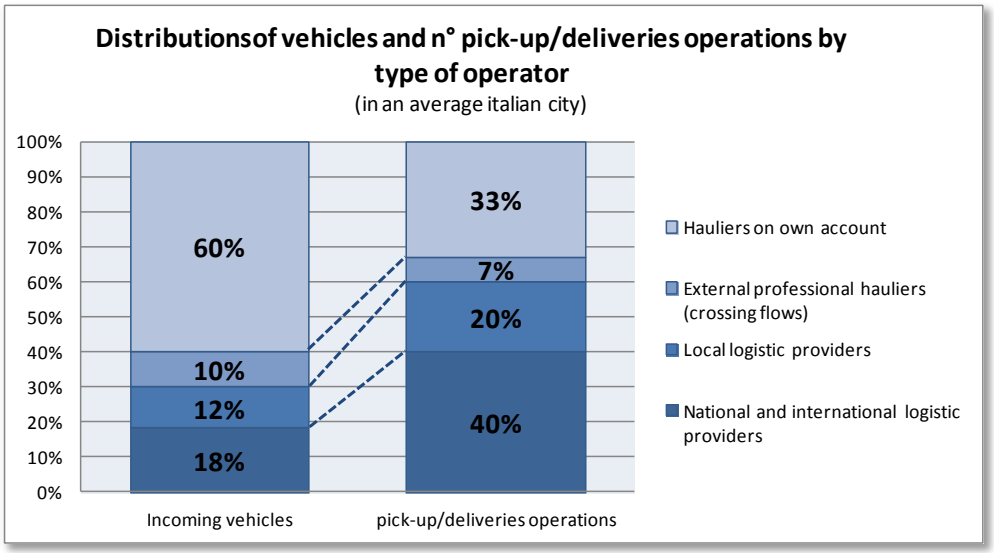
This often leads to <u>putting the same restrictions to all operators</u>: the result is an inadequate filter to congestion and to make processes even more inefficient

<u>The logistic effectiveness is always a factor coherent with sustainability</u>

The comparison highlights the low efficiency of "hauliers on own account" (even 20 times lower than big providers)

A Confetra's research shows that approximately 56% of transport up to 50km is made by "hauliers for own account"

An ITL's research shows that is attributable to "hauliers on own account" also the great growth of short-range transport flows in Emilia-Romagna region (+22% between 2000 and 2006)



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Agenda

- City Logistics trends

- ***So.Nor.A Project: Business Case Emilia-Romagna***

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So.Nor.A Project: Business Case Emilia-Romagna

Starting from these assumptions,
as part of the So.Nor.A. project,
has been launched, the business case "Emilia-Romagna":
the impact of the first and last mile in the City Logistics Process

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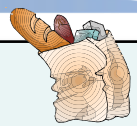
SO.NOR.A Output– Aims and goals

THE «OLD LOCAL» APPROACH

- Public and private entities make their decisions about transports and logistic using different territorial scales
- The missing link between first and last mile in the value chain of production impacts efficiency of transnational corridors

LOCAL PUBLIC ADMINISTRATIONS

Have a local vision of the issues (often at «municipal» level)



LOGISTICS & RETAIL PRIVATE OPERATORS

Have a global vision on a wider territorial scale; they manage complex logistic networks

THE «NEW WIDE» APPROACH

- Based on a wider territorial scale, in order to overcome the "last mile" concept which often used to brake the value chain of production
- Based on a strong relationship between Public and Private Operators in order to have a «win-win» situation about finding solutions

"PUBLIC – PRIVATE" PARTNERSHIP

- The Output aims to promote an integrated approach between Private Operators and Public Administrations within a National/Transnationa context

NEW LOGISTICS & RETAIL SCENARIOS

- Have the capabilities to "anticipate the issues" in terms of understanding the new trend of the logistic and retaili scenarios

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SO.NOR.A – General approach

THE BUSINESS CASE IS STRUCTURED INTO THREE ACTIVITIES

Mapping of critical issues	Thematic Boards	Testing
▪ Identification of the actors involved and of the critical issues related to the distribution of goods within urban areas	▪ Setting up a thematic debate board between public and private actors, in order to evaluate critical issues and find shared answers	▪ Pilot projects to test the detected solutions ▪ Feedback and evaluation of the results of the pilot projects

In-depth planning examinations organized in three fields of work:

Goals for activities of comparison:

NETWORKS ORGANISATION	▪ Organisation and framework of distribution and logistical networks	▪ To verify the consistencies/ ties existing between the organization of complex logistical networks (on a widespread urban *level)* and the perspective of the urban distribution of goods ▪ To share the specific trends of their own sectors ▪ To promote the Local Administrations understanding the operative planning models applied by the private operators
PROCESSES	▪ Operative processes and support instruments	▪ To verify the consistencies/ ties existing between the processes of planning and management of complex logistical networks (on a widespread urban *level)* and the perspective of the urban distribution of goods ▪ To promote the understanding of the impacts of the administrative measures on the activities done by the logistical and distributive operators
ADMINISTRATIVE MEASURES	▪ Rules and other actions to be made by Local Administration for the distribution of goods within urban areas	▪ To make operative planning, simulation and evaluation instruments available for partners .These instruments need to be consistent with the administrative measures used for the urban distribution of goods ▪ To identify comparison and negotiation modes among Local Administrations in the perspective of a management of the first and last mile on a wider territorial scale

SO.NOR.A – The solutions found

Two main streams have been investigated to find the solutions to be tested via a Business Case

A
THE HARMONIZATION OF THE ACCESS TIME SLOTS IN CITY CENTRE

- **Experimenting such a solution in the historical city centers of some pilot municipalities, on the basis of a structure which is consistent with the need for efficiency and sustainability of services and the limitation of congestion and pollution.**

B
THE INTRODUCTION OF AN ACCREDIDATION PROCESS TO PROMOTE «GOOD PRACTICES»

- **Introduction of systems, with homogeneous criteria and rules, that let the Public Administration to pre-select operators with "sustainable" characteristics, in order to give them less restrictive/more favorable conditions to access the City Centre (pilot case to be run shortly);**

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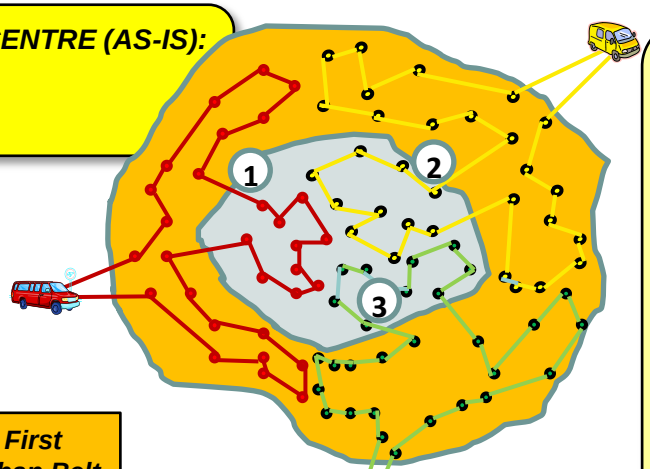
SO.NOR.A – Harmonization of access time slot (1/2)

REGGIO EMILIA PILOT

- The Business case aims to evaluate the benefit deriving from the enlargement and harmonization of the access time slot to the city centre
- The benefit for the logistic operator are not in terms of fleet reduction, since the number of vehicles which serve the city centre is limited (three), so that is not possible to save fraction of a vehicle
- On the other hand the re-organization of the routes which can be made with the enlargement and harmonization of the access time slot, reduces the number of physical access to the City Centre of vehicles dedicated both to the First City Belt and City Centre, with the following results:
  - Reduction of pollution and congestion in the City Centre
  - Optimization of the routing system of the logistic operator

ACCESS TOCITY CENTRE (AS-IS):
- *10.00 – 12.00*
- *16.00 -18.00*



City Centre

First Urban Belt

- Numbers of vehicles of the Logistic Operator working in the City Centre → 3
- Average stop / route in the City Centre → 60 (40 deliveries – 30 in the morning and 10 in the afternoon + 20 pick ups)
- Average time spent for one stop → 8 minutes in the City Centre, 6 in the remaining Urban Area
- Number of vehicles requested → the morning time slot (120 minutes) forces the logistic operator to use at least 2 vehicles (30 deliveries x 8minute = 240 minutes). *As a consequence the routing system is designed to have vehicles dedicated both to the City Centre and the First Belt*

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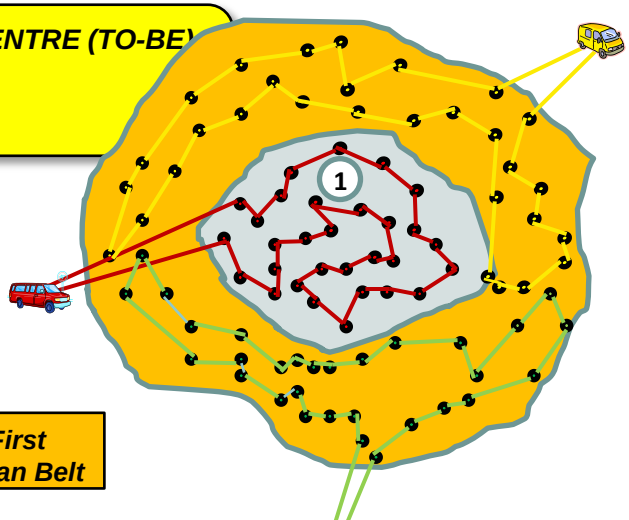
SO.NOR.A – Harmonization of access time slot (2/2)

REGGIO EMILIA PILOT

- The firsts results of business case pilot underline that:
  - Number of access to the City Center decrease from 3 to 1
  - Optimization of routes by the logistic operator :
    - one vehicle fully dedicate to the City Centre (RED VEHICLE has 60 stops x 8 minutes = 8hours)
    - 2 vehicles dedicated 6 hours per day to the First Urban Belt (GREEN AND YELLOW VEHICLE HAVE 60 stops x 6 minutes= 6hours)

ACCESS TOCITY CENTRE (TO-BE)
- ***8.00 – 12.00***
- ***14.00 -18.00***



City Centre

First Urban Belt

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SO.NOR.A – The accreditation system (1/4)

The general aim of an accreditation system, coherent with the needs for regulation and management of City Logistics processes, is to introduce homogeneous rules and criteria.
These criteria should let the Public Administrations pre-select the professional operators of road transport, and of distribution of goods in the first and last urban mile. These operators should be able to respect predefined conditions of efficiency and sustainability of their own organization managing processes and technological and functional equipments. In particular, operators wich:

- **Respect organizational-managerial, technological and operational (vehicles and systems) parameters of efficiency and sustainability in the processes of distribution of goods in the first and last urban mile;**
- **Have adequate infrastructures for the consolidation of the loads;**
- **Adopt behaviors and processes coherent with the needs of best management for the public infrastructures (streets and car parks), and for the best control/reduction of pollution and congestion;**
- **Provide the Public Authority with the back-office information necessary to monitor and regulate the system**

In order to allow the Public Administration to understand which players are most efficient and give them rules of access and parking less restrictive in comparison to operators that have unsustainable processes.

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SO.NOR.A – The accreditation system (2/4)

Assumptions:

- **The homogeneous accreditation criteria of the whole referred territory (not only in the municipal field) are essential for every operator working on a wider scale (for example, the big operators of the Parcel and Retail supply chain). They need to operate in a context with certain rules that allow them to reliably plan their investments for the car fleet updating.**
- **A "control room" for both the Public Administration and the private operators, that defines:**
  - **potential routes of preferential access for the more sensitive LTAs, in order to reduce the congestion and speed up operations: (less congestion, less consumption and less emissions);**
  - **preferential conditions to park in areas with insufficient endowment of pickup and delivery parking lots;**
  - **sensitive areas on which specific solutions can be studied in collaboration with accredited operators**
  - **support solutions for the operators who don't have the requested qualities for accreditation (study and offer of specific services like "van sharing" or the "taxi for goods")**
- **Wider time slots for the accredited parties: in particular it is essential for them to access during the following time slots: 6-12 (deliveries on the Parcel and Retail supply chain) and 15-18 (pick-ups for the Parcel supply chain)**

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SO.NOR.A – The accreditation system (3/4)

Characteristics	Parameters
▪ stable practicality at a wide local level	Logistical network articulated at a regional level Local operating headquarters Regular clients in the field of reference
▪ efficiency of operations and processes	Saturation of vehicles: -number of stops per route(number of clients served per trip/day by only one vehicle) -average replenishment of vehicles(weight/volume) Presence of planning and organizational processes for the routes Presence of processes that control the fleet Availability of infrastructure for the consolidation of loads
▪ sustainability of the fleet	Endowment of (at least) Euro 4 vehicles Endowment of low impact vehicles for sensitive areas (bi-fuel, hybrids, etc.) Endowment of vehicles with a size which is adequate to the urban area they are serving (not too big)

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SO.NOR.A – The accreditation system (4/4)

Qualification levels

Level	Operational characteristics	Territorial field	Access and parking conditions	Duration
A. Operators of distribution with articulated teritorial and logistical networks	- Stable efficiency in a widespread local territory (with at least a regional logistical network with a hub in the region) - Stable local presence (operative headquarters or clients) - High operating efficiency - High efficiency in processes(management systems for controlling routes and vehicles) - Adequate car flleet (euro/low impact)	Regional accreditation	• Conditions of maximum efficiency (hours of access) in the whole regional field • Preferential conditions for parking and/or parking lots dedicated to the loading/unloading in the whole regional field	Long duration (semestral or annual)
B. Operators of distribution with logistical local networks	- Stable local presence (operative headquarters or clients in municipal /provincial field) - Good operating efficiency (high in local field) - Good efficiency in processes (management systems for controlling routes and vehicles) - Adequate car fleet (euro/low impact) - Willingness to manage the last mile in favor of the non-accredited operators (note: the courier services explicitly expressed no interest in the management of transport for the third party operators)	Local/community accreditation	• Conditions of maximum efficiency (hours of access) in the whole municipal field • Preferential conditions for parking and/or car parks dedicated to the loading/unloading in the whole municipal field	Long duration (semestral or annual)
C. Local operators of transport endowed with an adequate car fleet	- Stable local presence (operative headquarters or clients in municipal /provincial field) - Adequate car fleet (euro/low impact)	Local/community accreditation	• Ample access opportunities in the LTAs with limitations during high traffic times • Parking lots dedicated to the loading/unloading in the whole municipal field	Long duration (semestral or annual)
D. Not accreditable operators	- Operators occasionally in transit on the local territory (not A) - Discontinuous distribution/transport activity - Unfit car fleet	Granting of municipal permits	• Temporary access and parking permits • Time slots for limited access • Offer of delivery services from accredited operators	Short lived permits: daily or weekly

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SO.NOR.A – Foreseen impacts

Advantages for the community and the PA	Advantages for the Private Operators
• Significant reduction of congestion (reduction of number of local circulating vehicles and cross traffic) • Significant reduction of pollution(a better accredited operators' efficiency leads to lower consumption and emissions;) • Low costs for the management of access and for the investments in technology control • Cancellation of investments in logistics (the accredited operators can offer services to the community, overcoming the necessity of the public building permits) • The Municipal Administration can adopt measures of intervention that are more incisive (e.g. road pricing, limitations on parking, actions against inefficient operators) thanks to the agreements made on a widespread territorial level)	• The accredited operators will benefit in profitable conditions for access and parking, proportional to the level of efficiency and eco-compatibility of their car fleet • Clear and homogeneous regulatory benchmarks in order to plan investments on low impact infrastructures and means of transport; • Greater operative efficiency to follow the fall in congestion and the ideal parking conditions; • Involvement with the PA in the study of solutions for the support of non-accredited parties

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