The Urban Distribution of Goods: Challenges and Solutions

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Introduction

In a world where the purchases made online steadily increases and consumers are becoming more demanding in terms of speed and flexibility of service, the urban last mile distribution of goods is a service that gains more relevance every day within the supply chain.

However, national governments - and even more so the municipal administrations - have begun to take restrictive measures for delivery vehicles’ access to urban centers, especially in major metropolitan areas, with the aim to avoid congestion and protect the environment.

The two trends are clearly conflicting and require a profound change in the urban distribution model. In this publication we will analyze which are the main challenges of the current model and which solutions are appearing on the horizon.
Growth of Urban Deliveries

Until a few years ago, purchasing goods over the internet was something very new. In addition to being a resource used only in certain sectors - Amazon, for example, was initially only for books - it was the preference of a very specific buyer: young people born in the digital era. Today, the e-commerce model is fully accepted in almost all society and is present in virtually all sectors of the economy.

The numbers prove it: according to the National Institute of Statistics (INE) and the National Center of Markets and Competition (CNMC), in Spain the internet sales of clothing and accessories, electronics, books, music, toys, gifts, sports, health and beauty has grown by 37% in the last 3 years, rising from a 6.5% of the total sales in 2014 to a 8.9% in 2017 (see Table 1). However, these same figures also indicate that there is still much growth ahead, given that there are other countries that show levels of penetration of e-commerce much higher: in the United States, for example. Taking into account the same industrial sectors, the market share of e-commerce in the U.S. in 2017 was 14.6%, and in the United Kingdom reached a 18.7%.

If this upward trend in online consumption factors in the habit of making smaller orders each day - according to the same sources, the average ticket of an online purchase has dropped more than 10% in the same period, from 46.6 € in 2014 to 41.7 € in 2017 - it is clear that the number of orders to be delivered to the homes of the online buyers will continue to increase, at least in the short term. In addition, consumers increasingly demand more immediacy between the purchase and the receipt of their orders. Previously, next day delivery of a product purchased online was considered a premium service, but today deliveries on the same day, or even in less than 2 hours, are already a reality within the menu of services of some e-commerce retailers.

It is undeniable that the situation is testing the limits of the infrastructures of our larger cities, which will require the drastic restriction of CO2 emissions due to the high levels of air pollution, well above the limits set by the European Union.

### Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet Purchases in Spain compared to total purchases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>6.5%</td>
</tr>
<tr>
<td>2015</td>
<td>7.6%</td>
</tr>
<tr>
<td>2016</td>
<td>8.3%</td>
</tr>
<tr>
<td>2017</td>
<td>8.9%</td>
</tr>
<tr>
<td>2018</td>
<td>9.8%</td>
</tr>
<tr>
<td>2019</td>
<td>10.6%</td>
</tr>
<tr>
<td>2020</td>
<td>11.4%</td>
</tr>
</tbody>
</table>

Source: INE, CNMC, and Miebach Consulting
Non-compliance with community air quality standards

Increased populations mean increased use of vehicles, necessary both to move people and to meet their consumption needs. The effect of this increase of traffic on the environment, and consequently on our health, is being felt especially in the major cities where the municipalities are already taking action.

For example, in Madrid the most pollutant vehicles (diesel trucks and vans) are allowed fewer hours to load and unload their cargo than less pollutant vehicles (electric vehicles or vehicles powered by LPG). According to the 2017 Air Plan, these restrictions would increase gradually until 2022, at which point no diesel vehicles will be allowed to enter the “zero emissions zones” of the capital.

The impact of this latter restriction for the parcel and logistics companies is enormous, as it will require the mandatory renewal of 85% of the current fleet vehicles in less than four years. In Barcelona there are similar restrictions depending on the vehicle’s pollution level, and additionally the city council has limited the level of traffic in certain districts of the city center, leaving only one lane available for their use.

However, these measures are still not sufficient to meet the legal framework established by the European Union.

The Pact of Paris of 2015 (“United Nations Climate Change Conference, COP 21/CMP 11) requires a 20% reduction in emissions of greenhouse gases by the year 2020, and Spain is far from meeting this goal because it takes years surpassing the target values for pollution set by the European Environment Agency (EEA), the official organization of the European Union to monitor the environment. Together with eight other European countries, Spain will soon face the Supreme Court of the European Union, which may impose sanctions and/or force these countries to take more concrete steps to improve the quality of their urban air.

The direction to be taken in the future by the European Union and the national and local governments of large cities with respect to the environment and the urban road traffic is unpredictable. It will depend on many factors: social, economic and above all, political, but what seems clear is that the measures taken so far are just the beginning of much more profound changes.
What are companies doing?

The main players within urban distribution are not waiting idly by and have already embarked on new projects, both in order to respond to the increasing demand and requirements of e-commerce, and to anticipate the imminent environmental restrictions and traffic. Some examples:

**SEUR**
One of the main parcel operators in Spain announced a few months ago that it will open 14 stores this year, and there is a pilot project of this type in the Tables, a neighborhood of Madrid. Using couriers traveling on foot, by bicycle, and in electric or natural gas vehicles, the new distribution model will allow SEUR to manage ultra-fast deliveries while helping the company to adapt to the ever-growing traffic restrictions in the center of major cities.

**Amazon**
For their “Prime Now” service (within an hour), Amazon has built a 2000 m² store in downtown Madrid where some 18,000 products are housed, mainly food items. For the delivery service, vans and electric bicycles are utilized.

**El Corte Inglés**
The Giant of the “department stores” had launched their online channel a few years ago and also offers delivery within two hours in metro areas. Now they want to enhance their urban distribution, making use of one of their main differentiators: the presence and strategic location of its stores in major cities and in most of the capitals of provinces. In April of this year, El Corte Inglés announced that it wants to convert all of its stores to fully functional omnichannel locations: to package and ship online purchases as well as handle pickup or returns. With this change it would reduce delivery times, especially for buyers who live in large cities, as all internet orders are currently served from dedicated warehouses located outside of the city.

But not all companies are certain that they must change their urban distribution model. In the grocery sector for example, the urban consumer prefers stores nearer to home and makes smaller purchases. This has forced major chains to focus on strategically located stores, especially in large cities. Trends have not generated a change in the model of daily provisioning to urban locations, or for home delivery. For these companies, adding one more link in the chain such as introducing an urban warehouse (dark store) would increase the logistics costs, while the use of smaller transport such as electric vehicles or bicycles would not be compatible with the weight and volume of the shipments.

In the fashion sector, many companies remain focused on the “Click & Collect” formula. Thus, they use their stores as stock points for the online orders and encourage the customer to pick up their garment from the store, the space in which the brand experience is created.

Another area where there is not a clear change to the urban distribution model with alternative means of transport is for hotels and restaurants. In this case the primary barrier is in the physical characteristics of the product: the weight and volume of beverages requires a vehicle of a certain size, and electric vehicles still do not offer the capacity and autonomy as to be able to replace the conventional delivery methods.
New logistic models

These urban logistics trends have also piqued the interest of the real estate sector. A good example of this is the project “Logiprime inmologistico”, launched in 2017, whose objective is to develop a model of urban platforms for goods of small size located in the center of the city (initially in Madrid and Barcelona). The model seeks to provide important economic and environmental savings, since the provisioning to the locations would be at night, thus considerably reducing the risk of congestion, while the end-distribution to the consumers would be carried out in electric vehicles the next day.

The municipalities also want to contribute their own ideas to create a new distribution model that is more efficient and above all, more sustainable. In Madrid, the “2014 Mobility Plan” includes measures in favor of proximity micro-platforms in the accesses to the M-30 and M-40, destined for low-polluting vehicles for the urban capillary distribution of merchandise. The CityLogin and FREVUE projects are two examples in which the municipality of Madrid participates and in which urban platforms have been created, that receive merchandise from several companies and where the distribution is made only with non-polluting vehicles. In Barcelona, the Urban Ecology agency has created a plan based on the definition of “superblocks” - neighborhoods or “super islands” within the city - connected by the basic routes. According to this vision, the urban platforms of the future can only be next to those basic roads.
Is there a universal solution?

The path to a new model of urban distribution does not seem easy at all. We want more deliveries at home, faster and more frequently, but this has an economic and environmental cost. A cost that nobody wants to pay.

Beyond economic factors, when European, national and municipal administrations take the fulfillment of emission reduction objectives seriously, access to urban centers will be greatly complicated. Perhaps then manufacturers, distributors and logistics operators will have no choice but to accelerate the shift towards alternative models which are more sustainable and respectful of our environment. The pace and direction of the change will be dictated by the technological evolution, the regulatory bodies and, of course, the consumers themselves.

There are still few market sectors and companies that have opted for a truly new model of urban distribution that fully complies with the restrictions generated by environmental protection policies. But perhaps we are closer to a more generalized change than we think. For example, imagine an electric vehicle with the same capacity and autonomy as the conventional van and with a recharge time of less than 30 minutes: wouldn’t it be much more viable to consider less polluting alternatives?