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Dorothy project: urban logistics organization in Valencian Community.

Eva María Pino[a]*, Davinia San Nicolás[a], Isabel Espinós[b]

[a] *Institute of Transport and Territor, Polytechnic University of Valencia (UPV), Valencia 46022, Spain*
[b] *MOVUS, Paterna 46980, Spain*

Abstract

This paper describes the current state of the European project "Development of Regional Clusters for Research and Implementation DOROTHY environmental friendly urban logistics" which aims to analyze and develop the potential of technological innovation and research in Urban Freight Logistics in each of the four European regions participating in the project, including Valencian Community, through a detailed study of the distribution of goods from the point of view of all actors involved (carriers, distributors, stakeholders, government, various associations, etc.) and the formation of working groups or clusters with representation from each of them .

Besides entering in detail the objectives and structure of the DOROTHY project, this paper includes the most important aspects that characterize the Urban Logistics Goods in Valencian Community.

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Keywords: Urban Logistics, Urban Freight, Cluster, Parcel, Courier

1. Introduction.

Urban distribution of goods guarantees the necessary supplies for the life in our cities. It is regarded as one of the key elements in the socio-economic activity at national level and, in particular, at municipal level. It allows supplying people and/or businesses with goods; but it also has a major influence on other areas such as urban mobility, mainly affecting urban traffic and flows since distribution vehicles usually operate in rush hours.

The techniques enable to optimize procurement systems and distribution of goods are studied and developed for logistics. This discipline integrates storage activities (planning, packaging, etc.), transportation, inventory

* Corresponding author. Tel.: +34 963877370; fax: +34 963877379.
E-mail address: evpiher@cam.upv.es

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management and information flows. Within the set of activities that it integrates, transportation is probably the most important, both for its complexity and the specific weight of the cost of the total logistics cost, which can reach up to 60% for food companies [1]. But it is not just the cost factor which emphasizes the importance of transportation in logistics, but there are also other significant factors as pollution, congestion, risk of accidents, energy consumption and the strong dependence on fossil fuels by the transport system, and the economic and environmental consequences that it entails. They are all negative effects arising from the distribution of goods and charged especially important in urban areas.

The "process to optimize the logistics, distribution and transportation of private companies in urban areas, while taking into consideration the environment, traffic congestion and energy consumption within the framework of an economy market" (Taniguchi, 1999) [2] is known as Urban Logistics (UL). Local authorities should consider urban logistics related to the transport of passengers and goods as a single logistics system. In fact, as the Green Paper of the European Union [3] notes, logistics in freight transport has a strong urban dimension and therefore any urban mobility policy should also address it, although usually the mobility of passengers is studied and planned with greater detail, leaving the distribution of goods in second place.

In short, the distribution of goods is a fundamental aspect to be considered in urban planning, especially on mobility field. However, it has been treated for years of a partially and currently is a problem that no city has completely resolved.

2. Urban Goods Distribution and Urban Logistics.

Urban distribution of goods (UDG) is badly considered for the citizen who does not fully understand its needs and yet directly suffers its negative effects: occupation of public space, street congestion, noise, etc. But not all goods and businesses have the same needs or generate the same discomfort.

Considering the different types of goods that are usually distributed in cities, we can distinguish among different UDG modes: building materials, supply to commercial establishments, food products for medium and large stores, the intended superstores, supply to private homes and supply to pedestrian areas. Also the collection of waste is an activity of great importance from the point of view of the operation of any city due to its nature and complexity, although it is not strictly considerate as UDG.

Some types of UDG require large vehicles (construction materials, appliances, supply superstores, etc.) and special times, although sometimes it inevitably happens at peak hours in traffic or in the period of maximum urban activity. Besides these drawbacks, there are other problems related to time constraints and access to certain restricted areas. In addition, large vehicles require more time for loading/unloading and shorter distances between shops and designated areas to park and unload.

Food products for medium and large stores are also trucked medium or large tonnage. Frequently no warehouse neither unloading dock within supermarkets in urban areas, or maybe they have not enough capacity, so that the supply of goods is usually carried out in several times a day, parking in reserved places or sometimes occupying public space. However, traditional markets have a very different problem. Early morning a lot of trucks and vans arrival to supply stalls, but by midmorning the main discharge decreases although it is still required parking places for "van-warehouses" -because the space for storage on the market stalls is really small- and also for customers.

Goods of small volume and home delivery do not require high capacity vehicles for transport, so they are not usually included in the general restrictions except in the case of pedestrian areas, but they have problems in terms of parking and loading/unloading of goods, affecting road traffic significantly. Meanwhile, pedestrian zones or restricted areas have regulations for loading and unloading. Typically, the distribution of goods is allowed at off peak hours except in special cases, regulated through automatic control systems.

Finally, note that some stores have a supply with relatively long intervals, but others such as pharmacies and some supermarkets require multiple daily deliveries, leading to other variants of UDG. Thus the Urban Logistics must develop diverse solutions consistent with the needs of each type of establishment and with the urban and social environment around them.

At this point, note that the urban logistics economic dimension is certainly important because its costs represent a significant part of the overall costs of distribution (even 40-50% of total costs). Some studies allude to UDG represents 15% of total traffic in urban areas, with about 650 commercial vehicles per 1000 inhabitants (470 are

passenger vehicles) and the stop time is about 13 minutes, too long to be held illegally. However, parking places for these vehicles (usually between 5-10%) are often used by unauthorized cars, creating major traffic problems and increasing the risk of accidents. Even sometimes these places are underused because their location is not good for the main commercial points and times are very broad. In fact, on average, only uses 20% of the reserved places in cities, while 70% of commercial vehicles park illegally.

Finally, it should be noted that trade generates 75% of loading and unloading, while the rest is distributed among households (15%) and services sector (10%). The number of loading/unloading operations to supply commercial establishments is varied depending on the type of activity and depends on their characteristics in terms of type, size and sector.

3. DOROTHY: the European project about Urban Logistics.

The main actors involved in the Urban Logistics (UL) obviously are, on the one hand, providers of transportation and logistics services in urban areas, and on the other receivers of the goods, i.e. traders. But Local Government also plays a key role in this regard, and should be considered as another equally important agent as well as trade associations, neighbors associations, etc. Therefore, actions and solutions implemented on UL must be planned by all stakeholders and actors involved. In this sense currently is developing the project DOROTHY “Development Of RegiOnal clusTers for researcH and implementation environmental friendlY urban logistics", which is part of the 7th Framework Programme of the EU in section "Transnational cooperation between regional research-driven clusters”.

Within this framework DOROTHY Project is targeted to develop the potential of innovation and research in the four Regions composing the Consortium in the field of UL through a detailed study of the distribution process of goods in their cities from the point of view of all the agents involved and by the formation of clusters with representation from each of them. The project is aimed to a rationalization of the logistics process to contribute to the emission reduction and the improvement of the quality of the European cities and foster cooperation in innovation, defining mechanisms to allow that innovation could be implemented in the economic tissue of the Regions.

The project began on July 1, 2013 and lasts 36 months so its end date is June 30, 2016. The regions involved in the project are: Valencia with five partners (Spain), the region of Tuscany (Italy) and Lisbon and Tagus (Portugal) with seven partners per region, and the region of Oltenia (Romania) with six partners. In total 25 members, of which 4 are universities or research institutions, 8 are private companies and 13 are municipal and regional government agencies involved.

Dorothy management structures at different levels in relation to the organization and coordination of the project, the development of technical work and the organization of regional clusters. As usual in the development of European projects, at administrative level, there are a Project Coordinator (PC), which will be the official representative of the Project toward the Commission and the responsible of the overall Project; a Technical Management (TM) team, constituted by specialized personnel which will provide all the functions of operational management of the Project and which will support the project Coordinator in the day-by-day Project management; a decisional body which will address the decisions and the activities, the Project Management Board (PMB), which will be in charge of the decisional process about all the themes concerning the operation of the Project; and a body specifically devoted to address the most important activities related to scientific, technological and strategic issues, called Advisory Board (AB). It will be composed by external experts scientifically qualified in the specific field. To achieve its target, the AB will meet frequently and will work in contact with the PMB.

Regarding the development of technical work there are two key figures: the local WPs and tasks leaders, responsible for a piece of work. However, due to the nature of the project that has as its ultimate goal the formation of a regional cluster of urban logistics in each participating region, it is necessary to establish an additional level of coordination as described above, in order to manage some regional activities and to coordinate of all the local organization. The "Cluster Contact Point" (CPC) for each region is the only way to establish contact between the local and the Project organization, for all the not technical issue involving the local teams. This role is generally covered by one of the WP responsible in each site. In Valencia Region the CPC is MOVUS, a private company that

is the main bike-sharing operator in Valencia metropolitan area in addition to study and provide other innovative urban mobility solutions for sustainable cities.

Finally it should be noted that besides the consortium of partners involved in the project there is another group that plays a key role in developing the regional cluster of urban logistics. The Stakeholders group gathers all the Cluster partners not participating to the Project and some other significant and representative subject, capable of giving a valuable contribution to the Project.

4. Objectives of Dorothy project.

Within this framework, Dorothy Project is targeted to develop the potential of innovation and research in the four Regions composing the Consortium in the field of Urban Logistics, which represent the specific application topic of the proposal, and is one of the main focus of attention of the European Flagship Initiative. The Project is aimed to a rationalization of the logistics process, and through this rationalization will contribute to the emission reduction and the improvement of the quality of the European cities. Moreover it will foster cooperation in innovation, defining mechanisms to allow that innovation could be implemented in the economic tissue of the Regions.

The theme of Urban Logistics represents, in this framework, an important aspect of the efficient use of resources in Europe. In fact, being the overall supply chain for the movement of goods one of the political priorities of the European agenda, the problem of the "last mile", directly related in its majority to urban logistics, is one of the most relevant of the overall supply organization. In addition, the cities of the regions participating in the project can be considered as Mediterranean and historic towns; narrow streets designed to walk favoring commercial activities at street level, but not very suitable for motor vehicle use.

Therefore the efficiency of the supply chain is a prerequisite for the survival of the economic activities in the historic centers, areas that are often restricted to traffic and where UDG generates significant impacts. Consequently, an improvement in the UL could generate many social and economic benefits. In fact, a reduction of the operation time could produce very significant savings in the overall cost of distribution. And streamlining the process of load distribution will have a positive impact on the livability of cities if the number of vehicles in circulation is reduced, improving environmental quality. Last but not least, improving UL reduces significantly energy consumed and represents a significant potential market for logistics operators, companies providing technology, etc.

The specific objectives of the Project can be synthesized as follow:

- To define new lines of research and innovation for the Clusters compliant with the specific technological and territorial specializations.
- To address the research-driven clusters on urban logistics in the four Regions toward common development areas and to set up operational collaboration on these topics, through networking activities. These definition will be also accompanied by the evaluation of the potential different kinds of benefits coming from the exploitation of results (under the economic, environmental, social and urban point of view)
- To set up the most appropriate conditions for the full exploitation of the potential results of these researches taking into account the "framework conditions" (regulatory, social, economic) which could affect their applicability and effectiveness and suggesting to the relevant stakeholders appropriate solutions.
- To ensure the appropriate spread of knowledge through dissemination actions and stakeholders involvement.
- To support the internationalization of the Clusters through specific actions
- To define Joint Action Plans (JAP) for the four Regions, with the active involvement of the Regional Authorities and Agencies, in a coordinated way to plan the future research and technological innovation activities and to define the reference framework for their funding.
- To mentor the start-up of the research clusters in the most advanced realities by the more assessed ones.
- To monitor the start-up of the activities defined in the JAP.

From the quantitative point of view, the above mentioned objectives will be concretized in the following verifiable results which will be obtained within the project lifetime.

- Set up and organization of the activities and the work of the Regional Clusters (RCs) (when they are not yet active)
- Elaboration of a detailed analysis of the status of Research and Innovation in the four Regions related to the European realities and trends and to the innovation demand.
- Elaboration of the research agendas for the RCs.
- Definition of a Joint Action Plan for research and innovation involving the four Regions defining all the detailed actions to be carried out on a defined time period.
- Technical contribution for the preparation of the Regional Proposal for the use of the European funds allocated to the different Regions according to their status (Cohesion Funds, Structural Funds, INTERREG Programs, etc.)
- Definition and implementation of a networking plan for knowledge sharing and experience exchange
- Set up of contacts with international realities in Brazil and perhaps in Albania and fostering the opening to these markets by the RCs partners
- Implementation of a portal connected with other RTD transfer tools
- Carrying out of international promotional events.
- Exchange of researcher and technical personnel among the RCs.
- Set up of the first phases of the co-operation actions foreseen in the JAP.

5. Project Structure

Dorothy project has a structure based on a hierarchical decomposition of the work to be undertaken by the project team in order to achieve its objectives and create the required deliverables. It is called in project management a work breakdown structure (WBS). The WBS helps to identify and define all the efforts required, assign responsibilities to the elements of the organization, and provide a basis for an adequate budget and schedule for the completion of the work. The planned work is contained in the various components that make up the structure, called work packages (WP), which are characterized in that can be programmed, budgeted and easily controlled. At each level or WP are defined in detail the scientific and technical work to develop. This WP is divided into tasks to a level of detail sufficient to enable the successful completion of work by the respective partners, work that eventually materialized in one or more deliverables per WP. Dorothy project has a structure composed of 8 work packages according to the scheme shown in the following image.

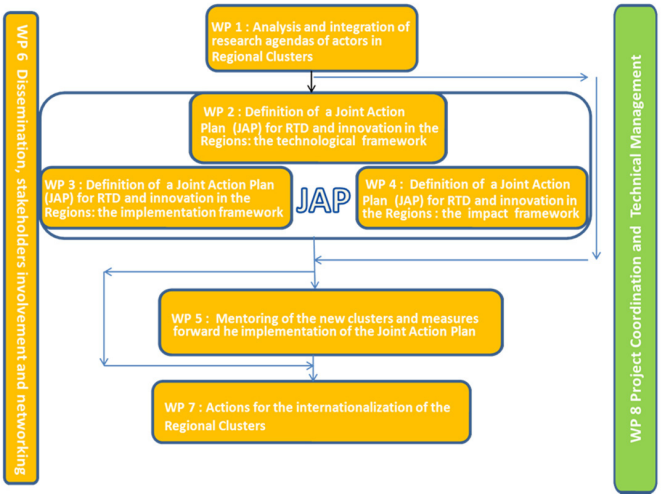

Fig. 1. Dorothy structure.

The set of work packages is divided into 27 tasks corresponding to 15 deliverables and 11 milestones, which are tasks without time duration that symbolize having a significant achievement in the project.

The first WP1 is devoted to assess the research agendas for the local Clusters and the situation of the research in this specific field in the four Regions. The WP1 work carries out a detailed analysis of the Regional realities, compared with the level of the European research and with the potential innovation demand. This analysis gives the possibility to define the "competitive position" of the innovation potential of each partner Region. The development of this WP must be carried out by the partners involving the Stakeholder group as information provider; finally the Advisory Board contributes to the definition of the analysis methodology and to the definition of the possible integrations and co-operation topics and areas.

During the first phase of the Project, in a parallel way with respect to the development of WP1, the mentoring of the formal set up of the Clusters is performed through the first task of WP5.

Table 1. Dorothy WPs' structure.

	TASKS	DELIVERABLE	MILESTONES
WP 1 Analysis and integration of research agendas of actors in Regional Clusters	T 1.1 T 1.2 T 1.3 T 1.4	D 1.1 D 1.2	MS1 First program for co-operation on the reasearch agendas
WP 2 Definition of a Joint Action Plan (JAP) for RTD and innovation in the Regions: the technological framework	T 2.1 T 2.2 T 2.3 T 2.4	D 2.1 D 1.2	MS2 Final version of the JAP
WP 3 Definition of a Joint Action Plan (JAP) for RTD and innovation in the Regions: the implementation framework	T 3.1 T 3.2 T 3.3 T 3.4 T 3.5	D 3.1	
WP 4 Definition of a Joint Action Plan (JAP) for RTD and innovation in the Regions: the impact framework	T 4.1 T 4.2 T 4.3 T 4.4		
WP 5 Mentoring of the new clusters and measures toward the implementation of the Joint Action Plan	T 5.1 T 5.2	D 5.1 D 5.2 D 5.3	MS3 Operation of all the Regional Clusters MS4 Evaluation on the state of implementation of the JAP
WP 6 Dissemination and networking	T 6.1 T 6.2	D 6.1 D 6.2 D 6.3	MS5 Availability of the Dorothy Portal MS6 Integration of the Dorothy Portal with "one.stop.transport" platform. MS7 Start-up of the networking and knowledge sharing activities MS8 Final conference
WP 7 Actions for the internationalization of the Regional Clusters	T 7.1 T 7.2	D 7.1	MS9 Identification of potential targeted clusters for international cooperation
WP 8 Project Coordination and Technical Management	T 8.1 T 8.2 T 8.3 T 8.4	D 8.1 D 8.2 D 8.3 D 8.4	MS10 Intermediate Review Meeting MS11 Final Review Meeting

As it is seen from the picture above, the three WPs (WP2-WP4) are interrelated and devoted to the definition of a Joint Action Plan (JAP) for the four RCs. The main objective of WP2 is to identify the lines of research and innovation (R&TI) actions in the area of application of UL in the four regions, taking into account various factors such as local specialties, market demand, etc. And it contains a specific task to prepare the final version of the JAP, a project milestone.

The following work package aims to specify the constraints on the actions identified in WP2, provide criteria for selecting the most appropriate and consistent actions among all claim and provide some other important elements such as the financial plan or the actions of support of international cooperation. While the WP4 aims to define,

qualitatively and quantitatively if it is possible, the impact of the actions defined in the JAP as an additional element for the selection of the most appropriate actions.

To sum up, the JAP foresees integrated actions, taking in any case into account the local specializations and the territorial needs and it can be synthesized on the basis of:

- The outcomes of the work about the definition of the research agendas carried out in WP1
- The local specialization of each Cluster and its potentialities
- The local conditions and the local potential demand of innovation
- The possibility to exploit the innovation outside the territorial environment, at national and international level.

The implementation of the three previous WPs leads to WP5, which aims to facilitate the implementation and organization of regional clusters in those regions which are not yet established and oversee the initial phase of implementation of the JAP.

On the other hand, WP6 and WP7 focuses on dissemination tasks, sharing of progress and results of the project and the internationalization of the regional clusters, whereas the last work package addresses issues of project coordination and technical direction .

The project structure further defines who are the coordinator of each WP, the work package Leaders (WPL), which are in charge of coordinating all aspects related to the development of the work in the technical WPs and will provide the interface between the part of the work under their responsibility and the project level management. The leaders of each task or Task Leaders (TL) are the technical people responsible for design and implementation of single tasks and will closely cooperate with the WPL for what concerns the development of the work foreseen and its reporting.

6. Current Status of the Project

Until now, the work plan initially approved is following with no delays. Currently, in addition to the initial meeting, two meetings of plenary work have already been celebrated in Siena (Italy) and Craiova (Romania), moreover several local meetings, in order to present the project to potential stakeholders in the Participating Regions and coordinate the activities developed in the framework project.

Meanwhile, the analysis of existing research programs and technological developments in each region, related to the WP1, is really advanced and specifically in Valencia has allowed knowing its logistics structure, the grade of innovation and the research developed in the regional environment related to the UL. One of the fundamental objectives of the work developed in WP1 is to position all of these activities with respect to the current state of arts and trends in research at European level, to define the "competitive position" of the Valencian Community and identify which companies, both carriers/logistics operators and companies producing technology, may contribute to cluster formation.

Recently the WP2 has begun, led by the Valencian Company MOVUS, corresponding to the definition of the Joint Action Plan (JAP) of the Regions from the technological point of view. Within this WP, UPV is leading the task 2.1 and its proposed common methodology was presented at the meeting celebrated in the city of Craiova last February. This methodology is based on the realization of joint SWOT analysis, involving logistics operators, technology providers, municipal and regional authorities and stakeholders, to facilitate definition of the most appropriate technology areas for each regional cluster related to UL and to analyze their potential market.

From the results of WP1, each Region should select sectors/subsectors in which technology partners are positioned and logistics operators are more interested, defining current and future municipal logistics scenarios. With all the above information is proposed convening meetings, led by the regional partners of the project, with all actors involved to analyze jointly, through SWOT analysis focused on selected technology areas. Currently we have already begun with the previous analysis and organizational tasks for such meetings.

All this provides the basis for the task 2.2, which also is leading by MOVUS and we are already working on, that also provides a basis to facilitate the implementation and organization of regional clusters, task related to the WP5.

In terms of dissemination of the main results and progress of the project, according to WP6, it should be noted that a website is already available in www.clusterdorothy.com, which can be found the main objectives of the DOROTHY project, its structure, the partners of the consortium and the results of the activities carried out so far, among other information.

7. Organization of urban logistics in Valencian Community.

As discussed in previous sections, the work of WP1 provides insight into the structure of UL in Valencian Region. Specifically, work done to develop the tasks 1.1 and 1.2 of WP1 has allowed us:

- To know the main characteristics of the distribution of goods in our region.
- To identify transport operators in the Valencian Community as its core business and technological position in the market.
- To identify and analyze the main suppliers of technology in the Valencian Community.

First, it is appropriate to define what cities of Valencian Community may be subject to development projects focusing on urban logistics. Considering the number of inhabitants, in Valencian Community there are 15 municipalities with over 50,000 inhabitants. Of these only the provincial capitals (Valencia, Castellón and Alicante) and Elche exceed 150,000 and only the city of Valencia has more than 500,000.

Table 2.1. Municipalities with over 50,000 inhabitants. Source: Anuario La Caixa 2012

Municipality	**Population 2012**
Valencia	797.028
Alicante/Alacant	334.678
Elche/Elx	230.587
Castellón de la Plana/Castelló de la Plana	180.204
Torrevieja	103.720
Orihuela	90.087
Torrent	81.402
Gandia	79.010
Benidorm	72.991
Paterna	67.356
Sagunto/Sagunt	65.238
Alcoy/Alcoi	60.837
San Vicente del Raspeig	55.100
Elda	54.536
Vila-real	51.357

It should be noted that the main problems of urban logistics in a large city like Valencia will not be the same as in smaller cities like Gandia or Elda. Consequently, the solutions studied in the first case are very different from those designed for other cities, and vice versa.

Moreover, various sources conclude that in Valencia there are 21 business per 1000 inhabitants on average (18 commercial establishments estimated per 1000 inhabitants, assuming that the relationship between the number of shops and commercial activities is 0.8), including shopping and dining options. If we consider only the municipalities of over 50,000 inhabitants, the figure rises to almost 24 businesses per 1000 population, 3.5 points

higher than the national average. There are not large differences among municipalities of over 150,000 inhabitants and, not even with respect to the city of Valencia, which is the only of over 500,000 inhabitants.

Table 2.2. Commercial activities and shops per 1000 inhabitants Source: Own elaboration with data of Anuario La Caixa 2012

	Act. /1000 inhabitants.	Est../1000 inhabitants
50.000 - 150.000 inhabitants	23,3	18,7
150.000 - 500.000 inhabitants	23,8	20,2
Over 500.000 inhabitants	24,0	20,4
AVERAGE VALENCIAN COMMUNITY	21,2	18,1

Another important aspect to be analyzed to characterize the Valencia region from the point of view of logistics is the quantity of companies existing in this sector. In order to identify all those involved in the distribution of goods and adequately characterize the sector is important to know the number, types and size of existing logistics operators and carriers in our region.

The attached table shows the estimated number of logistics companies in the Valencian Community. The information is collected by different types:

Table 2.3. Logistic companies in the Valencian Community. Source: [4] Expert Logistics (2013)

TYPE	COMPANIES
Logistics Operators (transport, storage, bulking, packaging ...)	approximately 120
Stockists - Dealers	approximately 150
Self-employed Transport and Storage Sector	approximately 19.600

Within logistics operators it is possible to distinguish different forms, such as those dedicated exclusively to the parcel or partial loads, generally large companies with delegations in Valencia such as DHL Express Castellon or DB Schenker SPAIN-TIR Valencia's office. There are also multi-logistic operators, such as the company REDUR (from Aragon Community with offices in Valencia), capable of delivering any kind of goods such as furniture, cables, packaging and pharmaceuticals. And also it is useful to distinguish the specialized logistics operators, such as those dedicated to envelopes and parcels as the Valencian Company TIPSA.

However, in Valencian Community should make a special distinction to the supply of the supermarkets in town of Consum and Mercadona, two major areas of feed (primarily). Food distribution has some special features; its goods are dispatched from its logistics centers and service routes are established according to the proximity between stores, agreeing with store staff the services and schedules based on the specificities of each case: location, store availability for unloading spaces, private parking, etc. It is usual special schedules for downloading and several services per day, frequently distinguishing between fresh and dried products. Most isolated stores, however, are usually provided by an only daily service, even combining fresh and dried products. Obviously, in these cases the major constraint is the transport distance. In purely urban environment, trips and services are planned daily, trying to optimize the filling of vehicles.

This type of centers are important study cases from the point of view of reverse logistics, i.e. logistics relating to their containers, boxes and pallets, distinguishing between those that are reusable and will return to the process, and those that are disposable and / or recyclable.

In the same way the analysis of the Valencian logistics sector from the point of view of technology applicable to this field is crucial. It is important to know those companies that develop technology or provide software, hardware, vehicles, telecommunications, etc. Obviously these are companies that should be represented in the logistics cluster, as their role is paramount in the development and innovation of this sector.

According to several sources, it is estimated that there are at least 4 manufacturers of vehicles for goods transport in Valencian Community: The factory cars Ford Motor Company (Almussafes), which currently assembles some

models of vehicles for the transport of goods such as the Ford Transit Connect, and other companies among its activities is the production of refrigerated vans and isothermal commercial vehicles. There are also more than 25 electronic and telecommunication systems manufacturers, various manufacturers of batteries and charging systems for electric vehicles and some providers of Wi-Fi & RFID solutions. However device on board manufacturers are not detected in our community. There are also some leading Valencian companies in the field of access control and traffic monitoring systems, and numerous technology and research centres relating to logistical and technological aspects.

On the other hand, there are dozens of suppliers of picking and storage systems, including any automatic store, and many others that offer equipment for labelling and handling charge. There are also many Valencian companies engaged in the development and distribution of software technology applicable to the UL such as warehouse management, route optimization, fleet management, etc.., Highlighting some purely Valencian developments like RoutingMaps, a software developed by the Valencian Institute of Information Technology, or a pay system on board based in ITC solutions (PAY PER USE: for a Sustainable Intelligent Mobility) which allows the regulation of entry into urban area restricted by paying a toll, developed by Valencian platform IMAUT formed by several Valencian Technology Centres.

8. Conclusions.

The objectives during the first phase of the DOROTHY project in Valencian Community are on the one hand the definition of "specialization" of the region, i.e., identify technology and application areas which are related to urban logistics and where the region has a certain advantageous position with respect to other regions. And on the other hand, the definition of "local innovation potential demand" or the potential market that exists for certain technologies at local level.

In this sense, as a consequence of this first phase, it is obtained the first conclusions. For instance, the Valencian Community is a strong region in the development and introduction of hardware and software systems to support regulatory models and distribution of goods (booking parking areas, access control systems, variable information panels, traffic management...) and storage systems (automatic storage, handling, picking…), as well as in the adequacy of vehicles for distribution of goods. Nevertheless this region also demands improvements and innovations in other aspects, such as to integrated systems for managing the distribution of goods to major companies or optimization tools suitable for strategic distribution planning, among other technologies.

Of course, serious efforts are still needed to achieve a more sustainable urban logistics in our cities. Obviously, this is only a first step in order to establish the basis for the creation of a Regional Cluster of urban logistics in the Valencian Community and to start a joint definition of an action plan of measures among all stakeholders.

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