

IMPACTS
7th ANNUAL CONFERENCE
Urban Policies dealing with "Two legs", Two wheels"Mobility
BARCELONA, Spain 23-23 February 2003

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**Experimentation with electrical delivery-tricycles for the final stages
of deliveries within the central districts of Paris.**

CONTEXT

In Paris goods movements take up almost 12% of road space. This percentage increases in central districts of the capital at rush hour times when the final stages of goods delivery operations saturate major traffic routes, over-run pavements, generate a considerable amount of pollution (discharge of pollutants, noise--) and are responsible for nearly 50% of gasoil consumption.

In this context, the City of Paris has put an experiment into operation which aims at widespread use of electrical delivery-tricycles for the final stages of goods deliveries in central districts.

This experimentation aims at displaying how in Paris, the goods sector can develop towards innovative and enduring organisation and techniques.

The City of Paris has taken the initiative of setting -up this demonstration by

- financing a feasibility study,
- reserving a logistical support space in the centre of Paris,
- guaranteeing the follow-up and evaluation of the experimentation.

Working access to the service connected to this experiment is to be granted to a body acting as the economic factor, through a call for applications.

The Electrical Transporter-Tricycle

The features of electrically-assisted delivery- tricycles are:

Vehicle Dimension:: 225 by 99 cm.-Cost of delivery-tricycle:2500 € net.

Load capacity-100 k.g. or Maximum Volume-450 l

Speed-20 km/h with ease (optimum yield with a load under 80kg.. the average speed per run is estimated at 12km/h approx.)

Autonomy:20km. (100 km. envisaged between now and 2003), could possibly carry a spare battery, thus an autonomy of 40 km., enough for 7 hours of deliveries.Recharge time:1h30.

Authorised Access: standard road network;cycle lanes;bus lanes



Taking into account its load capacity, its reliability, its compactness and its pro-environmental attributes, the electrically-assisted transporter tricycle would seem to be a technically ideal solution in a populous urban milieu, for the short distances represented by the final stages of delivery

Logistically-Supported Urban Space

For the duration of the experiment, the City of Paris has set aside a space measuring 600 squ.m. situated on the first basement floor of the Saint-Germain l'Auxerrois Car Park in the 1st. district. This space will accommodate the parking area for the delivery tricycles, the maintenance workshop, the secretarial and switchboard premises, a conveniences area for the delivery drivers and a transit and dispatch bay

These premises will be made available to a body acting as the economic factor chosen from a call to applicants and for a duration of two years, as for a subsidised rent, in order to carry out the final stages of deliveries with the assistance of delivery tricycles in the central districts of Paris.

The Final Stages of Deliveries in the Central Districts of Paris

Whatever the articles delivered, two significant and logistically different modes of operation in the main are observable, to ensure the final stages of delivery.

- Delivery departing from neighbourhood commercial outlets
- Delivery departing from platforms or depots set-up for a series of group operations or offshoots of groups.

The delivery market for electrical delivery -tricycles could be constituted from a fairly vast panoply of goods. Certain targets are given priority:

- food products
- flowers
- non-food products and servicing products
- express freight and parcel delivery.

The Provision of Planned Services

To arrive at these different targets and best satisfy their needs, plans have been made to set up several delivery services dependent on precise modes of organisation.

- Delivery runs for neighbourhood commercial outlets
- Delivery service from a particular shop whose vehicle and driver have been designated to them full-time
- Delivery from a logistically-supported base, relaying international parcel delivery, cyber markets and express freight operations.

The three established services combined will allow for approximately 5,500 monthly deliveries.

The Commercial Rapidity of Delivery Tricycles and Lighterage Span in the Central Districts

The "cycle"s status in keeping with the Highway Code, lets the delivery tricycle, on a par with bicycles, make use of all roadways reserved for this type of vehicle, (cycle roads and bus lanes in particular).

The commercial rapidity of delivery tricycles as seen in the central districts is around 13km/h for an express freight type of service and 15km/h for a home delivery service from the large stores.

For the delivery run formula, the target in terms of the viability of the experiment is to make about 10 deliveries per day and per delivery tricycle within a 7 hour time -period. We can therefore estimate the main lighterage span as covering the 1st. to 6th. districts and 8th. to 10th. districts in entirety and half of the 7th. and 11th. districts (the half nearest the centre).

For parcel delivery, the lighterage span needs to be limited to the zone of access within a 13 minute time limit as from the operational platform situated in the 1st. district, and so the 1st. to 4th. districts as a priority.

Setting the Sales Prices for the Different Services

In order to fix a sales price for the different provisions; we based our prices on those noted for other sorts of transporter and those of the shops running home deliveries; These sales prices in order to be both competitive and ensure the experiment's economic viability and that of the firm handling the service, will have to be around 10 Euros net per run and 2 800 ₣ net / month for the tailor-made service .

The Legal Status of a Firm Employing Electrical Delivery Tricycles for the Delivery of Goods

Analyses have revealed that according **to the services offered** by the firms specialising in electrically-assisted delivery tricycles, **two types of contract** exist which can on the one hand be designated as **a transport contract** and on the other **as a hiring of vehicle and driver contract**.

Besides this, the handler of produce-delivery and particularly of goods under temperature controls will have to be in possession of an agreement certificate delivered by the Agricultural Ministry.

The Targets and Sample Area

To launch the experiment, the sample area of targeted commerce outlets has been drawn-up covering the first 4 districts.

The number of possible targets in the first 4 districts amounts to **470 shops**. Amongst these, 96 have been tested, which is a survey sample of around 20% of which:

- all of the department stores, popular stores and large groceries of over 300sq m. in order to offer them a tailor-made service (21 establishments) ;
- 75 other neighbourhood commercial outlets in order to offer them a delivery-run service

- The Delivery-Run Service

62% of tradespeople surveyed showed a certain interest in the offer and that represents 270 commercial outlets interested in the entire service;
90 commercial outlets willing to use the service at a price rate of 10 ₣ when it is introduced.

- The Tailor-Made Service

For firms whether belonging to the food products sector, servicing articles or parcel dispatch, **tests in real conditions will need to clarify the feasibility and viability** of the project (in terms of the volume of deliveries made compared to those made by a motorised vehicle).

Nevertheless, according to the statement, if tests are conclusive, **reasonable objectives to be reached will be as follows:**

For the end of the first term of handling

- a parcel-dispatch firm: 2 delivery- tricycles on a full-time basis
- a food supermarket: 2 delivery -tricycles.

For the end of the second term of handling:

- a second parcel-dispatch firm: 1 to 2 delivery- tricycles on a full-time basis
- a second food supermarket: 2 supplementary delivery tricycles
- a shop with servicing equipment: 1 delivery- tricycle.

Conclusion

The project devoted to putting a home delivery service into operation in the central districts of Paris, using electrical tricycles, is entirely in keeping with the City of Paris's Mobility Policy. Its non-polluting , noiseless , compact and efficient aspects, render it an original alternative, which not only provides a solution to the concerns of collective living on a local level, but also to the needs of commerce and firms in the sector concerned.

If the further analyses of the feasibility study are taken into account, the launching of the experiment seems entirely realistic, with a starting date for carrying it out, to be set for the beginning of April, 2003.