



D 2.6 | Market analysis in each terminal site

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1. LIST OF TABLES AND ABBREVIATIONS

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1.3. List of abbreviations

This table provides an overview on all abbreviations used in this document.

Abbreviation	Full name Explanation
CO ₂	Carbon dioxide
CPI	Common Performance Indicators
GWh	Gigawatt hour
IT	Information technology
KPI	Key performance indicator
NA / na	Not available
MTO	Multimodal Transport Operators

Table 1: Abbreviations used in this document

2. ABOUT SMARTSET

Transport of goods, both on long distances and within cities contribute to a substantial part of the total emissions generated from the transport sector, as well as congestion. Up to 20% of traffic, 30% of street occupation and 50% of greenhouse-gas emissions are generated by freight.

Yet freight and distribution schemes are often structured in traditional ways, based on vertical solutions with individual solutions. These systems lead to sub-optimisation of freight transport, with low load factors and an unjustified amount of tonne-kilometres generated by the vehicles used. The need for more efficient solutions that leads to less transport kilometres and a more sustainable economic model is obvious. The latter is foreseen to be the key factor of a long-term success in implementing a working model for urban freight transport and thus supply all involved stakeholders with the correct incentives to change their distribution networks.

The SMARTSET project will develop and show how freight transport in European cities and regions can be made more energy-efficient and sustainable by a better use of freight terminals. To reach this overall goal, the project will provide examples of good practice that can support cities, regions and countries to contribute to the European Union „20-20-20“ targets¹ for reduction in carbon dioxide emissions and improvement in energy-efficiency.

SMARTSET targets	Reduction by 2016	Reduction by 2020
Reduction of CO ₂ emissions in tonnes	9,063 tonnes per year	31,346 tonnes per year
Reduction of energy consumption in tonnes	3,096 tonnes per year	10,303 tonnes per year
Reduction of energy consumption in GWh	36 GWh per year	120 GWh per year

Table 2: SMARTSET targets during project duration (by 2016) and beyond (by 2020)

SMARTSET is a project, co-funded by the Intelligent Energy Europe Programme of the European Union and is composed of 14 partners, coming from Austria, Germany, Italy, Sweden and the United Kingdom. It will run from 01.05.2013 until 30.04.2016.

¹ The climate and energy package is a set of binding legislation which aims to ensure the European Union meets its ambitious climate and energy targets for 2020. These targets, known as the "20-20-20" targets, set three key objectives for 2020:

- A 20% reduction in EU greenhouse gas emissions from 1990 levels
- Raising the share of EU energy consumption produced from renewable resources to 20%
- A 20% improvement in the EU's energy efficiency

3. INTRODUCTION

The report presents the main findings of market analysis activities performed and ongoing in each terminal site in order to provide a consistent basis for the development of sustainable business models for urban logistics measures.

The key issues for sustainable business models developed in SMARTSET are to go beyond existing structures and experiences, investigate new possibilities to increase the attraction of the terminal, fostering the integration of all terminal functions in urban logistics and attract new and unexploited markets to sustainable delivery schemes.

SMARTSET business models are conceived to overtake the "killing factors" like the ones in the actual unsuccessful experiences (failure to set viable tariffs, lack of enforcement of proper regulation schemes, non-optimal location of urban platforms, lack of commitment by relevant transport chain stakeholders and others) in order to make the project viable and self-sustaining after the end of public granting too.

All the cities have one thing in common: the need for a sustainable and comprehensive business model that could enable overcoming of existing market barriers. Without a working and market based business model, the projects will not be viable and the energy efficient actions and tasks will not be realized. In short, the business model is crucial.

Market analysis is approached in each city at different levels, considering a broad range of segments and key actors. This will be concluded and summarized together with a more comprehensive analysis on a market-driven approach for the city. This analysis will include factors such as:

- Stakeholders analysis, identifying them, their needs and their priorities, in order to assess the potential risks or strengths of the projects that could be linked with them.
- Users needs analysis, in order to identify and assess the proper needs to be addressed in the projects.
- Potential market analysis, in order to identify the best boundaries of the project and imagine suitable actions to be implemented in a second phase to expand the project.
- Identification of market barriers and threats (SWOT analysis) in each of the cities.
- Elements of costs and benefits, in order to assess if the business model could be self-sustaining and successful.

This report illustrates the results of the market analysis activities performed at city level according to different strategies and methodologies (surveys, workshops, focus groups, analysis of existing studies, etc.).

The deliverable is organised as follows: chapter 4 briefly describes the links of the market analysis activities with the action plans set up for the demonstration actions, and with the business model which represent the final outcome of the process; chapter 5 will provide an overview of market studies performed, summarising the main findings at project level according to the common structure provided. Finally, the appendix provides the detailed market studies by cities.

4. MARKET ANALYSIS, BUSINESS MODELS AND ACTION PLANS

The SMARTSET cities need to develop their business cases adapted to local conditions and prerequisites. The so-called CANVAS model has been used for visualising, defining and structuring the business cases.

The market analysis is not indeed sufficient to guarantee the success of the project. Action plans for each city partner have been developed, including tasks to be implemented, timelines and milestones. Only following a such organized working path the probability of success can be increased.

Deliverable 2.3 explains in detail the relationship between CANVAS models and Action Plans highlighting in particular the connections between key activities and actions to be implemented, and considering the key partners and stakeholders involved.

Moreover, other CANVAS elements have been investigated within the market analysis activities, such as addressed customer segments, customer relationships, cost structure (investment, operational, estimated costs per unit) and revenue streams (forecasts and break even volumes).

The following figure describes the information conceptual flow linking the three considered elements representing the framework for the analysis: CANVAS models, Action Plans and market studies.

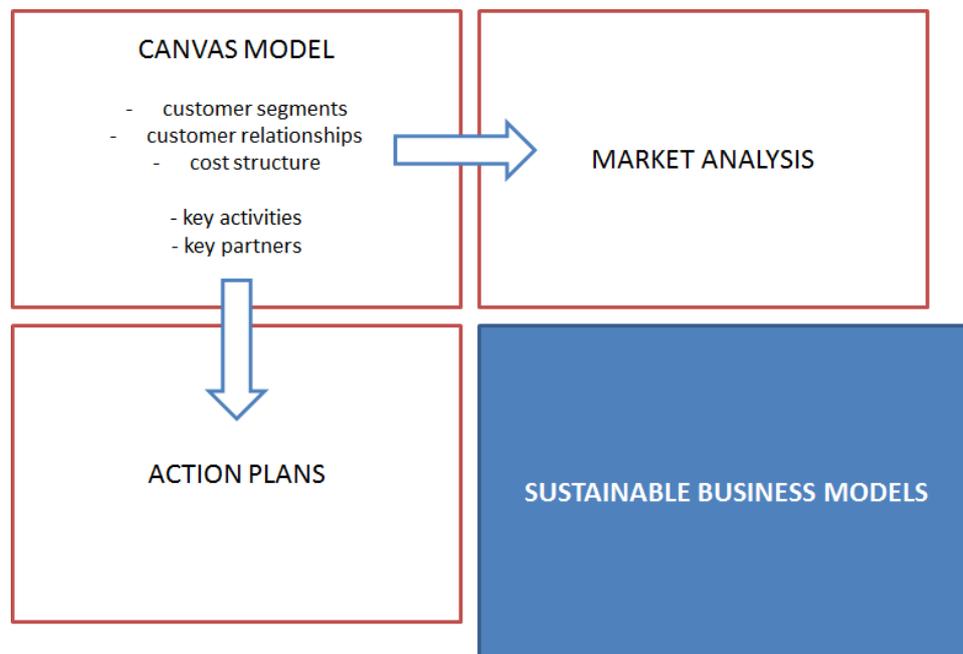


Figure 1: Market Analysis, Action Plans and Business Models flow (Gruppo Clas 2014)

5. OVERVIEW OF MARKET STUDIES

5.1. Stakeholder analysis

In order to identify stakeholders and their needs to be taken in account in the modelling of the project, a user needs analysis is performed.

Stakeholders are classified in three different categories: City / Citizens; Shopkeepers; Transport / Logistics operators and 10 priorities are classified: Acceptance of consolidated deliveries; Cost of service; Profitable operations; Quick deliveries; Reduction of congestion; Reduction of pollution; Reliable deliveries; Road safety; Socially acceptable regulations and Viability of investments.

The category of stakeholder "City / Citizens" turns out to have as main priorities reduction of pollution (11 out of 45), reduction of congestion (8 out of 45), social acceptability of regulation (7 out of 45) and road safety (7 out of 45). Other priorities reached lower score.

CITY / CITIZENS				
Priority	Frequency as first priority	Frequency as second priority	Frequency as third priority	Total frequency
Acceptance of consolidated deliveries	0	0	0	0
Cost of service	0	0	2	2
Profitable operations	1	0	0	1
Quick deliveries	1	2	0	3
Reduction of congestion	1	5	2	8
Reduction of pollution	7	3	1	11
Reliable deliveries	1	2	1	4
Road safety	1	1	5	7
Socially acceptable regulations	2	2	3	7
Viability of investments	1	0	1	2

Table 3: Aggregate frequency of each priority for the category City / Citizens

The category of stakeholder "Shopkeepers" turns out to have as main priorities the reliability of deliveries (10 out of 30) and their speed (6 out of 30). Also cost of service is taken into account (4 out of 30).

SHOPKEEPERS				
Priority	Frequency as first priority	Frequency as second priority	Frequency as third priority	Total frequency
Acceptance of consolidated deliveries	0	2	0	2
Cost of service	2	1	1	4
Profitable operations	1	0	1	2
Quick deliveries	0	5	1	6
Reduction of congestion	0	0	1	1
Reduction of pollution	0	0	0	0
Reliable deliveries	7	1	2	10
Road safety	0	0	0	0
Socially acceptable regulations	0	0	3	3
Viability of investments	0	1	1	2

Table 4: Aggregate frequency of each priority for the category Shopkeepers

The category of stakeholder "Transport / Logistics operators" indeed turns out to be more interested in the profitability of operations (24 out of 109) and in the reliability of deliveries (22 out of 109).

TRANSPORT / LOGISTICS OPERATORS				
Priority	Frequency as first priority	Frequency as second priority	Frequency as third priority	Total frequency
Acceptance of consolidated deliveries	9	0	4	13
Cost of service	0	3	1	4
Profitable operations	10	3	11	24
Quick deliveries	4	4	3	11
Reduction of congestion	6	1	0	7
Reduction of pollution	3	7	1	11
Reliable deliveries	2	14	6	22
Road safety	1	1	3	5
Socially acceptable regulations	3	2	0	5
Viability of investments	2	4	1	7

Table 5: Aggregate frequency of each priority for the category Transport / Logistics operators

5.2. Analysis of user needs

Surveys, workshops or focus groups are organized and existing studies are considered in order to perform a user needs analysis.

Analysis were performed mainly focussing on two different users of the projected service: operators and customers. The interesting data that came to light is that, even if citizens and other stakeholders pay attention to themes like pollution and feels the need of restrictions of transports in the urban area in order to minimize damage on building facades, noise, and congestion, green logistics is not considered a top priority for operators since customers (citizens and shopkeepers) seems not willing to pay more for the label "green transport".

Another need that emerged was the flexibility: transport operators need high flexibility in the use of terminals and in the organization of operations, as they want to be able to quickly react to customer wishes. A fixed and standardised last-mile service could result detrimental for the logistic industry. Also efficiency is resulted as key issue for the success of the projects: in Padua, for example, Interporto worked hard on the parameters of efficiency and reliability of delivery operations. This effort is due to the fact that logistics and transport companies give their goods to be delivered only if efficiency performance parameters of Interporto are respected (e.g. the customers of express parcels segment expect from Interporto to maintain a percentage of successful deliveries of over the 97%).

5.3. Analysis of potential market

In order to identify the most suitable market segment to be addressed a potential market analysis is performed.

Each city is asked to identify the market segments on which the project should be focus on, describing the reference area, the reason for the choice, volume of the potential market and pointing out possible action to implement in a second phase in order to expand the business in each identified market segment.

Almost all the city identified the reference area for the projects corresponding to the city centre because of the high density of shops, specific needs to reduce the number of transports in the inner city and high impact of vans on the liveability of the city centre. Only in the case of Newcastle a different reference area, corresponding to the University campus is chosen, because of the specific project and of the absence of special handling requirements or restrictions in this area.

Starting from the city centre, almost all the cities consider possible to extend the projects in a second step to a wider reference area.

The most chosen market to be addressed is the one concerning parcels, excluding food and perishable goods, even if there are some exceptions. This the case of Padua, where a project regarding perishable goods should be carried out with the use of specific vehicle or the one of Berlin, where pharmacies would be addressed by the project due to specific market conditions.

5.4. Markets and barriers - SWOT Analysis

In order to identify market barriers and threats for co-delivering of goods in each city a market analysis is performed with a SWOT scheme, where the following items are identified:

- Strengths of the proposed solutions
- Market barriers for viable application of the proposed solutions
- Opportunities and market potential
- Threats and risks of failure

The most common strengths identified by the cities is related to the neutrality of the operator and by the economies of scale that an operator can deploy in such a business. Other common strengths concern the concentration of stores and shops in the inner city, the opportunity to increase road safety and the attractiveness of the city centre, and furthermore to reduce road congestion and pollution via a reduction in the delivery trips and illegal parking.

The difficulty in developing a financially sustainable and profitable business model is considered the main potential weakness of each project by quite all the cities.

Other market barriers highlighted by cities are referred to the lack of willingness to consolidate goods by transport companies and logistics operators. They generally want to keep their goods in their own flow in order to avoid the redesign of their supply chains to include neutral operator, to avoid consolidation costs, last mile potentially higher cost and transaction cost also due to different software and industrial organization.

Some company also highlighted that the use of a third last mile operator hinder the possibility to offer complementary services like express deliveries.

Other market barriers pointed out are related to the legal framework that should be adjusted to support the projects and the cost of a clean vehicle.

Almost all the city consider within the projects the opportunity to reduce road congestion, traffic pollution, parking violations and to increase liveability of the city. Quite all the cities based their projects on the city centre, very crowded areas where it has a significant value to reduce traffic and where a project of progressive "pedestrianization" of the area could be viable.

The main risk of failure pointed out by the cities is related to the sustainability of the business model due to high cost, both for operation and for investments, and to the lack of commitments from stakeholders, in particular from logistics operators not willing to sign up the scheme.

Since the regulation is considered a crucial factor for the success of the project, a lack of commitment by the municipalities could result in a failure of the projects.

5.5. Elements of costs and benefits

A Cost & Benefit analysis is run out or is supposed to be run out by each city partner in order to raise information about the planned operational elements of the projects.

The present analysis is useful in order to plan a cost effective solution and a sustainable business model, different for each site because of the differences in the size and the scope of each project.

It is also useful, within the elaboration of the feasibility studies and business plans, to set proper and viable solutions, to avoid the so called "killing factors" regarding the setting of viable tariffs and costs, in particular after at the end of public granting, and to estimate costs and (short and long term) financial and economic benefits.

Costs and benefits elements have been collected within market analysis activities within the different city sites, in order to provide useful elements for the definition of viable business models. Quantitative results related to cost and benefit analysis of only 4 city sites are available at this stage.

For this component of the analysis main figures considered influencing the economics of initiatives considered are:

- a) assets, basically vehicles and warehouses;
- b) costs, both investment and operational;
- c) market figures, such as price, number of potential customers and deliveries;
- d) revenues, including an estimation on a break even number of deliveries.

Figures may vary significantly according to the different characteristics and objectives of the pilot initiatives, however some useful elements for the analysis and business modelling can be highlighted so far.

Concerning the assets, available space in warehouses varies in accordance with the size and the scope of the project, from the absence of a warehouse in Gratz to the 1.000 sqm available in Padua. Concerning vehicles all projects are rather in a startup phase or have very specific targets, therefore the number of vehicles involved is mostly one or two, with the only exception of Padua where the city logistics initiative was already well established before the start of the project, and where three vehicles are used.

Looking at costs, investments envisaged and performed vary along a broad scale from the 7.000€ in Gothenburg to the 110.000€ planned in Newcastle; concerning operational costs as well, the range varies from the 2.000€ in Graz to the 113.000€ envisaged in Gothenburg.

Estimated cost per unit varies from 0,7€ in Padua, where a running services is implemented by years and has already reached an important critical mass in term of volumes, to 3,5€ for Graz where the service using cargo bike will be implemented.

Looking then at price per unit, this goes within the analysed cases from 1,12€ to 5€ per parcel.

The forecast provided on number of deliveries depend on the size of the pilot and on the range of activities by the city logistics initiative: in Padua number of deliveries is around 80.000 per year and the operations run already under break even conditions, while the initiative in Graz is expected to start with 10 deliveries per day (with an expected break even target of 3.500 deliveries per year).

More ambitious are the objectives set for Gothenburg, where the break even is expected around 60.000 and 100.000 parcels per year.

			Graz	Padua	Newcastle	Gothenburg
	C&B	unit	value			
Assets	Available space	sqm	1m ³ / e-cargo bike	1000	30	350
	Number of vehicles	n.	1-2	3	1	2
Costs	Investment costs	€	20.000	150.000	110.000	7.000
	Operational costs	€	2.000	108.000	95.950	113.000
	Estimated costs per unit	€/parcel	3,50	0,7	3,10	1,12
Market	Estimated market costs per unit	€/parcel	5	1,50- 1,60	4	1,12 - 2
	Number of operators	n.	1	3	1.000	1
	Estimated market number of deliveries	n.	3.000	n.a.	75.000	15.000
Revenues	Forecast on number of deliveries	€	3.000	60.000	17.500	15.000
	Forecast on revenues	€	4.000	90.000-120.000	54,328	67.000
	Break even volume	deliveries /year	3.500	n.a.	30.907	60.000 - 100.000

Table 6: Overview of the available Cost and Benefit analyses

APPENDIX I - THE STUDIES

The present Appendix includes all features and characteristics of the market analyses performed and/or ongoing in each city site. The structure follows the same framework identified in the overview section of the report (Chapter 5): in each city section the following areas are described:

- Stakeholders analysis
- Users needs analysis
- Potential market analysis
- SWOT analysis
- Cost and benefits analysis

Some sections may be still incomplete or lacking of information. This is due to the different degree of completion of the market analysis in the different city sites.

GOTHENBURG

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	<i>na</i>	Shopkeepers
2	<i>na</i>	Transport / Logistics operators
3	Municipality	City / Citizens
4	Real estate owners	Shopkeepers

Table 7: Gothenburg - Stakeholder addressed by the market analysis

The market analysis shows that the first priority for shopkeepers is the reliability of deliveries within the new business model, followed by the acceptance of consolidated deliveries and by the reduction of congestion.

Transport and logistics operators are more watchful on the profitability of operations and on the cost of service, then on the acceptance of a model envisaging consolidated deliveries.

Citizens are obviously more interested in the reduction of congestion, in road safety issues and, then, in reduction of pollution in the city.

Another class of stakeholder was interviewed, real estate owners. They pointed out high attention on the viability of investments and on the reduction of congestion, probably due to the impact of this issue on the values of real estate, then, on the social acceptability of the regulations.

Volume of transported goods: 500 parcels a day

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Reference to existing studies	Achieved besides Smartset	Thesis work performed autumn 2013, where 24 randomly chosen shops were interviewed
Workshop / Focus group	Achieved within Smartset	

Table 8: Gothenburg - Activities performed with reference to user needs analysis

Within a thesis work performed in autumn 2013 a survey among 24 randomly chosen shopkeepers of Gothenburg was carried out. Their main focus was on reliability of the service (4.1 out of 5), flexibility (3,9 out of 5), treatment (4,7 out of 5) and service and support (3,8 out of 5). 71% of the interviewed shopkeepers replied that an expansion of the concept would be positive or very positive received among customers, 89% that an expansion of the concept would have a positive or very positive impact on the city environment.

Also a workshop was organized and 20 participants from authorities, transport companies, shopkeepers, joint organizations and real estate owners took part. During the workshop emerged a consensus that a more strict regulation system (time windows for entering the area) would be a convenient solution under the condition that exemptions will be granted for UFT's with clean vehicles. Another important issue emerged: almost all participants agreed on the need of neutral regulations and solutions from a competitive perspective.

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Parcels)

1. Reference area: Inner city
2. Reasons for the choice: Not perishable goods represents the main volumes goods to be delivered.
3. Volume of potential market (tonnes): about 500 packages/day (no weight information available)
4. How to expand: extend the delivering area

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: Flexible, suitable for value added services, efficient solution for reducing energy consumption, reducing congestion, increasing road safety and attractiveness of the area.
2. Market barriers for viable application: Transport companies are not so willing to keep their goods out of their own flow, highlighting extra cost compared to conventional transports and difficulties to handle express deliveries. They also highlight the potential difficulty to deliver some kinds of perishable goods. The legal framework is considered to be adjusted, in many cases, to support the concept of UFT and clean vehicles.
3. Opportunities/market potential: Market potential especially for city cores and very crowded areas where it has a significant value to reduce traffic. Also potential to integrate waste handling and various facility services
4. Threats/risks of failure: Difficulties in establishing commitments from stakeholders; budget; financing.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	350
	Number of vehicles	n.	2
Costs	Investment costs	€	7000
	Operational costs	€	113000
	Estimated costs per unit	€/kg, €/parcel	1,12 €/parcel
Market	Estimated market costs per unit	€/kg, €/parcel	1,12-2 €/parcel
	Number of operators	n.	1
	Estimated market number of deliveries	n.	15000
Revenues	Forecast on number of deliveries	€	15000
	Forecast on revenues	€	67000
	Break even volume	deliveries/year	60000- 100000 parcels/year

Table 9: Gothenburg - Costs and revenues envisaged for the implemented solution

NEWCASTLE

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Management at Newcastle University	City/Citizens
2	Orders at Newcastle University	City/Citizens
3	Receivers at Newcastle University	City/Citizens
4	Shippers to Newcastle University	Transport/Logistics operators

Table 10: Newcastle - Stakeholder addressed by the market analysis

The management at Newcastle University highlighted as priorities, in order of importance, road safety, reduction of pollution and social acceptance of regulations.

Orders and receivers at Newcastle University showed their first interest in the reliability and speed of deliveries, followed by the cost of service.

Shippers are instead more interested in the profitability of operations, in the social acceptance of regulations and, then, in road safety.

Volume of transported goods: 35 tonnes.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Survey	Achieved besides SMARTSET	Aditjandra PT, Galatioto F, Bell MC, Zunder TH, Woroniuk C, Carnaby B. Investigating the impact of local attractors and generators of Heavy Goods Vehicle traffic: The case study of Newcastle University. 2013.
Workshop/ focus group	Achieved besides SMARTSET	Zunder TH, Aditjandra PT, Carnaby B. Developing a Local Research Strategy for City Logistics on an Academic Campus. International Journal of Urban Science 2014, Special Issue on City Logistics.
Workshop/ focus group	Achieved besides SMARTSET	Aditjandra PT, Zunder TH, Carnaby B. Understanding the relationships between private purchasing and urban freight delivery. 2014.
Reference to existing studies	To be achieved	

Table 11: Newcastle - Activities performed with reference to user needs analysis

Main results: na

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Non-perishable, non-hazardous and non-medical goods)

1. Reference area: University campus
2. Reasons for the choice: No special handling requirements or restrictions
3. Volume of potential market (tonnes): 150
4. How to expand: Suppliers will be contacted on an individual basis to sign up to any consolidation

Market segment n.2 (Time sensitive / urgent goods)

1. Reference area: University campus
2. Reasons for the choice: Improve service level
3. Volume of potential market (tonnes): 150
4. How to expand: Analysis of Ordering to identify any urgent deliveries and supplier shipping priority

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: diminished number of delivery trips; substantially less pollution due to the use of an EV; less congestion; diminished number of illegally parked delivery trips.
2. Market barriers for viable application: high cost of purchasing the electric truck; demand will remain constant; demand for supply of goods will not increase?; habitual driver behaviour.
3. Opportunities/market potential: Support of university authorities; existence of public charging infrastructure for EV's; improving vehicle load factor; reduction in parking violations, creation a campus freight delivery map.
4. Threats/risks of failure: lack of sufficient subsidies for purchasing the EV; reluctance from suppliers to sign up the scheme; difficulty in changing driver behaviour.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	30
	Number of vehicles	n.	1
Costs	Investment costs	€	110.000
	Operational costs	€	95.950

	Estimated costs per unit	€/kg, €/parcel	3,10
Market	Estimated market costs per unit	€/kg, €/parcel	4
	Number of operators	n.	1.000
	Estimated market number of deliveries	n.	75.000
Revenues	Forecast on number of deliveries	€	17.500
	Forecast on revenues	€	54,328
	Break even volume	deliveries/year	30.907

Table 12: Newcastle - Costs and revenues envisaged for the implemented solution

PADUA

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Padova Municipality	City/Citizens
2	Chamber of Commerce of Padova	City/Citizens
3	Province of Padova	City/Citizens
4	Veneto Region	City/Citizens
5	Abano Municipality	City/Citizens
6	Montegrotto Municipality	City/Citizens
7	Battaglia Terme Municipality	City/Citizens

Table 13: Padua - Stakeholder addressed by the market analysis

The most relevant priority pointed out by almost all the stakeholders is the reduction of congestion, only Chamber of commerce of Padova ranked it second, paying more attention on the social acceptability of regulation. All stakeholders agree on the second and third ranked priorities: reduction of pollution and profitability of operations.

Volume of transported goods: From May 2013 to April 2014 93.366 deliveries were performed in the LTZ and municipality of Padua, of which 53.232 express parcels deliveries. In the same period 3.333 deliveries were performed in the so called *SPA area*, including the municipality of Abano, Montegrotto and Battaglia Terme.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Survey	Achieved besides Smartset	
Survey	To be achieved	

Table 14: Padua - Activities performed with reference to user needs analysis

In 2003, before the starting of Cityporto, Interporto Padova within the Study of feasibility of the service, performed a survey about the users expectations regarding which kind of city logistics services they would need. It results in a daily two-round trip of deliveries, one in the morning and one in the afternoon, depending on the requirements of the final users (shopkeepers).

Considering that the customers of Cityporto are the users (i.e. the transport operators who joined the service), in order to draw a business plan much trustable as possible, in the meetings with any new customer a detailed analysis of their needs is performed. It results in having a custom tailored service, enabling to get to a city logistics service which can be economically sustainable for both parties.

One of the key of the success is due to working on the parameters of efficiency of delivery operations with which Interporto is compared by the medium-large transport companies that give their goods to deliver only provided their efficiency performance parameters are respected. Just to quote one, the customers of express parcels segment expect Cityporto to maintain a percentage of good-end deliveries of over the 97%. So, an almost daily survey is performed to check if the user's need are met.

With the same purposes of providing a service with high parameters of efficiency, a web-based IT system has been implemented to meet the customers' need on the basis of a survey of best solution available on IT market referred to tracking and tracing system tailored for city logistics services.

A survey will be achieved about Tracking & Tracing system integrated with palmtops allowing the acquisition of signature on the screen to satisfy the users' need (in particular the needs of express couriers).

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Express couriers)

1. Reference area: inner city and all Municipality
2. Reasons for the choice: specific needs related to timely delivery
3. Volume of potential market (tonnes): 50.000 deliveries a year
4. How to expand: Express courier equipment inside warehouse (sorter, conveyor) and specific training of operative personnel.

Market segment n.2 (Drinks)

1. Reference area: inner city and all Municipality
2. Reasons for the choice: asked from private operators

3. Volume of potential market (tonnes): 8000 deliveries a year
4. How to expand: specific vehicle

Market segment n.2 (Perishable goods)

1. Reference area: inner city
2. Reasons for the choice: asked from private operators
3. Volume of potential market (tonnes): to be planned
4. How to expand: specific vehicle

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: Possibility to make a service for e-commerce
2. Market barriers for viable application: Difficulties to find at home the final customers
3. Opportunities/market potential: Perform more deliveries
4. Threats/risks of failure: E-commerce deliveries require to extend the service during the day to make deliveries (to find people at home), producing higher costs related to personnel.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	1000
	Number of vehicles	n.	3
Costs	Investment costs	€	-
	Operational costs	€	-
	Estimated costs per unit	€/kg, €/parcel	0,7€/parcel (0-10 kg)
Market	Estimated market costs per unit	€/kg, €/parcel	1,50/1,60 €/parcel
	Number of operators	n.	3
	Estimated market number of deliveries	n.	n.a.
Revenues	Forecast on number of deliveries	€	6.500 / month
	Forecast on revenues	€	90.000- 120.000
	Break even volume	deliveries/year	working only in break even

Table 15: Padua - Costs and revenues envisaged for the implemented solution

BERLIN

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Terminal Operator	Transport/Logistics operators
2	Pharmaceutical logistics provider	Shopkeepers
3	Parcel logistics provider	City/Citizens
4	Retailers	Shopkeepers

Table 16: Berlin - Stakeholder addressed by the market analysis

The market analysis shows that the most common priority for stakeholders is the profitability of operations; in fact, terminal operators, pharmaceutical logistics providers and parcel logistics providers all stressed that this is the first priority. Also the reliability of deliveries is considered as a priority by these stakeholders, even if it is the third most important. Terminal operators highlighted the viability of investments as second priority, instead pharmaceutical logistics providers and parcel logistics providers pointed out quick delivery as second priority.

Retailers have quite different priorities, pointing out, in this order, the cost of service, the reliability of deliveries and the viability of the investments.

None of the interviewed stakeholders pointed out priorities like social acceptance of the regulation, reduction of congestion and reduction of pollution. The market analysis was carried out interviewing only commercial stakeholders without involving citizens.

Volume of transported goods: 500t - 6.000t per week (referred to Terminal Operator)

No data available for Pharmaceutical Logistics Providers, Parcel Logistics Providers and Retailers.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Workshop/Focus group	Achieved within Smartset	
Workshop/Focus group	Achieved within Smartset	
Survey	Achieved beside Smartset	
Workshop/Focus group	To be achieved	

Table 17: Berlin - Activities performed with reference to user needs analysis

During workshops and focus groups a concern of the potential terminal operators emerged about the economical viability of operations. Green logistics is instead not considered a top priority: from the operators' point of view, customers (which can be citizens, shopkeepers and transport operators) are not willing to pay more for the label "green transport".

Transport operators also highlighted their need of high flexibility in the use of terminals/freight villages, as they want to be able to quickly react to customer wishes.

At the moment different possible concepts are being designed (until end of 2014) in order to be presented to potential operators and decide on the most promising one.

The results of a survey highlighted that high flexibility leads to lower costs, when storage spaces and transshipment spaces can be easily rented or abandoned. This indicates the necessity of a neutral operator who rents out spaces and services.

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Retail)

1. Reference area: inner city area, within Berlin S-Bahn-Ring
2. Reasons for the choice: high density of shops; high traffic loads should lead to visible effects when measures are implemented
3. Volume of potential market (tonnes): 16.250 (very rough estimation)
4. How to expand: creation of an intermodal terminal allowing modal shift from road to rail on the long haul, incoming transport leg.

Market segment n.2 (Pharmacies)

1. Reference area: inner city area, within Berlin S-Bahn-Ring
2. Reasons for the choice: high density of shops; high traffic loads should lead to visible effects when measures are implemented
3. Volume of potential market (tonnes): no quantification possible yet. TBD throughout 2014
4. How to expand: Bundling of different Pharmaceutical transports on the last mile to Pharmacies via a terminal and possible neutral operator

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: Neutral operator can address large number of different customers
2. Market barriers for viable application: Companies with closed transport systems would have to redesign their supply chains to include neutral operator.
3. Opportunities/market potential: Customers with small quantities could benefit from value added services (container gassing, cooling storage etc.) of neutral and flexible operating system. Lower operating costs of rail based supply chains, combined with small number of rail-road transshipment points, creates a unique selling point for the potential operator.
4. Threats/risks of failure: High initial investment costs are necessary, specifically for rail connection.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	<i>n.a.</i>
	Number of vehicles	n.	<i>n.a.</i>
Costs	Investment costs	€	<i>n.a.</i>
	Operational costs	€	<i>n.a.</i>
	Estimated costs per unit	€/kg, €/parcel	<i>n.a.</i>
Market	Estimated market costs per unit	€/kg, €/parcel	<i>n.a.</i>
	Number of operators	n.	<i>n.a.</i>
	Estimated market number of deliveries	n.	<i>n.a.</i>
Revenues	Forecast on number of deliveries	€	<i>n.a.</i>
	Forecast on revenues	€	<i>n.a.</i>
	Break even volume	deliveries/year	<i>n.a.</i>

Table 18: Berlin - Costs and revenues envisaged for the implemented solution

At the moment of publication (07/2014) the concept still needs to be defined and no information could be given at the present time. Different possible concepts are being designed (until end of 2014). Then, different concepts will be presented to potential operators and the concept to be implemented will be decided (early 2015).

FORLÌ

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Couriers	Transport/Logistics operators
2	Residents	City/Citizens

Table 19: Forlì - Stakeholder addressed by the market analysis

Couriers highlighted the profitability of operations as first priority, followed by the reliability and the speed of deliveries. Resident instead, instead, resulted more interested in pollution and congestion reduction, then, on road safety.

Volume of transported goods: Couriers estimated a transported weigh of 0.8-1.0 ton per day.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Survey	Achieved within Smartset	
Workshop / focus group	Achieved within Smartset	

Table 20: Forlì - Activities performed with reference to user needs analysis

A first survey of 264 shopkeepers was carried out in January 2014, of which 216 answered the questionnaire. The results are: 27% of the shops is supplied every day, 17% every 2-3 days, 14% once a week; the rest less frequently (every two weeks or seasonal). The most frequent deliveries are made of parcels, 82% of which weights less than 10 kg. Four couriers (Bartolini/BRT, TNT, SDA/UPS and GLS) cover the 81% of the goods distribution in the historic centre.

A second survey, completed in May 2014 and focused on the four more used couriers for the distribution of goods in the historical centre, showed the following results: daily frequency of deliveries / collection, number of deliveries between 60 and 150 (in the morning), collection number between 10 and 40 (in the afternoon), daily kilometres travelled 25-80, time spent each day 3-5 hours, three couriers have their headquarters less than 7 km from the centre (only one has it 13 km away), one van used by each courier (one courier has two), three of which fuelled by diesel and one by methane.

Presentation and discussion of the shops survey results was carried out on March 25th with the Economic Associations and Couriers, and on April 3rd with the residents representatives of the of the downtown. According to investigations carried out are being drafted improvement possibilities to be discussed with stakeholders

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (All goods except of perishable goods and drugs)

Investigation is still ongoing.

1. Reference area: historical centre (1.54 sq km - equivalent to 0.6% of the municipal area)
2. Reasons for the choice: From the point of view of the environmental sustainability the Old Town is the most sensitive area, because of the historical and architectural heritage that has to coexist with a high density of shops and services. In this area all the deliveries are express.
3. Volume of potential market (tonnes): According to the surveys carried out, considering an average of 450 deliveries / collections per day, with an average weight of 7 kg, we obtain a total of about 3.1 tonnes goods per day
4. How to expand: n.a. - Not scheduled at this time

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: Reduction of vehicles circulating, increase freight consolidation, new image of the city with environmentally friendly vehicles dedicated to the city centre.
2. Market barriers for viable application: Costs and the economic sustainability of the operation (yet to be evaluated); use of different software by each operator; handling payment by the delivery operator
3. Opportunities/market potential: Although the movement of couriers is only part of the cars and vans that run every day the old town, the project is an opportunity to improve service, reduce pollution and traffic in the city centre. Market potential still to be assessed.
4. Threats/risks of failure: The sustainability of the operation requires two essential conditions: to be financially sustainable, without or with a minimum of public support, and the review the regulation of access to the historical centre of all means of transport.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	<i>na</i>
	Number of vehicles	n.	<i>na</i>
Costs	Investment costs	€	<i>na</i>
	Operational costs	€	<i>na</i>
	Estimated costs per unit	€/kg, €/parcel	<i>na</i>
Market	Estimated market costs per unit	€/kg, €/parcel	<i>na</i>
	Number of operators	n.	<i>na</i>
	Estimated market number of deliveries	n.	<i>na</i>
Revenues	Forecast on number of deliveries	€	<i>na</i>
	Forecast on revenues	€	<i>na</i>
	Break even volume	deliveries/year	<i>na</i>

Table 21: Forlì - Costs and revenues envisaged for the implemented solution

Data not available at this stage.

GRAZ

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Commerce	Shopkeepers
2	Carriers	Transport/Logistics operators
3	Citymanagement	City/Citizens
4	City of Gatz	City/Citizens

Table 22: Graz - Stakeholder addressed by the market analysis

Shopkeepers highlighted the reliability of deliveries as first priority, followed by the viability of investments and the speed of deliveries. Carriers showed an higher attention to reduction of pollution and congestion, then, to the viability of investments.

The first priority of the City management is about social acceptability of regulation, followed by reliability of deliveries and viability of investments. City of Gratz, finally, highlighted an high interest in pollution and congestion reduction, then, in social acceptability of regulations.

Volume of transported goods: n.a.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Reference to existing studies	Achieved within Smartset	
Workshop/ focus group	Achieved within Smartset	
Survey	Achieved besides Smartset	

Table 23: Graz - Activities performed with reference to user needs analysis

Existing studies show how all customers are willing to pay a fee for delivering goods.

A workshop was organized as measure for public relations.

A survey was carried out in order to analyze the acceptance of the delivery service by shopkeepers.

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (All kind of non-food goods)

1. Reference area: area of Graz
2. Reasons for the choice: fostering shops in city centre
3. Volume of potential market (tonnes): 5-10 tons a year
4. How to expand: Involve more shops in the service. It might be possible for the shops to join the service at 2 or 3 occasions until end of 2015

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: possibility to enjoy shopping, buying goods on the way to work/at lunch-break and without the need to carry goods by oneself; surprise-factor at delivery using existing capacities of the e-cargo-bikes.
2. Market barriers for viable application: readiness to pay for goods being delivered; complex system; if you buy something you want to carry home your "trophy"; time of deliverance.
3. Opportunities/market potential: the more shops participate the more this service will be established, it's "trendy" (as a way of doing shopping) that goods will be delivered home.
4. Threats/risks of failure: acceptance of this service at the customers, service to expensive, not reliable, not enough shipments for covering the costs

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	1m ³ /e-cargo bike
	Number of vehicles	n.	1-2
Costs	Investment costs	€	20.000
	Operational costs	€	2.000 / year
	Estimated costs per unit	€/kg, €/parcel	3,50€/parcel (average)
Market	Estimated market costs per unit	€/kg, €/parcel	5 €/parcel (average)
	Number of operators	n.	1
	Estimated market number of deliveries	n.	10/day - 3.000/year at the beginning
Revenues	Forecast on number of deliveries	€	10/day at the beginning
	Forecast on revenues	€	4.000
	Break even volume	deliveries/year	3.500

Table 24: Graz - Costs and revenues envisaged for the implemented solution

ROME

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Municipality	City/Citizens
2	City Administration	City/Citizens
3	Ministero dell'Ambiente e della tutela del territorio e del mare	City/Citizens
4	Unindustria Lazio	Transport/Logistics operators
5	CTL Università La Sapienza - Roma	Transport/Logistics operators
6	Roma Servizi per la Mobilità srl	City/Citizens
7	AICAI	Transport/Logistics operators
8	Federlazio	Transport/Logistics operators
9	Confcommercio	Shopkeepers
10	Unindustria Lazio	Transport/Logistics operators
11	Confcooperative Lazio	Transport/Logistics operators
12	Confesercenti Roma e Lazio	Transport/Logistics operators
13	CNA Roma	Transport/Logistics operators
14	Lega cooperative Lazio	Transport/Logistics operators
15	Confartigianato imprese Roma	Shopkeepers
16	Confartigianato trasporti	Transport/Logistics operators
17	Confetra	Transport/Logistics operators
18	Conftrasporto	Transport/Logistics operators
19	UNRAE	Transport/Logistics operators
20	ANFIA	Transport/Logistics operators
21	Federauto	Transport/Logistics operators
22	Romana Diesel	Transport/Logistics operators

Table 25: Rome - Stakeholder addressed by the market analysis

All the stakeholders belonging to the customer segment "city/citizens" agree on their priorities: the first one is the reduction of pollution in the city, then, the reduction of congestion or the social acceptability of the new regulation. The third priority of all stakeholders of this segment is about road safety.

Shopkeepers pointed out a higher attention on the reliability of deliveries, then on the cost of service, profitability of operations and acceptance of consolidated deliveries.

Stakeholders belonging to the segment of transport and logistics operators stressed a big interest in the profitability of operation and in the reliability of deliveries, then in the speed of deliveries. Other diffused priorities in this segment concern the social acceptability of the regulation, the road safety, then, the acceptance of consolidated deliveries and the viability of the investments.

Volume of transported goods: na

The stakeholder analysis is carried out together with Unindustria and CTL Università la Sapienza, data about volume of transported goods will be available from September 2014.

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Survey	To be achieved	
Workshop / focus group	To be achieved	
Reference to existing studies	Achieved besides Smartset	

Table 26: Rome - Activities performed with reference to user needs analysis

From the existing studies the city site acquired knowledge about the number and the characterization of the existing activities inside the study area (Tridente zone)

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Perishable goods / food)

1. Reference area: Tridente (inner city centre)
2. Reasons for the choice: specific needs related to timely delivery
3. Volume of potential market (tonnes): to be analyzed
4. How to expand (describe): na

Market segment n.2 (Clothing / apparel)

1. Reference area: Tridente (inner city centre)
2. Reasons for the choice: specific needs related to timely delivery
3. Volume of potential market (tonnes): to be analyzed
4. How to expand (describe): na

Market segment n.3 (Express couriers)

1. Reference area: Tridente (inner city centre)
2. Reasons for the choice: continuous delivery in time
3. Volume of potential market (tonnes): to be analyzed
4. How to expand (describe): n.a.

Market segment n.4 (Ho.re.ca)

1. Reference area: Tridente (inner city centre)
2. Reasons for the choice: main commercial sector to be addressed

- 3. Volume of potential market (tonnes): to be analyzed
- 4. How to expand: na

The Business Opportunity Plan, including a potential market analysis, is carried out together with Unindustria and CTL Università la Sapienza, data will be available from December 2014

Markets and barriers

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: UFT with clean vehicles: free to access limited traffic zone with penalties for polluting categories and restricted time band for freight delivery of standard vehicles. Possibility to integrate freight distribution with other services (eg. Goods storage), timely deliveries due to close distance with final destination.
2. Market barriers for viable application: Cost of the UFT area close to city centre, clean vehicle expensive, cost of the loading/unloading procedures, difficulties in administrative procedures to make possible integration of different goods, no possibility to integrate different express couriers, limitation from high fashion/luxury, economic crisis.
3. Opportunities/market potential: Progressive pedestrianization of the area, need of clean areas inside the city centre, progressive increase of environmental parameters for freight vehicles and of cost of the access permit.
4. Threats/risks of failure: High cost to set-up the platform, need of permits in order to operate, impossibility to reach the economic sustainability in case of market dumping from logistic competitors.

Main figures on costs and benefits

	C&B	unit	value
Assets	Available space	sqm	Na
	Number of vehicles	n.	Na
Costs	Investment costs	€	Na
	Operational costs	€	Na
	Estimated costs per unit	€/kg, €/parcel	Na
Market	Estimated market costs per unit	€/kg, €/parcel	Na
	Number of operators	n.	Na
	Estimated market number of deliveries	n.	na
Revenues	Forecast on number of deliveries	€	na
	Forecast on revenues	€	na
	Break even volume	deliveries/year	na

Table 27: Rome - Costs and revenues envisaged for the implemented solution

The study is carried out together with Unindustria and CTL Università la Sapienza, data will be available from February 2015.

SUNDSVALL

Stakeholder analysis

N.	NAME or GROUP	CUSTOMER SEGMENT
1	Municipality of Sundsvall/Swedish Transport Administration	City/Citizens
2	Post	Transport/Logistics operators
3	DHL Freight Sweden	Transport/Logistics operators
4	Sundsvalls Expressbyrå AB	Transport/Logistics operators
5	DB Schenker AB	Transport/Logistics operators
6	Bussgods Sundsvall	Transport/Logistics operators
7	RPG Logistics	Transport/Logistics operators
8	Road Cargo Sweden AB	Transport/Logistics operators
9	Bring	Transport/Logistics operators
10	DSV Road AB	Transport/Logistics operators
11	Logent	Transport/Logistics operators
12	Shopkeepers	Shopkeepers
13	Coop	Shopkeepers
14	Jula	Shopkeepers
15	Rush Rail	Transport/Logistics operators

Table 28: Sundsvall - Stakeholder addressed by the market analysis

The stakeholder representing the city and citizens pointed out as first priority the viability of investments, followed by the reduction of pollution and of congestion.

Shopkeepers highlighted more interest in the reliability of deliveries, then in their quickness and in the social acceptability of the new regulation.

DSV Road AB and Rush Rail showed high attention on the profitability of operations and on the cost of service. All the other stakeholders belonging to the segment of transport and logistics operators agree in their priorities: acceptance of consolidated deliveries and reliability of deliveries.

Volume of transported goods: na

Analysis of user needs

CUSTOMER RELATIONSHIP	STATUS	Reference document
Workshop / focus group	Achieved within Smartset	
Survey	To be achieved	
Workshop / focus group	To be achieved	
Workshop / focus group	To be achieved	

Table 29: Sundsvall - Activities performed with reference to user needs analysis

Focus group with Näringslivsbolaget and Stadsbyggnadskontoret was organized. There is a need of restrictions of transports in the urban area in order of minimize damage on building facades, noise, unnecessary routes, transport hazardous loadings and unloadings.

Sundsvall supervises two students at Mid Sweden University who will investigate, with a survey, the needs among transporters and the usability of two different models for city logistics that hopefully will be implementing in the pilot during the project.

A meetings with Coop is planned in order to find an agreement to test a sustainable solution for a long way transport of food-stuffs. Since there have been some barriers in the long way train structure there is an idea of testing truck train.

A meetings with operator of a potential microterminal for consolidating an co-loading goods for urban logistics is planned too.

Potential market

Potential market for co-delivering of goods:

Market segment n. 1 (Retail goods)

1. Reference area: inner city
2. Reasons for the choice: specific needs to reduce the number of transport in the inner city
3. Volume of potential market (tonnes): na
4. How to expand: After the pilot in the project expands to include more shop

Markets and barriers

Market barriers and threats for co-delivering of goods:

Market barriers and threats for co-delivering of goods:

1. Strengths of the proposed solutions: There are many logistics related businesses in the Sundsvall region. Stores in the inner city are geographically concentrated. Sundsvall is located as a node between several major infrastructure routes that include four types of transports: by road, rail, sea and air.

2. Market barriers for viable application: The difficulty of developing a sustainable business model that is profitable. Lack of information to/between the actors involved
3. Opportunities/market potential: Better environment. Fewer heavy transports and not as many vehicles in the inner city. Safer traffic environment. A more attractive inner city center.
4. Threats/risks of failure: That all actors are not willing to be committed with this kind of solutions, and instead they are operating on their own. Find an actor who coordinates the concept after the project ends.

Main figures on costs and benefits

	C&B	Unit	value
Assets	Available space	Sqm	<i>na</i>
	Number of vehicles	n.	<i>na</i>
Costs	Investment costs	€	<i>na</i>
	Operational costs	€	<i>na</i>
	Estimated costs per unit	€/kg, €/parcel	<i>na</i>
Market	Estimated market costs per unit	€/kg, €/parcel	<i>na</i>
	Number of operators	n.	<i>na</i>
	Estimated market number of deliveries	n.	<i>na</i>
Revenues	Forecast on number of deliveries	€	<i>na</i>
	Forecast on revenues	€	<i>na</i>
	Break even volume	deliveries/year	<i>na</i>

Table 30: Sundsvall - Costs and revenues envisaged for the implemented solution