



The Florence transit point: a feasibility study*

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Abstract

This paper illustrates a feasibility study aimed at: analysing the actual city logistics in the Limited Traffic Area of Florence; evaluating to what extent the Transit Point solution could optimize parcel delivery and its repercussions on traffic flow in the historic centre of Florence; identifying a suitable location for Transit Point infrastructures, and examining economic and normative aspects of the proposal.

Particular attention has been given to assessing the economic sustainability of the Transit Point, under the hypothesis that areas, infrastructures and vehicles will be publicly financed, and that the Transit Point will have to find the resources to remunerate the new company through the reduction of vehicles and workers. A model for corporate governance for the Transit Point has also been proposed, in addition to a model of planning and control for proper accountability.

The study demonstrates that the realization of the Transit Point would allow for: a reduction in traffic congestion in the historic centre; attainment of a positive EBIT through public financing of the structures; a continuance of the service without changing transport or remuneration costs; an improvement of the working conditions.

Keywords: Business plan; Environmental impact; City logistic; Goods delivery; Performance measurement system; Traffic congestion; Transit point.

Introduction

The Transit Point is one of the projects under the “Strategic Plan for the Florentine Metropolitan Area”.¹ The plan includes the creation of a “Transit Point” platform (Figure 1) where non perishable goods would be delivered and then loaded onto methane-powered (or electric) vehicles for distribution to shops, offices, hotels, etc. in the historic centre of the city.

The crucial aspects of the project are:

*Although this is the result of a group research project, paragraphs 2, 4 and 5 are written by Massimiliano Bonacchi; the other paragraphs are written by Fabio Benini e Luca Mattesini; Introduction and conclusion are attributed to all three authors.

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¹ The “Strategic Plan” is a new instrument for territory management, described as the local governments' answer to all their new needs related to globalization.

1. creating a hub for goods exchange (Marchisio, 2002) where parcels destined to the centre of Florence are picked up and delivered;
2. using vehicles with low (methane) or no (electric) environmental impact;
3. optimizing the routes so that vehicles travel the shortest possible distances, and avoid covering the same road several times.

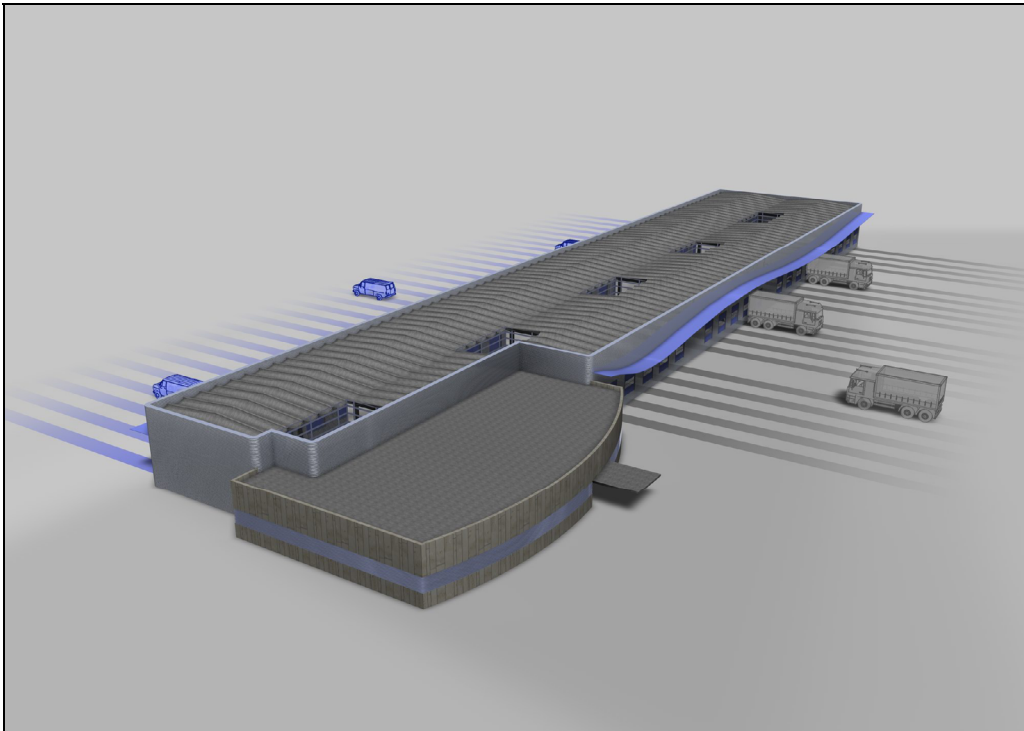


Figure 1: Florence Transit Point.

Through this project, the Municipality of Florence is determined to improve the system of urban transportation of goods.² For this reason, a “Comitato Promotore” (Sponsor Committee) was constituted in 2003, formed by the Municipality and Province of Florence, the Chamber of Commerce, and the associations of couriers and traders. The objective of the “Comitato Promotore” was to promote a feasibility study for the Transit Point.³

In this context we have formalized a feasibility plan in order for the “Comitato Promotore” to evaluate the methods through which the Transit Point will meet the aforementioned goals. It focuses on:

1. analysis of the *present situation* and possible *alternative solutions* that could be implemented in order to achieve the goals set forth by local government;
2. *regulation* aspects: the analysis of the competition regulations that influence the Transit Point management;

² On the issue of urban transport of goods see: Burlando (2003); Da Rios – Gattuso (2003); Malgieri – Galli (2002); Patier (2002); Santos (2002).

³ The study was conducted between September 2003 and May 2004 by I2T3 staff. Three departments of the University of Florence were involved in this study: the Department of Business Administration, the Department of Statistics and the Department of Engineering.

3. *corporate governance* aspects: the analysis of laws regulating the company structure;
4. *data analysis*: number of goods, shop timetables, number of vehicles, delivery time, location for the platform;
5. *economic* aspects: the development of a business plan that shows the economic sustainability of the Transit Point.
6. *performance measurement system* to demonstrate (ex-ante) and guarantee (ex-post) that the project could unite economic result with environmental and social performance.

1. Analysis of the present situation and possible alternative solutions

The current system of urban transportation of goods in Florence, as in many other Italian cities, causes a great deal of dissatisfaction for everyone involved. While the “last mile” of the logistic chain remains a low priority for the delivery companies, they continue to complain about the extra costs associated with accessing the historic centre. In fact, most delivery companies choose to outsource Limited Traffic Area (LTA) deliveries to truck-owner-operators. These operators work in extremely unfavourable conditions, and are poorly paid. Not only must they assume the responsibility of obtaining the proper permits for entrance into the LTA, they also have to negotiate the narrow streets of Florence that make stopping and unloading almost impossible. In addition, many delivery workers also run the risk of violating traffic laws, due to time restrictions on entrance. The shopkeepers we included in this study also expressed discontent with the current system due to incompatibility between shop opening hours and delivery times. Finally, inhabitants and tourists regularly complain about traffic congestion and atmospheric and acoustic pollution in the historic centre.

Given this situation, we began our study taking into consideration two specific issues:

- the delivery of non perishable goods;
- goods delivery to the historic centre of Florence (LTA) via the Transit Point.

Supplying the city of Florence with all of the goods necessary for daily operations is an undertaking too vast to be solved by a single solution for reorganization. Therefore, we restricted our research to the specific aspect of delivery and distribution of non perishable goods, which not only adversely affects the most delicate area of the city (the historic centre), but also allows us to direct our attention to a specific group of operators: the courier companies and their delivery personnel. We chose this aspect for two reasons: the delivery of non perishable goods does not call for the use of specific vehicles such as refrigerated trucks, and it is easier to manage administratively, since such goods are tangible and limited by size and weight.

On any given day, one store may receive two or three parcels of limited weight from two or three different courier companies. Of course, this means that two or three trucks travel the same route during the course of one day. A more favourable solution, then, would be for one delivery worker to make the complete delivery, at one time, and with one truck.

The pollution caused by the prolonged amount of time that delivery vehicles move within the historic centre, and the traffic congestion due to their stops for unloading make it clear that the current system for parcel delivery in Florence is no longer sustainable. In recent years we have observed a reduction in the dimensions of the parcels being delivered, together with an increase in total number of parcels. Should this trend continue, we can expect a total collapse of the delivery system within the historic centre of Florence.

We concentrated our attention on the historic centre as it represents the weakest link in the logistic chain – the last mile. As such, we studied a sample of courier companies who regularly make deliveries in the LTA, and found the historic centre to be an increasingly inconvenient destination, because of the problems already addressed.

To alleviate the above mentioned difficulties, the Municipality of Florence proposed a Transit Point to improve effectiveness and efficiency within the system of urban transportation of goods.

Improvements in effectiveness are related to:

- a reduction of atmospheric and acoustic pollution;
- an alleviation of traffic congestion due to fewer vehicles making stops in the historic centre, with a consequent improvement in vehicular and pedestrian circulation;
- a satisfaction of the Transit Point workers due to a collective union contract;
- an increase in satisfaction of merchants who will receive goods in a single delivery, at predefined times, and from only one delivery worker.

Improvements in efficiency are related to (Figure 2):

- a reduction of the total number of circulating vehicles in the historic centre;
- a reduction in delivery time through dividing the historic centre into more distinct “delivery areas” than are currently used by the couriers, and grouping deliveries by these;
- an elimination of vehicles that travel at low capacity.

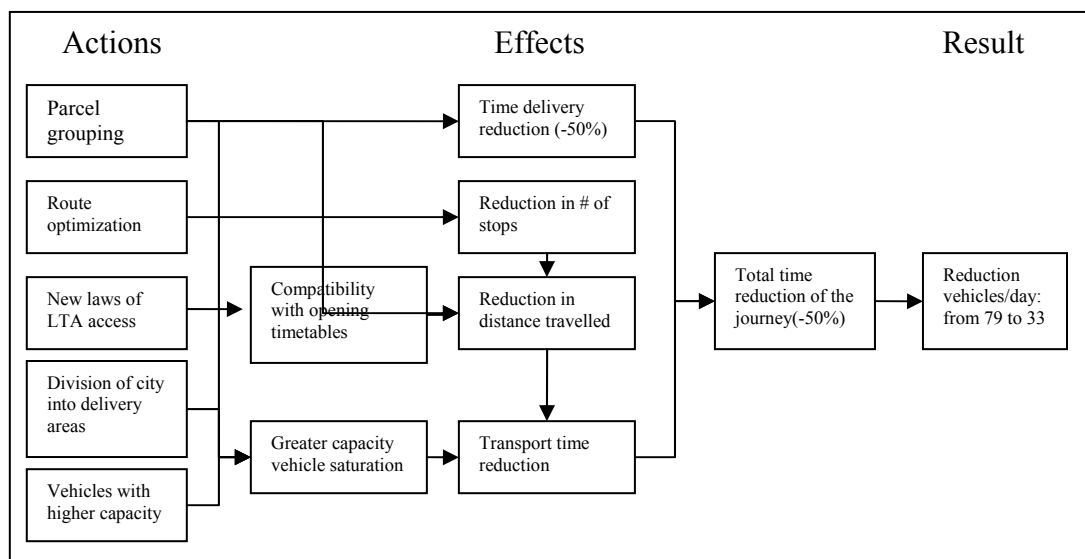


Figure 2: Transit Point efficiencies.

During the development of the current study a proposal for a “Virtual Transit Point” was considered to reduce the amount of the investment necessary. This solution would not require a physical platform where parcels are delivered, but would still include the introduction of new vehicles with low/no environmental impact with which the deliveries are made. The workers would pick up goods from a hub, where they would be grouped according to delivery destination. They would then be assigned to specific areas of the historic centre, in order to avoid multiple vehicles in the same Limited Traffic Area. It is obvious that this proposal would save money, as the construction of the platform would not be necessary. However, for it to function properly, the entire system of communication between delivery companies and workers would need to be computerized, which at this point seems close to impossible. In fact, each delivery company we interviewed for this study adopts a different method for tracking and registering deliveries. Those companies who still rely on paper for registering, for example, would be left out of the virtual solution. Given the diversity of the delivery methods currently used, and the incompatibility between them, we consider the “Virtual Transit Point” not to be feasible.

In support of the Transit Point proposal, we can look at other Italian cities where such platforms are in place and functioning: Genova, Vicenza, Padova, Ferrara, and Siena. Of course, each of these cities has its own particular characteristics, so the Transit Points in place do differ slightly from city to city. However, the underlying idea remains the same in each case: a new and sustainable model for delivery and distribution of goods into the historic centre. Inhabitants in all of these cities have observed an increase in the quality of life in the historic centre, without any alteration to the standards by which goods are being delivered. In addition, the cost related repercussions have been minimal to the operators within the system.

2. Regulation and corporate governance aspects

This project would require that the infrastructure, vehicles, and software are paid for by local government. As a result, the Transit Point would be regulated in accordance with the art. 113 of the Testo Unico Enti Locali⁴ - TUEL - (Local Government Law) as it would be considered a public service. It is very important to use TUEL as a reference, because we need to ensure that competition rules are respected. In any case, local government will not be able to prohibit the delivery of goods into the historic centre by couriers who do not use the Transit Point. However, the municipality can impose regulations on entrance that must be adhered to in order for access to be granted (size limits, time windows, and emission standards).

Regarding the corporate governance issue, the aim is to separate the planning and control functions from those related to business operation. The following model is proposed to reach these goals by:

- creating a company that owns the infrastructure (plants, vehicles, equipment), called *Transit Point Patrimonio* (TPp), whose shareholders are: the Municipality

⁴ Decreto Legislativo 18 agosto 2000 n. 267.

and Province of Florence, Tuscany Region, and Chamber of Commerce of Florence;

- choosing an entity called *Transit Point Gestione* (TPg), through tender contract, that manages the service in accordance with current norms in public service contracts.

This model aims to maintain the political and institutional responsibilities of the local government separated from the entrepreneurial management of the private entity (Borgonovi, 2003).

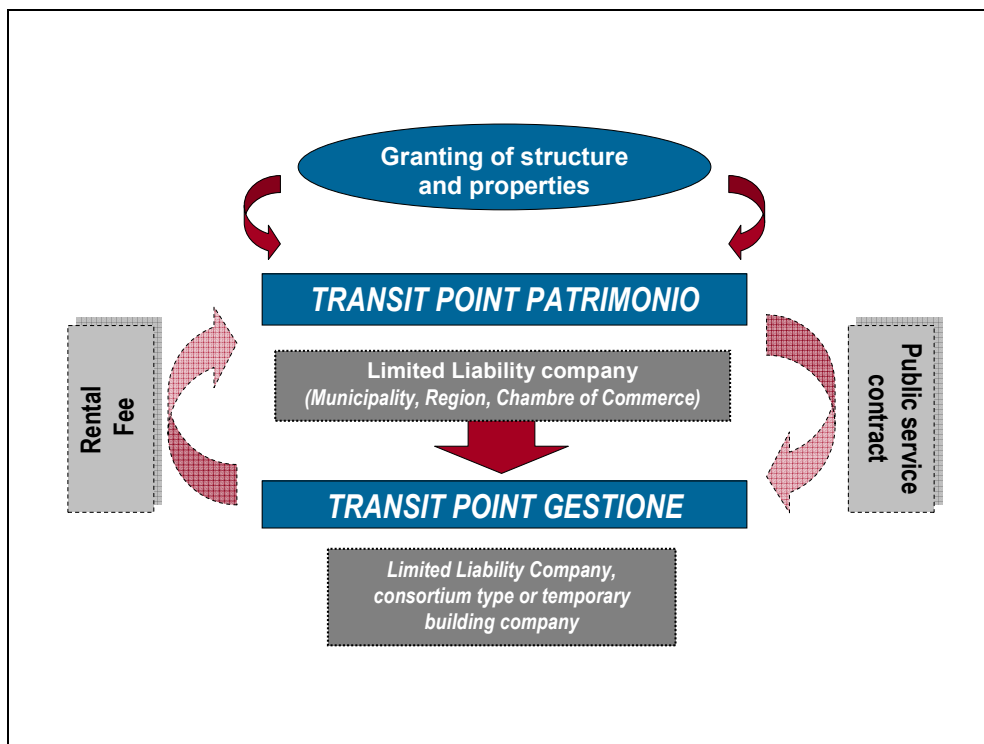


Figure 3: Transit Point corporate governance.

To give the opportunity to the “Comitato Promotore” to participate in the planning and control activities, the corporate structure of the Transit Point Patrimonio must be formed as a *dualistic model* (Figure 4). Following such a model, the shareholders’ meetings would be attended by public subjects (local government, province, region, chamber of commerce). The shareholders would then designate a *surveillance council* that would guarantee participation in surveillance to the promoters by including members of the “Comitato Promotore” into the council. The *surveillance council* has the crucial role of appointing the board of directors and approving the financial statement. The board of directors will have the responsibility of managing the enterprise.

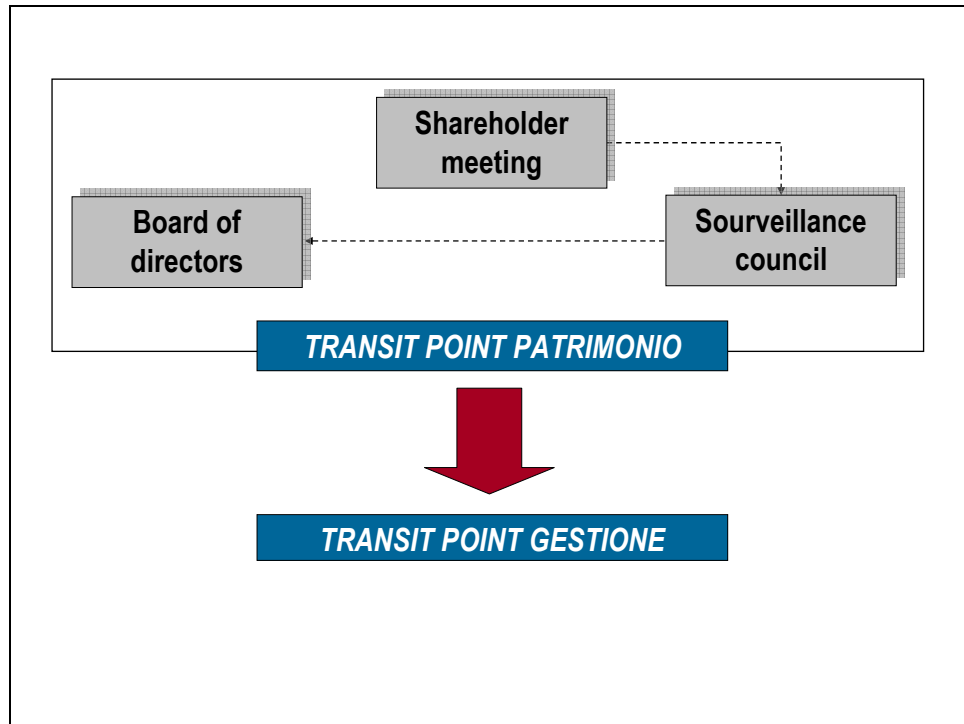


Figure 4: dualistic model.

3. Data analysis

In order to analyze the operating modalities and the amount of circulating goods in the LTA of Florence, a series of interviews were conducted with shopkeepers and delivery companies in cooperation with the Statistics Department of the University of Florence.

Specifically, between November 2003 and February 2004, we interviewed 444 shopkeepers in the historic center, divided by type of business, conducted second interviews with shopkeepers that have peak periods in February, and mapped all (120) the courier companies who regularly make deliveries in the LTA and interviewed a sample of 30.

The results of the data analysis gave us specific information about: shop timetables, delivery times, availability/accessibility of loading and unloading areas, trend of parcel flow, use of shop vehicles, courier numbers, parcel numbers, and location for the Transit Point.

a. shop timetables

From data we received, we can see that almost 56% of the interviewed shops open for business between 9am and 10am. This figure rises to 66% if we look at the hours between 8 a.m. and 10 a.m.

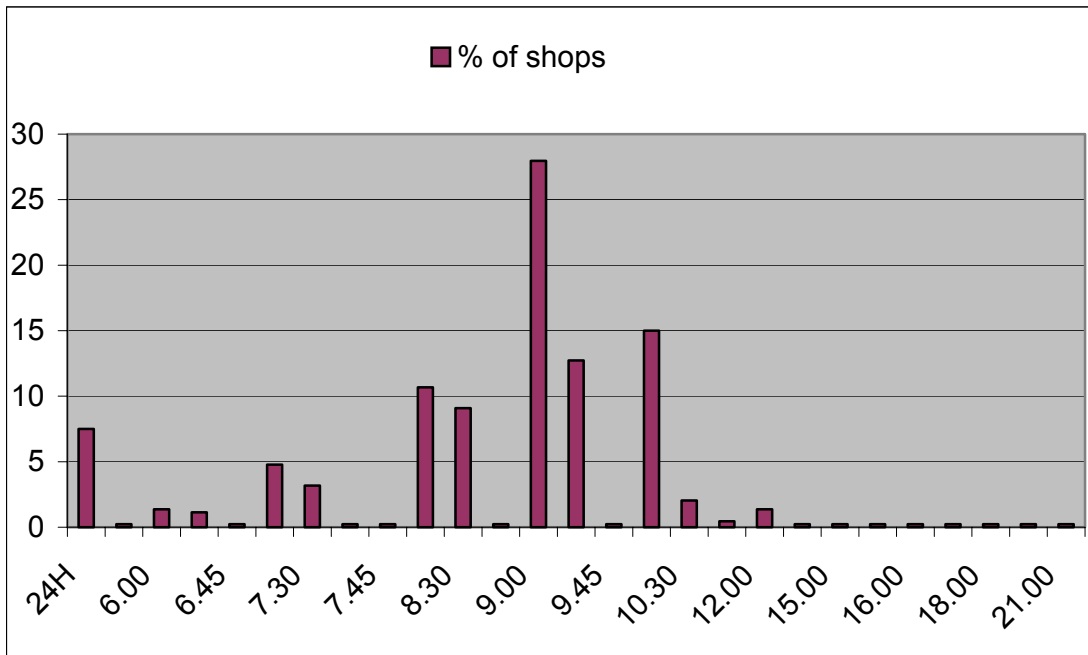


Figure 5: opening hours.
Source: I2T3 (2004).

The opening timetables have been geographically referenced as shown in Figure 6. In analyzing Figure 6, we can observe that in only one area of the city (*Oltrarno*) do most shops open at the same time. This may be because there is a higher concentration of artisan shops in this area than in other parts of the city. Opening timetables, then, are more generally dependant on the type of business conducted, and not on the location of the shop.

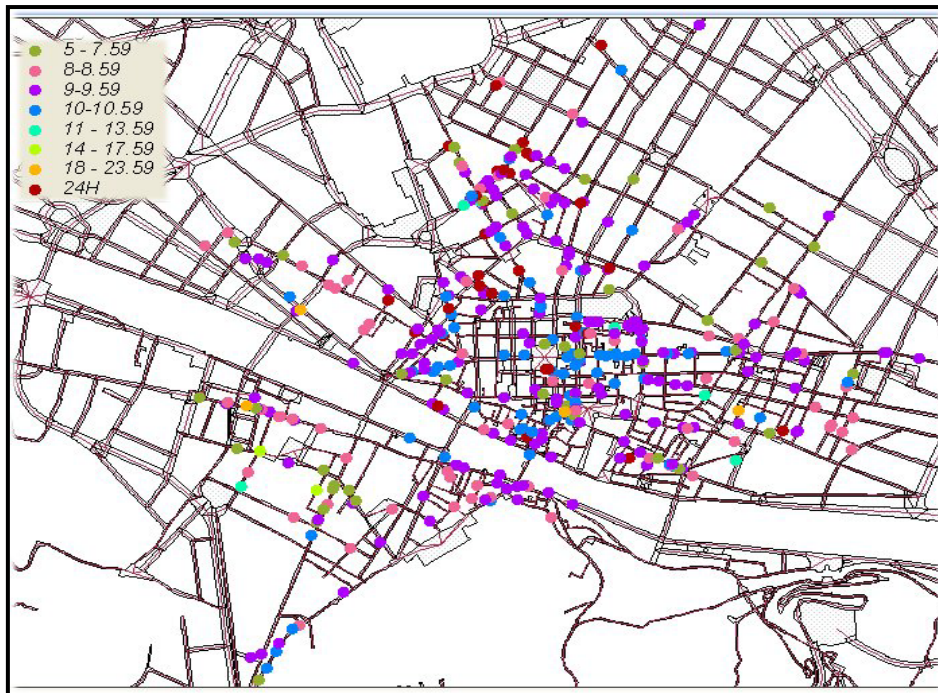


Figure 6: shop opening timetable geographically referenced.
Source: I2T3 (2004).

b. delivery time

During our investigation, delivery vehicles were legally permitted to load and unload goods in the LTA until 10am (Figure 7).

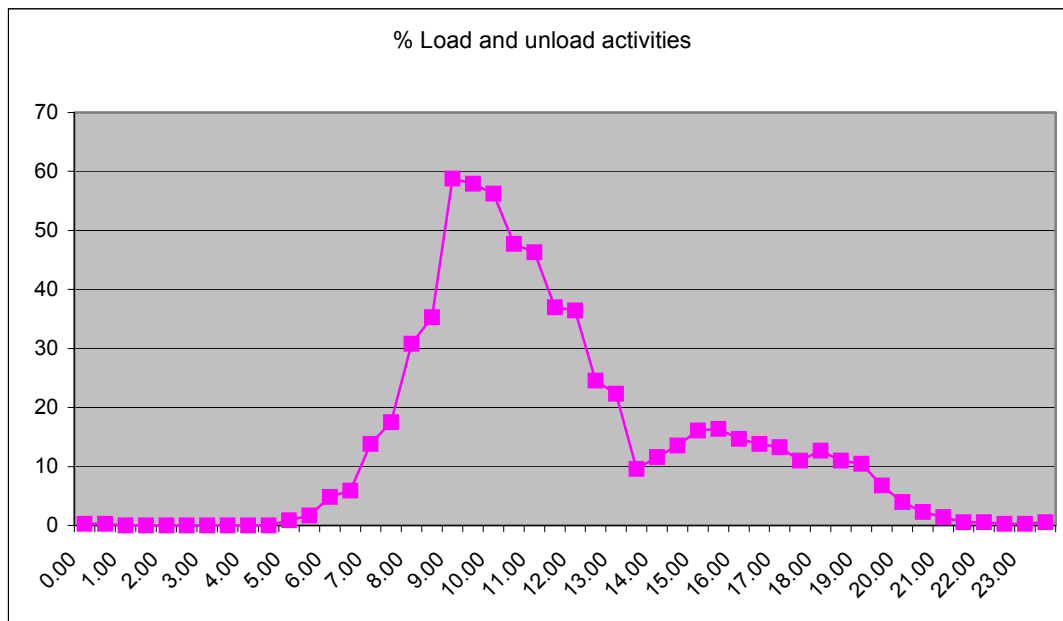


Figure 7: loading and unloading activities.

Source: I2T3 (2004).

From this figure, we observe that deliveries are highly concentrated between 9 a.m. and 10 a.m. However, it is important to recognize that deliveries continued (illegally) even after 10 a.m. They taper off to a minimum between 1 p.m. and 2 p.m., when most shops are closed for the lunch break.

c. availability/accessibility of loading and unloading areas

An important aspect which significantly affects the service of goods distribution is the availability of loading and unloading areas. The investigation results show that more than 87% of the businesses interviewed do not have such an area in proximity to the point of sale. This information turns out to be even more negative if one considers that the few existing areas are often occupied by private vehicles, making the unloading of goods difficult, and forcing the delivery workers to increase the number of kilometres travelled and time spent looking for an alternate area to stop.

d. trend of parcel flow

As was mentioned earlier, in the month of February a supplemental investigation with the shopkeepers was conducted, in order to verify the number of parcels received by looking at the delivery receipts. This was done to understand the influence of delivery peak periods on the total flow of goods. We did this because during the first

investigation it appeared that about 41% of the businesses were presenting some seasonal peak (prevalently two peak periods).

Table 1: % of shops with peaks.

<i>N° of peak</i>	<i>% of shops with peak</i>
1	39,13
2	58,69
3	1,63
4	0,54

Source: I2T3 (2004).

This information determines a non-constant flow of goods which strongly affects those shopkeepers who have seasonal goods, and who completely replace the goods they make available. Such a phenomenon determines a swinging trend of flow, as illustrated in the following diagram (Figure 8).

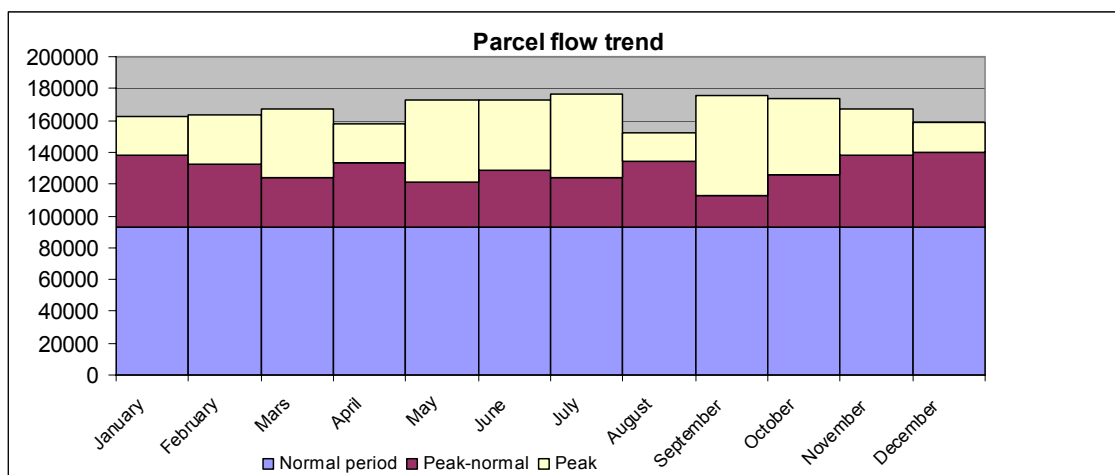


Figure 8: trend of parcel flow.

Source: I2T3 (2004).

Figure 8 shows the flow of goods from month to month. The diagram has been calculated adding three different flows that illustrate the impact of seasonal periods on the shops we interviewed. In particular:

- *Normal period*: refers to the number of goods that are delivered at a constant rate to the shops that have no peak periods. The sum has been fairly divided among the 12 months. This value is represented in the first block.
- *Peak -normal*: refers to the number of goods delivered to stores that have peak periods in what they identify as non-peak months. The “month sum” is represented by the second block.
- *Peak*: refers to the number of goods delivered to stores that have peak periods during what they identify as peak months. This value is represented in the third block.

e. *use of shop vehicles*

Results show that a significant number of deliveries are made using privately owned vehicles. In fact, 42% of the shopkeepers interviewed stated that they use their own vehicles to transport goods, and that the average number of trips made is equal to 12 per month.

Table 2: private vehicle journey.

<i>N° of trips with privately owned vehicles in a month</i>	<i>% shops</i>
0 < n ≤ 5	43.01
5 < n ≤ 10	12.90
10 < n ≤ 15	13.44
15 < n ≤ 20	17.20
20 < n ≤ 25	4.84
> 25	8.60

Source: I2T3 (2004)

f. *courier number*

Before we conducted our survey, a complete database of couriers who operate within the historic center of Florence was not available. We were able to determine that almost 120 different courier companies make deliveries in the LTA, prevalently in the North-West area of the city. We selected a sample of 30, who account for 70-80% of total goods delivered, to participate in our survey.

g. *parcel number*

Considering that the information obtained through interviews of the shopkeepers regarding number of goods delivered, and their weight and volume probably presents some errors, and that interviewed couriers represent only about 70% - 80% of the flow, we assume an annual average number of deliveries to include almost 2,000,000 parcels.

h. *location of the Transit Point*

In order to best determine where to build the Transit Point Platform, we must take into consideration the current location of the delivery companies who most frequently operate in the historic centre. From the data we received, we discovered that there are more than 120 delivery companies, of varying size, and with different frequencies of delivery. The majority of these, responsible for the greatest number of deliveries made in the historic centre, are located in the North-West area of Florence, between Osmannoro, Calenzano, and Sesto Fiorentino (Fig 9). As such, we must necessarily look in the North-West area of Florence for a potential Transit Point location. Any other location would require an increase in distance travelled (and therefore traffic congestion) in order to connect the delivery companies to the Transit Point.

Given this situation, a preliminary investigation was undertaken to find areas that have the following characteristics:

- location in the North-West area of Florence;
- surface area of at least 7,000/10,000sqm accessible to the highway and to the historic centre.

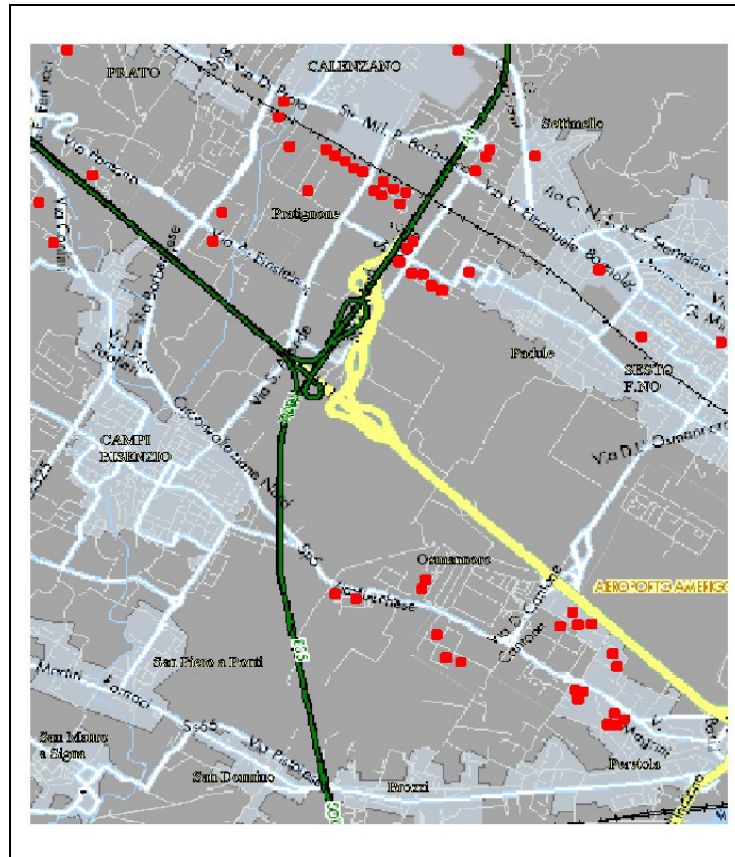


Figure 9: location of delivery companies.
Source: I2T3 (2004).

4. The income statement of the initiative

It is now possible to check the economic feasibility of the Transit Point initiative. In particular, the economic feasibility of the *Transit Point Proprietà* (TPp) and of the *Transit Point Gestione* (TPg) has been analysed.

With reference to the TPp, the main assumption is that it will not produce profit, but it would limit itself to break even. This determines the returns of the structure, which are the annual costs that the winning company of the tender contract will have to pay to offset the exact costs of the TPp. The budget will amount to the costs of the organizational structure and the costs of extraordinary maintenance of the buildings.

Therefore, the main issue is to ensure that the TPg will breakeven, and go on to make a profit. In analysing the TPg, we considered the following issues:

1. assessment of turnover;
2. estimation of cost.

1. assessment of turnover

Revenue of the TPg was calculated based on the current cost of delivery workers to the courier companies. In fact, under the transit point proposal, the amount currently paid to the delivery workers would instead be given to the TPg.

Under this hypothesis it is necessary to identify:

- a. the daily cost of a worker, that is evaluated at approximately € 130;⁵
- b. the number of workers needed, that is estimated at 79.⁶

Given the above data the Turnover of the TPg is € 2,362,100, calculated as follows: 79 (number of actual delivery workers) x €130 (daily cost of worker) x 230 (number of working days).

2. estimation of cost

In order to estimate the cost of the TPg we considered the following aspects:

- a. organizational structure (management, warehouse workers, etc.);
- b. general management expenses (services, ordinary maintenance, fee to the Tpp)⁷;
- c. transport expenses (delivery, cost of vehicles, maintenance of the plants).

a. organizational structure

The organizational structure of the Transit Point is proposed as follows:

- n° 1 director;
- n° 1 II level employee;
- n° 3 III level employees;
- n° 30 IV level warehouse workers.

Based on current contracts of the same category, the annual cost of the organizational structure amounts to € **900,514**.

b. General expenses

General management expenses are divided as follows:

Utilities and supplies (electricity, gas, water, office supplies)	€ 118,105
Ordinary maintenance of the structure	€ 37,167
Rental fee paid to Tpp	€ 65,667
Total	€ 220,938

Annual general management expenses amount to € **220,938**.

⁵ This cost is the present market price for a delivery worker.

⁶ This value was calculated according to the data analysis in which we find that each year the delivered parcels are 2 million and the daily delivered parcels are 8,696, considering 230 working days.

The estimation of theoretic number of delivery workers needed was made under the presumption that each worker would:

- make 55 stops daily;
- deliver an average of 2 parcels per stop.

Given that, today it is necessary to remunerate 79 delivery workers based on the following calculation: 8,696 (daily delivered parcels) ÷ 2 (parcels delivered at one stop) ÷ 55 (stops per day).

⁷ Notice that in the cost items, the cost of the infrastructure amortization has not been inserted, due to the purchase of the infrastructure which will necessarily take place through public funds and not through the TPg fund.

c. transport expenses

Determination of transport expenses was based on two estimates:

- cost of the vehicles (amortization, fuel, insurance, administrative expenses);
- salaries of delivery workers.

Cost of the vehicles is illustrated in Table 3, divided by category.

Table 3: estimation of cost of the vehicles.

	<i>Types of Vehicles</i>		
	Daily 35	Daily 50	Daily 60
Amortization	€ 2.145	€ 2.470	€ 2.730
Insurance	€ 2.000	€ 2.000	€ 2.000
Ordinary maintenance	€ 214	€ 247	€ 273
Administrative expenses	€ 1,000	€ 1,000	€ 1.000
Fuel	€ 991	€ 991	€ 991
Lubricant	€ 50	€ 50	€ 50
Tires	€ 100	€ 100	€ 100
Total	€ 6,501	€ 6,858	€ 7,144

To better understand these figures, we must take into consideration:

1. Types of vehicles used:
 - n° 15 Daily 35 (weight transported: 1,200 Kg);
 - n° 04 Daily 50 (weight transported: 2,200 Kg);
 - n° 14 Daily 60 (weight transported: 2,800 Kg);
2. Cost of the vehicles amounts to:
 - Daily 35 € 21,450;
 - Daily 50 € 24,700;
 - Daily 60 € 27,300;
3. we estimate the amortization to take place over 10 years;
4. the maintenance expenses are estimated at 1% of the cost of the vehicle;
5. costs of fuel, lubricant, and tires are estimated based on average cost at present;
6. daily distance traveled is estimated at 50 Km per day

The daily cost (considering 230 working days) of the vehicles is:

- Daily 35 € 28
- Daily 50 € 30
- Daily 60 € 31

Taking into consideration the number of delivery workers necessary (33),⁸ and the cost of each vehicle, the total daily cost to the TPg for these factor was calculated and is illustrated in Table 4.

We have estimated the annual (gross) salary of each delivery worker at € **23.500** based on current remuneration figures. Dividing by 230 working days, the daily cost is € **102**.

Table 4 shows the daily cost of the delivery workers with relation to the type of vehicle used.

Table 4: estimation of daily cost of delivery workers.

	<i>(A) vehicle</i>	<i>(B) worker</i>	<i>(A+B) daily cost</i>
Daily 35	28	102	130
Daily 50	30	102	132
Daily 60	31	102	133

Taking into consideration the number of delivery workers necessary (divided by vehicle category), and the relative remuneration, the total annual cost to the TPg was calculated and is illustrated in Table 5.

Table 5: estimation of total cost of remuneration to delivery workers.

15 workers who use "Daily 35"	€ 450,019
4 workers who use "Daily 50"	€ 121,435
14 workers who use "Daily 60"	€ 429,027
Total	€ 1,000,481

With this information, it is possible to proceed with the calculation of total operating expenses of the TPg, and the Earnig Before Interest and Taxes (EBIT) which amount to € 240,166 as shown in Table 6.

Table 6: Transit Point Ebit.

Revenues	€ 2,362,100
Cost:	
Personnel	€ 900,514
General expenses	€ 220,938
Cost of delivery	€ 1,000,481
Total	€ 2,121,933
EBIT	€ 240,166

The income statement shows that the Transit Point is, from economic point of view, feasible given its efficiency in reaching an economic balance.

⁸ Thanks to the efficiency gains, the number of workers will be reduced from 79 to 33 (see Fig. 2).

5. The performance measurement system

The model for corporate governance that we propose requires that the public company (TPp) exercises the institutional function of planning and control so that the management of the TPg can satisfy the greatest number of stakeholders. Since sustainability has been identified as the principal goal of the TPp, it has to guarantee that the TPg will be in a position to reach it, through the service contract. It must require that the TPg is accountable for the economic, environmental, and social repercussions of its operation.⁹

To support the company in its efforts to reach sustainability, we propose a “strategic map” (Kaplan and Norton, 2004), in which goals and management programs are clearly stated. The company, then, would no longer produce reports made up exclusively of economic results, but would produce more comprehensive statements that help to understand the context within which certain results are obtained.

The strategic map is indispensable:

- within the TPg for the construction of a set of performance indicators that describe causal relationships between operations and realization of strategic goals;
- between the TPg and the TPp where it would guarantee that the actions taken by the entity TPg are coherent with the objectives stated by the TPp.¹⁰

In short, the strategic map serves to stimulate the relationship between the conduct of the private company (TPg) and the objectives of the public company (TPp). It will be able both to show to what extent goals have been reached, and to give explanations for eventual shortcomings (Figure 10).

The business report should highlight, for example, how the goal *reduction of traffic congestion* can be reached through the use of adequate software that could optimize the delivery routes, reducing both the *number of trips taken* and the *number of vehicles required*. Closely linked to this is the *reduction of pollution*, which can be realized through the introduction of *ecological vehicles* that *travel shorter distances* due to the optimization of the routes.

Having a single provider who takes care of all deliveries will guarantee *improvement in the quality of service* in two ways: by organizing receipt of the merchandise, and by saving the time it would take to conduct business with multiple providers.

From an efficiency point of view, the model proposed will result in considerable monetary savings, due to a number of factors. Since *fewer vehicles will be needed, less money will be spent on fuel and maintenance*. In addition, the vehicles will be ecological, and therefore eligible for *government grants*. Finally, the reduction in number of delivery workers will also contribute to savings.

With regards to the indicators, we propose the set of measures as presented in Table 7. Notice that they are a combination of *primary* and *secondary* measures. Through the primary measures, it will be possible to establish the parameters to be inserted in the service contract by which effectiveness will be measured (reduction of atmospheric and acoustic pollution, reduction in customer complaints, reduction of circulating vehicles

⁹ On the issue of sustainability accounting see: Epstein-Roy (2001); Bonacchi-Rinaldi (2005).

¹⁰ In fact, using only indicators (even if positive) could lead to actions by the private company that are not consistent with the intent of the public company.

in the historic centre). The secondary measures, instead, bring to light the cause-and-effect relationships between actions and results (number of delivery workers used, average distances in km travelled by the vehicles, number of clients who use the Transit Point).

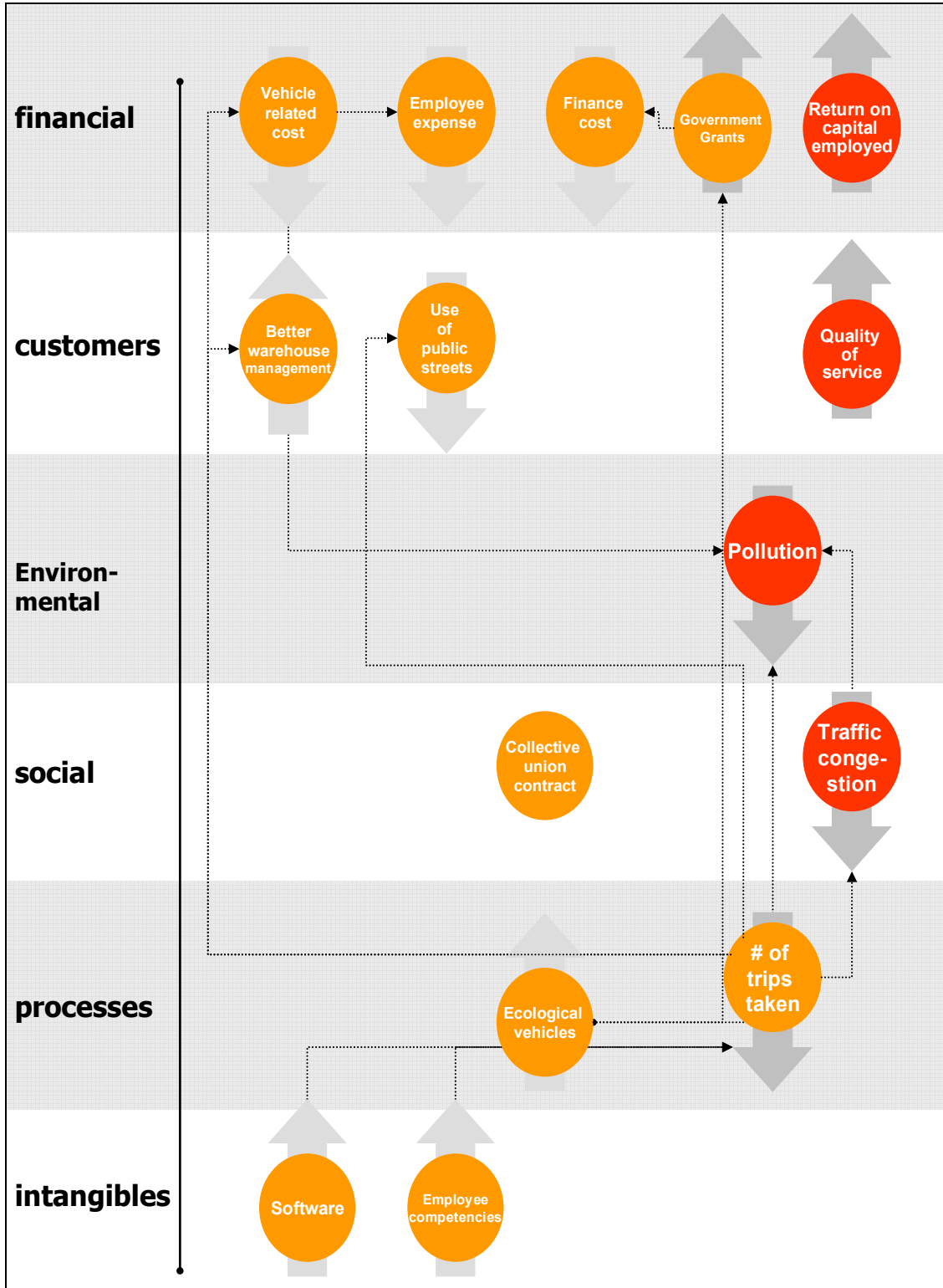


Figure 10: Transit Point strategic map.

STRATEGIC MAP	STRATEGIC OBJECTIVES	INDICATORS		TARGET	ACTIONS	BUDGET
		Primary measures	Secondary Measures			
	Return on capital employed	Economic Value Added	- number of delivery workers used			
	Obtain Incentives for ecological vehicles	€ of financing given to TP	- number of applications won/presented			
	improve the quality of service	number of complaints	- parcels not delivered on time - parcels lost - lost calls at call centre			
	reduce pollution	noise level in historic centre level of carbon particles level in the air	- electric vehicles/available vehicles			
	reduce traffic congestion	# vehicles used	- market quote of TP			
	reduce number of trips made	parcels delivered/vehicles used	- average km traveled for each vehicle			
	constant monitoring of parcels	# parcels delivered with electronic badge	- # of clients with information system compatible with TP standard - automated production of delivery documents/total # produced			

Table 7: reporting structure.

Conclusion

The current system for urban transportation of goods has significantly adverse effects on traffic congestion and the environment. Unfortunately, it is a problem that continues to grow (Burlando 2003). We conducted this study in order to more closely examine a possible solution to this problem.

From this work, we found the following aspects to be crucial:

- a. the need to unite the institutions (Municipality and Province of Florence, Chamber of Commerce) with the parties who have an economic interest in goods transportation (associations of couriers and traders) into one entity (i.e. “Comitato Promotore”)
- b. the importance of public financing of the structures;
- c. the importance of clear rules of corporate governance that oversee the relationship between the public entity that owns the infrastructure and the private company who manages the service;
- d. the importance of finding a suitable location for the platform;
- e. the need for new traffic regulations that would deter persons from using their private vehicles, and favour the use of those of the Transit Point
- f. the need to find a group of entrepreneurs who are interested in managing the TPg.

Both the institutions and associations of couriers and traders involved in the study formally recognized that realization of the Transit Point offers the possibility of improving the quality of life in the historic centre while increasing efficiency in the delivery of goods.

In particular, other than reaching the goal of reducing traffic congestion in the historic center, the realization of the transit point allows for:

1. the attainment of a positive EBIT through public financing of the structures;
2. the possibility of offering the service without changing transport or remuneration costs;
3. an improvement in the working conditions of the delivery workers who operate in the historic centre.

For these reasons, we find it fitting to underline that realization of the transit point is perfectly in line with the principles of sustainable development as defined: *development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations*” (WCED, 1987). Principles, in our view, to which both national and local governments should always aspire.¹¹

¹¹ This is the first and most widely accepted definition of sustainability, that was given in 1987 at the World Commission on Environment and Development (also known as the Brundtland Commission). It is important to note that this definition has had numerous effects on legislation, such as the Legge Regionale Toscana 16 January 1995, n. 5 whose objective is “Norms for Government and Territory”, and includes as the title for article 1 “Sustainable Development”. On the issue of transport sustainability see: Burlando and Musso (2003); Danielis (1996).

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