

D2.2 – User needs of the main actors in the urban logistics ecosystem

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Acronyms

Acronym	Meaning
EU	European Union
WP	Work Package
KER	Key Exploitable Result
DoA	Description of the Action
ES	Spain
DE	Deutschland
IT	Italy
BE	Belgium
CZ	Czech Reoublic
PT	Portugal
LV	Latvia
QFD	Quality Function Development
SUMP	Sustainable Urban Mobility Plan
SULP	Sustainable Urban Logistics Plan

Executive Summary

This report presents the results generated in the user research performed within Task 2.2 of the UNCHAIN project. The different actors integrating the logistics ecosystem in the living labs taking part in project demonstration have been considered in this research, focused on collecting user needs and requirements to improve urban logistics.

The user research has been divided in qualitative research and quantitative research. The qualitative research, aimed at investigating and identifying the needs and requirements to improve logistics processes, has included two interventions: *Netnography* and a Delphi questionnaire. The *Netnography* was performed by analysing ratings and comments published on social networks by logistics customers, in three different cities: Berlin, Florence and Madrid. The Delphi questionnaire was conducted in two intervention rounds, and was completed by the logistics actors that are part of the UNCHAIN consortium. The first round of the intervention included an in-person workshop, and interviews with members of the Madrid use cases. In the second round, the participants filled up an online questionnaire, aimed to assess the main assessments and findings of the intervention.

The quantitative research, aimed at estimating the current and future demand and the adequacy of the proposed services and functionalities, included a survey distributed in the seven countries where the UNCHAIN project will perform pilot test, i.e. Belgium, Czech Republic, Germany, Italy, Latvia, Portugal and Spain. At least 68 professional users (administrations, logistics, distribution) participated per country with a total sample size of 654 participants.

The document presents separately the results generated in each intervention (2 qualitative and 1 quantitative), introducing the methodology followed in each intervention.

The results have identified improvement factors for the logistics services from two perspectives: from the perspective of the customers (end users), interested in a better service, and from the professionals' perspective, demanding more involvement of the public administration to support them in their daily operation.

1. Introduction.

UNCHAIN is an innovation project aimed at developing and testing new services to make urban logistics more efficient and sustainable. The services will be tested by performing a large-scale demonstration in three living labs (Berlin, Florence, Madrid), and four follower cities (Funchal, Mechelen, Prague, Riga), which are seven EU countries. As a previous stage of the services' development process, the project is generating and compiling all the relevant information from a wide perspective, including needs and requirements from users and stakeholders, but also the legal framework at the local level. The outcomes of the tasks comprehended in WP2 are going to feed into all the following WPs, thus ensuring a robust and holistic approach for the deployment of the UNCHAIN framework and services. WP2 will define the features and functionalities to be integrated in the solutions and tested according to the possibilities and existing infrastructure of the UNCHAIN pilots.

This report presents the results related to the definition of users' requirements and needs, including both customers and professionals. These results will be employed by UNCHAIN service leaders, to feed the development process of the services proposed by the project to optimize logistic operations. In addition, the demonstration sites will also get benefit of these results, to have a deeper knowledge of the difficulties that encounter logistics actors in their daily operation.

The definition of users' requirements and needs has been tackled by performing a user research task, focused on identifying key points and critical factors to improve logistics.

Section 2 of this document presents the gender, ethics and data aspects considered to perform the user research.

To collect the customers' requirements, we have collected and analysed social media data. Besides this, the collection of professionals' needs has been tackled in a two steps intervention, collecting firstly their insights in a qualitative way, and validating the main statements derived from these insights in a quantitative way.

Observation tasks coming from the *Netnography* in the qualitative research are described in section 3.1.1, and the results obtained are presented in section 3.1.2. The observation was performed by reviewing online chats and social networks, where users rate different logistics companies and make comments about their experiences when employ the services companies offer. We collected data from the three UNCHAIN's living labs.

In the professionals' insights collection through the Delphi intervention, we have worked with experts within the consortium. The qualitative methodology applied to get these insights is presented in section 3.2.1, and results in section 3.2.2.

To validate quantitatively the main hypothesis and statements extracted from the qualitative research with professionals, we have performed a survey participated by professionals, externals to project consortium. More than 500 professionals have participated in the survey, distributed in seven different EU countries. The survey definition is described in section 4.1, and the results obtained are presented in section 4.2.

In section 5 we discuss about how to interpret the results we have obtained in the different tasks related to the user research, and our conclusions regarding this topic.

2. Gender, ethics and data related issues

2.1. Gender related issues.

This report includes the description of three interventions, participated by end users and intermediate users. Two of these interventions are qualitative (*Netnography* and Delphi), and the third is quantitative (Survey). The gender issues have been tackled differently in each intervention, as described in the following paragraphs:

- Delphi: this intervention included a workshop and interviews for the first Delphi round, and an online questionnaire for the second Delphi round, as described in section 3.2.1. Participants were the representatives of the UNCHAIN partners, and their contributions were anonymous, and we only registered their professional profile in the online questionnaire. So, we can consider the gender distribution for this intervention is the gender distribution of the UNCHAIN consortium.
- *Netnography*: this intervention included the recollection of ratings and comments from the Google reviews, as described in section 3.1.1. Despite both contributions, ratings and comments, are anonymous, we can derive the gender of most of the comments by the nickname given by the author. Based on this classification, we have a slightly unbalanced sample of 40% females and 60% males. An analysis has been made to find significant differences in positive and negative comments and hate levels, as presented in section 3.1.2.
- Survey: regardless the survey was anonymous, it was asked a general question about the participants' gender (ANNEX 6). The sample is unbalanced as the rate of male participants (65.9%) doubles the rate of females. This gender distribution has not been imposed by survey's design, and considering our target population are professionals, it could be related to the nowadays situation in the logistics sector¹. An analysis has been made to find significative differences between women and men answers, as presented in section 4.2.

¹Transport is a sector that still employs relatively few women (22.2 % of the workforce compared to 46.1 % of all people employed across the whole economy). There has been no discernible progress over the past decade, with women making up 22.3 % of the workforce in the transport sector in 2011). <https://eige.europa.eu/gender-statistics/dgs/data-talks/transport-eu-too-few-women-decision-making>

2.2. Ethics related issues.

The methodology to be followed in those interventions described in this report involving the participation of end users and intermediate users, externals to the project consortium, have been described to the Lancaster Ethics Committee through the official application form of this institution.

We received the approval of the Lancaster Ethics Committee on October 10th 2023 (ANNEX 1) to perform the *Netnography* and to distribute the survey in seven European countries (those countries with cities being part of pilot demonstration sites of the UNCHAIN project), and the approval for an amendment (ANNEX 2), extending the survey's distribution to all EU countries on October 26th 2023.

To deal with the ethical issues in the quantitative survey, an information sheet and a consent form (ANNEX 6) was included at the beginning of the online questionnaire. Therefore, the participants have to read the documents as a previous step to fill up the questionnaire.

By proceeding in this way, the survey was conducted in strict adherence to the terms and conditions approved by the ethics committee (see ANNEX 1 and ANNEX 2). Additionally, we possess comprehensive documentation supporting this affirmation of compliance.

Furthermore, all collected data adheres to the specifications and requirements outlined in the project's data management plan.

2.3. Data related issues.

ANNEX 8 presents the description of the datasets generated in the qualitative and quantitative interventions reported in this document. These datasets do not contain any personal data of the participants who took part in these interventions.

As the questionnaire was distributed through a digital platform, each record of the participants' answers contains the date the survey was filled up.

All data is accessible to partner requests in an anonymized (open) manner and will be hosted in a publicly accessible data repository as mutually agreed upon within the project.

3. Qualitative research.

User qualitative research aims to understand which are the main factors (positives and negatives) that explain the satisfaction level of users when employing logistics services. To understand this experience, its key factors and critical points, two types of interventions were performed: observational interventions and inquire interventions, where inquire interventions require the employment of a questionnaire or a previous script, based on hypothesis that must be confirmed.

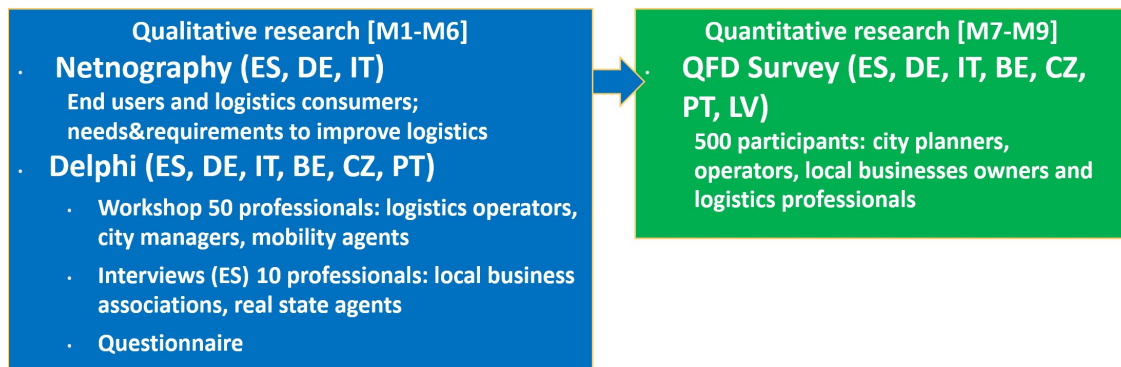


Figure 1: User research performed in UNCHAIN project.

By observing (observational interventions), we intend to learn about the problems and positive experiences customers have when using logistics services in their daily life, and the context related to this use. Once we learned about customers’ problems, we combined this information with the requirements stated by professionals, and inquired them about the reasons, potential interventions, and strategies to overcome today’s situation and progress towards a more sustainable logistics operation.

Figure 1 presents an overview of the user research activities performed in UNCHAIN project, jointly with the number of users involved in the UNCHAIN qualitative research, a brief profile description and the countries of the participants included in the study. All these activities are linked, as results generated in the *Qualitative research* have been employed to design the survey associated to the *Quantitative research*.

In the following sections the methodology related to each qualitative intervention and the results generated are presented.

3.1. Qualitative research i: *Netnography* in the living labs.

3.1.1. Methodology description.

To perform the online observation, we have applied *Netnography*². This is an online research method aimed at understanding social interaction in contemporary digital communications contexts.

Netnography uses the assessments and comments occurring in social media platforms as data, substituting the traditional in-person observation techniques by interactions and experiences manifesting through digital communications.

² Robert V. Kozinets (1998), "On *Netnography*: Initial Reflections on Consumer Research Investigations of Cyberculture", in NA - Advances in Consumer Research Volume 25, eds. Joseph W. Alba & J. Wesley Hutchinson, Provo, UT : Association for Consumer Research, Pages: 366-371

The main aim of this *Netnography* intervention has been to analyze the needs of the end user regarding the merchandise delivery and courier sector, through the analysis of online comments and assessments (ratings) in *Google reviews*. The methodology consisted of analysing the comments in this main social network in 3 representative cities in EU that participate in the UNCHAIN project as Living Labs, and are: Berlin (DE), Florence (IT) and Madrid (ES).

The methodological phases followed to perform the *Netnography* have been:

1. Utilizing Web Scraping for Gender Identification through tools such as ScrapeHero or Gender API, along with language extraction and detection, as well as comment.
2. Number of reviews per year (from 2017 to 2023, see ANNEX 3), to determine the evolution of usage.
3. Analysis of textual data (natural language processing) represented in:
 - Sentiment-polarity analysis; classifying the comments as POSITIVE, NEGATIVE, MIXED or NEUTRAL.
 - Analyzing the emotions and the hate/aggressive level of the comments.
 - Word clouds: The word cloud allows us to synthetically view key words, according to their frequency of occurrence.
 - Semantic analysis by manual coding: manual coding consists of reading the set or a representative sample of the answers (around 100 for each city). Corresponding topics and categories are chosen, according to meaning at expert level.
4. Extraction of characteristic verbatim: Once the topics of the comments have been identified, the verbatim are extracted to illustrate the topics addressed.

The number of reviews included in the study is higher than 10,000, including 719 reviews in Berlin, 1220 in Florence and 8357 in Madrid. The number of comments collected (a total number of 5,921, 5,015 in Madrid, 520 in Florence and 386 in Berlin) is typically lower than the number of reviews, due to the fact that all the comments are linked to a review, but a review does not imply writing a comment.

A description of the sample considered in the *Netnography* study is presented in Figure 2, Figure 2, and Figure 4.

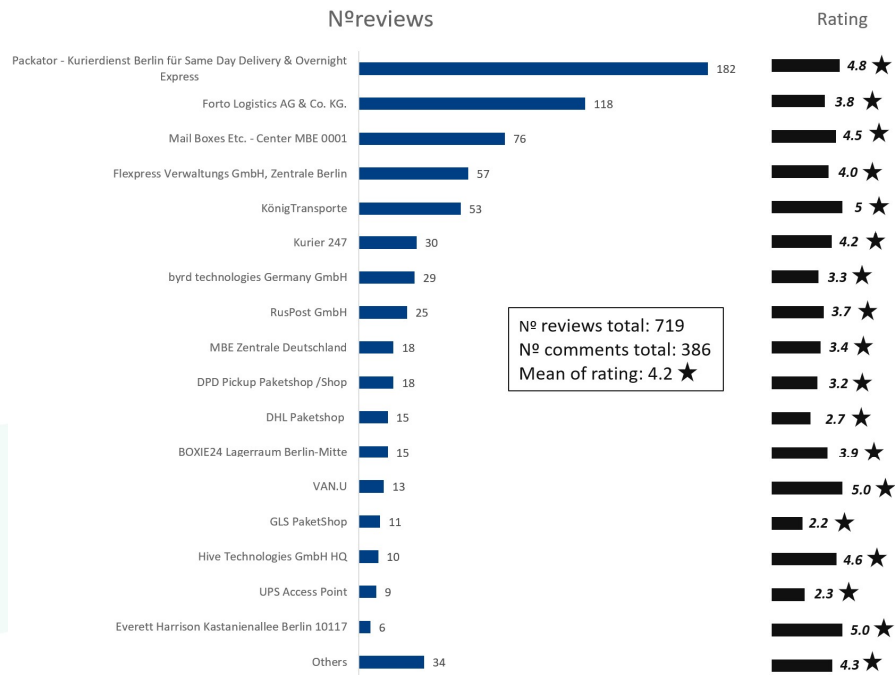


Figure 2: Sample description of the Netnography intervention in Berlin.

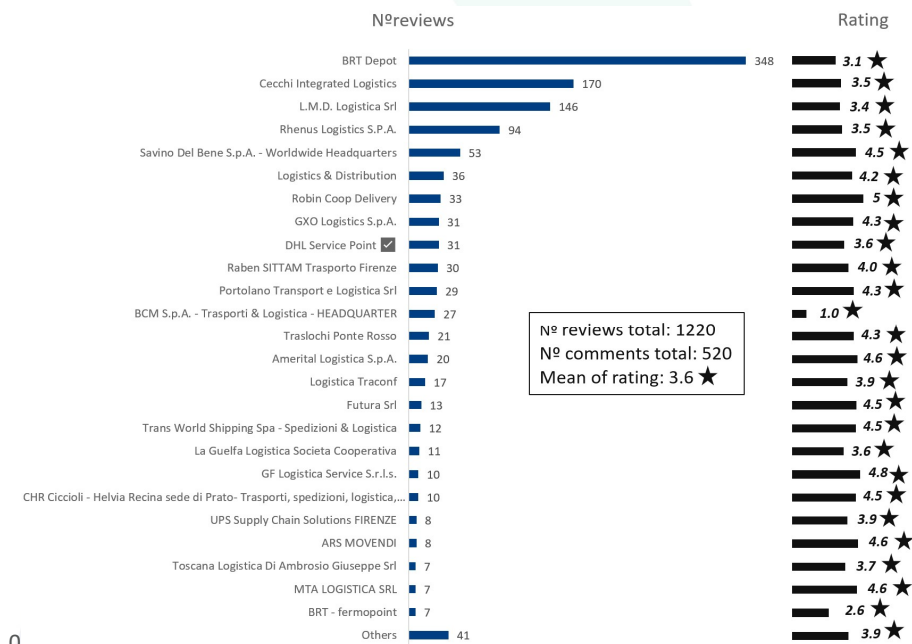


Figure 3: Sample description of the Netnography intervention in Florence.

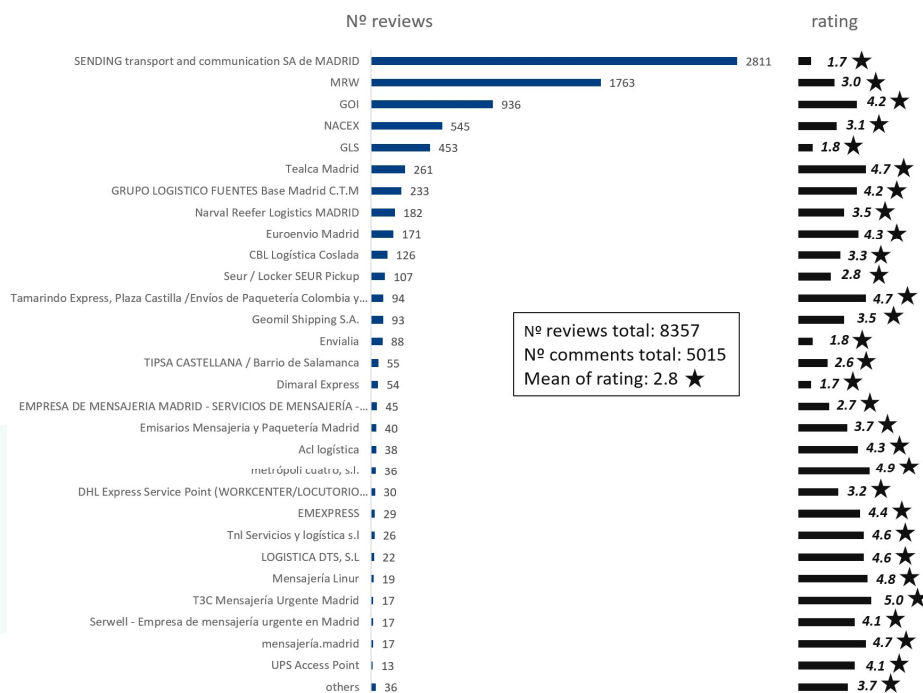


Figure 4: Sample description of the Netnography intervention in Madrid.

The data for this study was collected during the second half of October 2023 (from week 42 to week 43).

3.1.2. Netnography results.

Figure 2, Figure 2, and Figure 4 present the mean values of the ratings for the cities included in the study. While Berlin (mean rating of 4.2, Figure 2) and Florence (mean rating of 3.6, Figure 2) get a positive assessment (values over 3³), Madrid ratings are not so positive (mean rating of 2.8, Figure 4). With these ratings, the mean rating of the study is 3.5, but the sample size differs a lot among the cities. So, if we weigh the mean rating by the number of comments, the new mean value we get for the study is 3.

The local values for the ratings are coherent with the number of positive comments and negative comments. Indeed, Figure 5 shows the amount of positive comments and negative comments for Madrid courier sector, according to natural language processing. In this case, the number of negative comments doubles the number of positive comments, what results in a low rating value.

³ Ratings range from 1 to 5, as users typically rate a service selecting stars: 1 star is the worst assessment, and 5 stars is the best. So, considering this scale, 3 is the mean value for ratings.

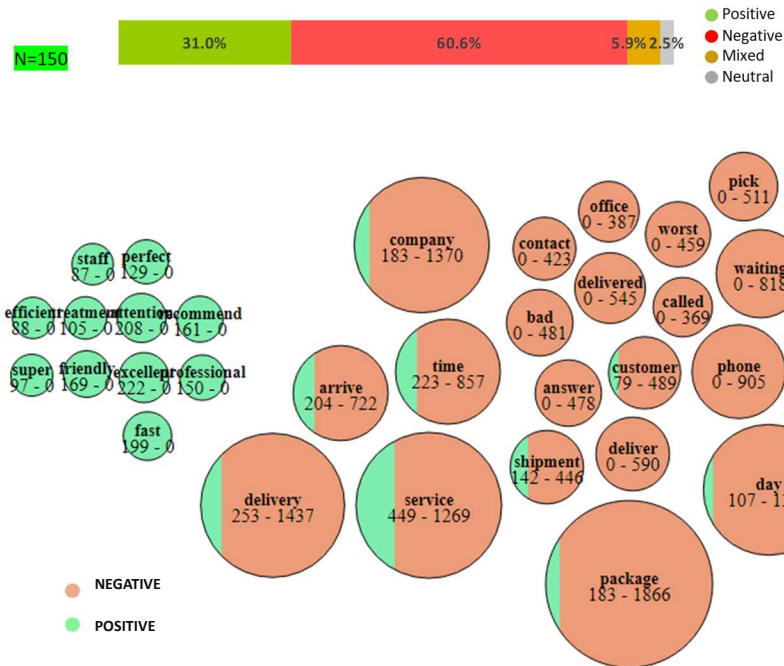


Figure 5: Sentiment analysis for Madrid comments.

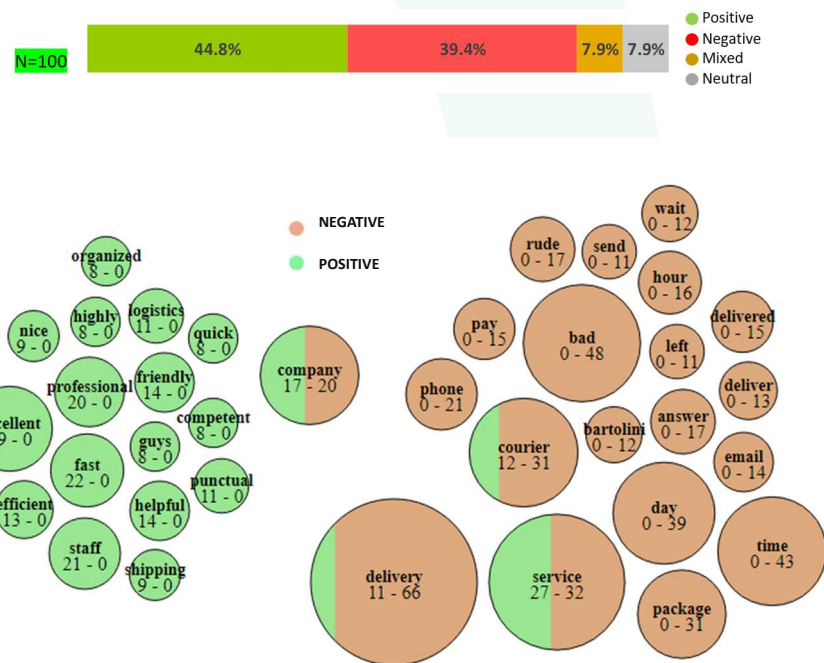


Figure 6: Sentiment analysis for Florence comments.

Figure 5 shows all the terms that are related to the positive and negative comments. Indeed, each bubble includes a word that has been used in a comment. The figures under the word show the number of times this term has been employed in a positive comment (left number) or in a negative comment (right number). Negative comments are mainly related to *package*,

day, service, delivery, and company. There are also diverse terms that are strictly related to positive comments like attention, excellent or fast, but as corresponds to the rating, two out of three of the terms employed by users are related to negative comments.

The ratio between positive and negative comments is slightly over one for Florence (Figure 6), what it is consistent with the rating (3.6 out of 5). In this case, the amount of terms employed in positive (20) is similar to the amount of terms employed in negative (19). The terms more employed in a positive sense are *excellent, fast, staff and professional*. On the contrary, the terms related to negative aspects of the logistics service are *delivery, bad, time, service and courier*.

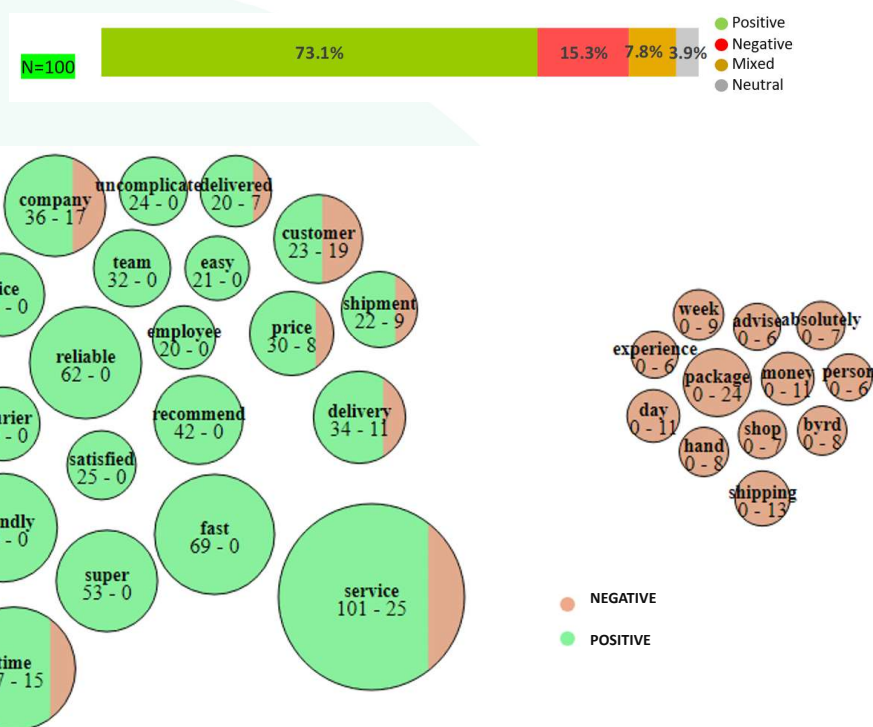


Figure 7: Sentiment analysis for Berlin comments.

The good rating (4.2 out of 5) obtained for courier service in Berlin is coherent with the result shown in the graphs of Figure 7. There are nearly five positive comments for each negative comment, and the terms selected by users to describe the services are mostly employed in a positive way. *Package* is the term employed mostly in a negative sense, and *service, fast, friendly, reliable* and *time* are related to positive aspects.

Table 1: Main improvements related to Madrid courier service.

<p>1. Improvement in Customer Service:</p> <ul style="list-style-type: none"> • To establish an efficient and personal telephone system available to answer calls. • To train staff in friendly and professional customer service. • To eliminate automated responses and provide accurate and truthful answers. <p>2. Punctuality and Reliability in Deliveries:</p> <ul style="list-style-type: none"> • To strengthen internal processes to ensure on-time deliveries. • To implement a package tracking system to offer precise tracking. • Proactively communicate any delivery delays. <p>3. Service Quality and Professionalism:</p> <ul style="list-style-type: none"> • Continuously evaluate and improve internal processes to ensure reliable and professional service. • To implement a quality control system for deliveries and problem resolution. <p>4. Transparent Communication:</p> <ul style="list-style-type: none"> • To provide accurate information about the status of packages and any changes in delivery. • To avoid changes in package status without justified reasons. <p>5. Delivery Improvement:</p> <ul style="list-style-type: none"> • To establish clear protocols to ensure smooth deliveries. • To respect customer-selected time slots and accommodate requested changes.
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The semantic analysis of negative comments allows us to identify the main topics addressed by the customers, when they rate the courier services. The most commented topics are related to the most relevant improvements, companies should implement in order to improve their rating, and consequently, users' satisfaction level. This analysis involves examining a qualitative sample of comments to extract the intended meaning as desired by users (approximately 100 comments per city, as specified in section 3.1.1). The comments are then organized into relevant topics and categories.

Table 2: Main improvements related to Florence courier service.

<p>1. Improvement in Customer Service:</p> <ul style="list-style-type: none"> • To establish an efficient customer service system that responds promptly to calls, emails, and chats. • To train staff in friendly, professional, and empathetic communication. <p>2. Promotion of Pleasant Interactions:</p> <ul style="list-style-type: none"> • To provide training to staff to promote courteous and respectful interactions with customers. • To reinforce the importance of empathy in all interactions. <p>3. Punctuality in Deliveries:</p> <ul style="list-style-type: none"> • To implement measures to ensure that all deliveries are made within the agreed-upon timeframe. • To establish tracking and notification protocols in case of delays. <p>4. Enhancement of Customer Experience:</p> <ul style="list-style-type: none"> • To evaluate and improve internal processes to ensure high-quality service. • To set clear service standards that meet customer expectations. <p>5. Improvement of Organizational Culture:</p> <ul style="list-style-type: none"> • To promote a customer-centric culture where pleasant and professional interactions are a priority. • To recognize and to reward employees who demonstrate a positive attitude.

Table 1 presents the five most relevant improvements (categories) related to Madrid courier service, according to customers' comments (in bullet points under each corresponding category). The three most relevant improvements demanded by Madrid citizens are related to *Customer Service, Reliability in Deliveries and Quality and professionalism.*

In the case of Florence, the five most relevant improvements are presented in Table 2. *The Customer Service, the Pleasant Interactions and Punctuality* are the three most relevant improvements demanded by Florence citizens.

For Berlin, Table 3 presents the five most relevant improvements according to customers' comments. *The Quality-Price Ratio, the Customer Service and Punctuality* are the three most relevant improvements demanded by Berlin citizens.

Table 3: Main improvements related to Berlin courier service.

<p>1. Quality-Price Ratio Optimization:</p> <ul style="list-style-type: none"> • Conduct a comprehensive analysis of costs and tariffs to ensure competitive pricing relative to the market. • Offer flexible rate options that cater to different customer needs. <p>2. Improved Customer Service:</p> <ul style="list-style-type: none"> • Establish an efficient customer service system that responds promptly to calls, emails, and inquiries. • Implement clear protocols for addressing customer inquiries and issues. <p>3. Punctuality in Deliveries:</p> <ul style="list-style-type: none"> • Set up planning and route tracking processes to ensure timely deliveries. • Implement notification systems to keep customers informed about the status of their deliveries. <p>4. Overall Service Improvement:</p> <ul style="list-style-type: none"> • Evaluate and enhance internal processes to ensure high-quality service at all stages. • Conduct periodic satisfaction surveys to gather customer feedback and address areas of dissatisfaction. <p>5. Delivery Management Improvement:</p> <ul style="list-style-type: none"> • Implement advanced tracking and tracing systems to minimize the risk of lost packages. • Establish clear protocols for handling undelivered or lost packages.
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Regarding the gender analysis of the whole sample, there are no significant differences⁴ between men and women in sentiment in the comments and levels of extreme negativity (hate), as shown in Figure 8.

However, women tend to discuss topics such as *package, waiting, delivered, or absent*, while men mention more frequently topics such as *service, company, shipment, or hour*.

⁴ Significant differences have been established by applying a Pearson's Chi-squared test to the datasets.

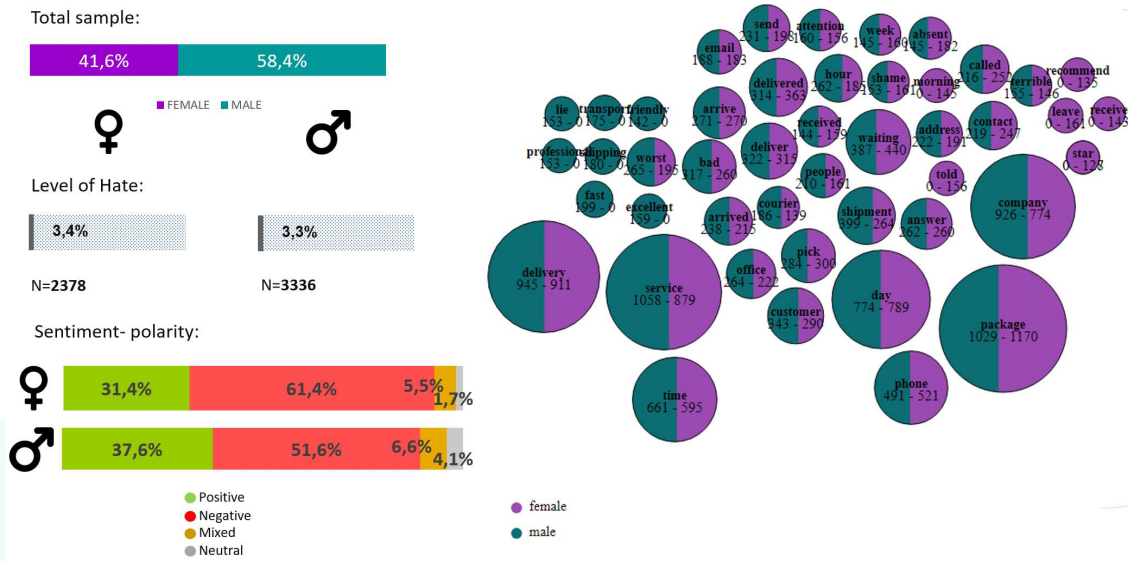
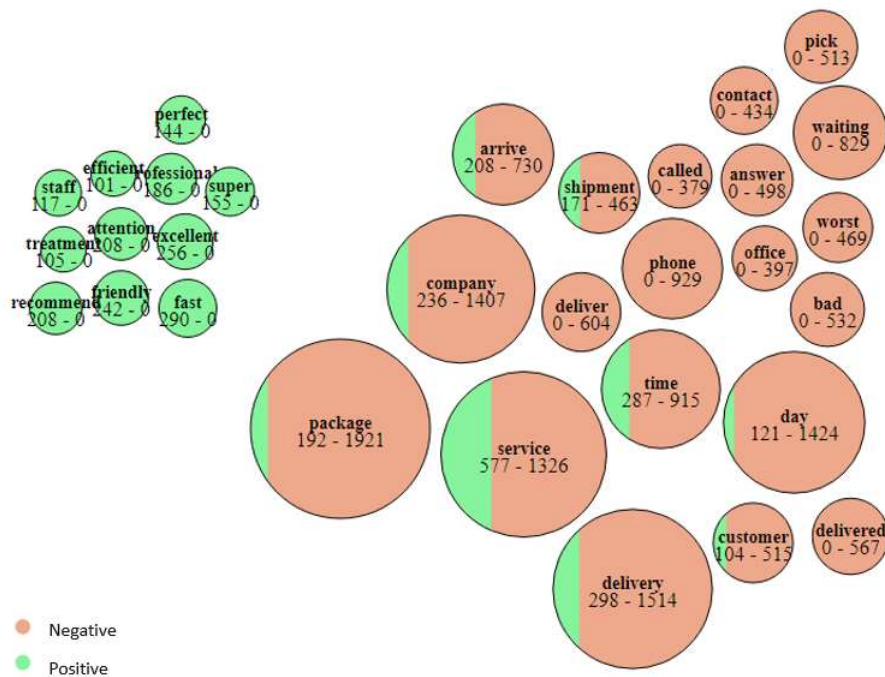


Figure 8: Gender differences in the service courier assessment.

The analysis of the whole sample shown in Figure 9 reveals the differences among the size of the sample in the cities, and the negative comments are prevalent due to Madrid result. Regardless, if we focus on the three main improvements, we found they are coherent with the results in cities: *Customer service* is the first improvement in Madrid-Florence and the second in Berlin, *Punctuality* in the second in Madrid and the third in Berlin-Florence, and *Quality-Price* ratio is the first in Berlin.



1. Improved Customer Service:

1. To establish an efficient and responsive system available to promptly handle calls, emails, and chats.
2. To implement clear protocols for resolving customer inquiries and issues.
3. To train staff in friendly, professional, and empathetic communication.
4. To eliminate scripted responses and provide accurate and truthful answers.

2. Punctuality and Reliability in Deliveries:

1. To reinforce internal processes to ensure timely deliveries within the appropriate timeframe.
2. To implement a package tracking and notification system to provide precise tracking and notify customers of any delays.
3. Proactively communicate any delivery delays.

3. Quality-Price Ratio Optimization:

1. To conduct a comprehensive analysis of costs and tariffs to ensure competitive pricing relative to the market.
2. To offer flexible pricing options that cater to different customer needs.

4. Promotion of Friendly Interactions:

1. To provide training to staff to promote courteous and respectful interactions with customers.
2. To emphasize the importance of empathy in all interactions.

5. Service Quality and Professionalism Enhancement:

1. To evaluate and improve internal processes to ensure high-quality service at all stages, maintaining a reliable and professional service.
2. To conduct periodic satisfaction surveys to gather customer feedback and address areas of dissatisfaction.
3. To implement quality control in deliveries and issue resolution.

Figure 9: Sentiment analysis of the whole sample.

ANNEX 3 presents all the results generated in the *Netnography* analysis.

3.2. Qualitative research ii: Delphi questionnaire with professionals.

3.2.1. Methodology description.

To capture the professional perspective when dealing with improvements in logistics operation, we have applied the Delphi methodology⁵. This methodology foresees the participation of professionals and experts, who answer questions related to the state of the art of a technology, and how this technology is evolving.

Considering that the UNCHAIN consortium includes representatives of the most relevant entities participating in logistics (local administrations, logistics companies, technology developers, consultancy and research institutions), we have worked with these professionals, following the Delphi methodology. To enrich the results generated in this qualitative intervention, and with the idea of having the professional perspective of all the entities that will be involved in the demonstration of the project KERs (*Key Exploitable Results*). To broaden the perspective, we also included the participation of the members of Madrid use cases by performing a specific workshop session with local agents (Figure 11).

⁵ https://en.wikipedia.org/wiki/Delphi_method

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS METHODOLOGY (i)



Figure 10: Distribution of groups, and results presentation in the workshop with project partners.

For this purpose, we proposed the application of the Delphi methodology in two rounds. In the first round we worked separately with the UNCHAIN consortium members, and with the *Madrid Use Case* local agents (Figure 11). With the consortium members we performed an in-person workshop during the project *Kick off Meeting* (Figure 10). All the consortium members were distributed in two different groups (approximately twelve people per group), working on a flip chart, in which the stoppers, values and recommendations to improve logistics recommendations were identified by the different participants.

**MADRID USE CASE LOCAL AGENTS
GRUPAL INTERVIEWS**



- To know the current product/package/courier reception, distribution and delivery processes, including what works and what does not work now.
- To identify current logistics barriers and problems that must be resolved.
- To identify keys to improve logistics and distribution from the point of view of Madrid local agents (requirements, keys for improvement and expectations).
- To analyse the possibilities of using public land, commercial land, parking, shared information and data... for logistics.
- To identify potential barriers to the use of these resources for loading and unloading.

15 PARTICIPANTS



Figure 11: Main objectives of the interviews with the Madrid Use Case local agents.

To enrich the results generated in the workshop, we arrange interviews with local agents of the *Madrid Use Cases*, with the support of the partners from Madrid Council. In these interviews, we intended to get information about the *current logistic processes* in the city, but also about *stoppers* and *recommendations* to improve the processes. A total number of 45 professionals participated in the first round of the Delphi intervention.

The analysis of the collected data in Delphi's first round, allowed the generation of the second-round questionnaire (ANNEX 4), aimed to validate the main statements derived from this analysis. The questionnaire was distributed through SurveyMonkey⁶ platform, among consortium partners. A total number of 15 professionals participated in the Delphi's second round. The most relevant results related to this qualitative intervention are presented in the following section. Besides this, the complete results collection is included in ANNEX 5. **No se encuentra el origen de la referencia..**

3.2.2. Delphi results.

The flip charts generated in the workshop attended by the consortium members were reviewed, extracting all the contributions and putting them together in a digital format. As stated in the previous section, the 1st round of the Delphi were participated by:

- Two groups of project partners during the Kick of Meeting of UNCHAIN project in Brussels (May 2023), and
- An additional working group of 15 local stakeholders from Madrid use cases.

Since the flip charts consisted of notes each participant posted, the contributions of both working groups were put together and split into three tables, as shown in Table 4, i.e: (i) Stoppers, (ii) Values and (iii) Recommendations. Having all the contributions together allowed us to analyse them. As a result of this analysis, the contributions were organised by categories and main topics.

⁶ <https://es.surveymonkey.com/>

Table 4: Stoppers-Values-Recommendations organized by the defined categories, generated in the workshop.

STOPPERS	
Public management & Legislation	<p>Need to align strategies SUMP-SULP, New solutions are often not profitable; only pilots, Confusing regulation, Different regulation, Lack of modern regulation, No ada to change legislation and administrative regulation, Hard to define the necessity and subject of procurement, Policy coherence across sectors, Conflict with economy, nobody wants regulations, KPI must be declined to measure success of framework goals, Dynamic change in patterns and stakeholders; hard to define regulation, Lin budget & manpower/personnel, No political support, Outdated regulations, Inflexible regulations, Inadequate enforcement traffic regulation, Missing knowledge&capacities in administration, Lack of trust to municipality about effect of data sharing, Restrictive regulation; cargo bike vs. pedestrians, Last mile delivery active mobility, SULP as part of SUMP, Traffic regulations, Approach by city managers often/too many times driven by electoral needs, Lack of regulation, Missing link transportation planning vs. urban planning, No awareness on logistics by urban planners, No legal regulation to enforce, for example, loading zones, Shared space with public and private mobility active modes. Public administrations have limited skills&resources.</p>
Infrastructure	<p>No space dedicated to complex deliveries solutions, Lack of loading/unloading areas, Lack of available space, Delivery companies competition for space: lockers, UCC hubs, More micro-logistic hubs needed; lack of space and facilities, Lack of public surface on central/old districts, Matching needs/spaces, Not enough space for all ne Infrastructure competition (different uses and demands, e.g. on streets, parking), Limited energy alternative infrastructure availability, Availability of space; space con with other land uses, Location of UCC; dedicated spaces for logistics, Lack of space; fight for space.</p>
Sustainability	<p>No sustainability culture, Need to reduce the home delivery and to increase the lockers or shops' deliveries, Cultural heritage boundaries; Unesco area, Commitment sustainable companies, Sustainability makes it more difficult.</p>
Business	<p>Micro-size companies in logistics; difficult to reach, Enterprises and companies do not want to share info, No willingness to cooperate by involved stakeholders, Confidential, Accessibility of available data limited (data ownership), LSPs not prepared to share data, Competitors, Load/Unload area is never enough, Big vehicles us EVs are expensive; the range, Data is companies' asset; value for them.</p>
Public Private Partnership	<p>Involvement of private sectors in the process, No common idea about the future, Local market operators too fragmented: small operators, Failure in the hourly regul of the drop off/pick up spaces (non compliance), Logistics is not prioritized, Access to city centre, LEZ in cities, Everyone thinks about its own future, Protocols&agreements between public and private sector, Land is private to a large extent, Mixed private-public logistics policies on same limited infrastructure, Lack interest in logistics by society&investors.</p>
Smart City	<p>Framework must be monitored automatically, Data needed: demand, usage, capacity (of infrastructure), No systematic approach to data monitoring, No framework (solution) to share data in a safe&confident way, Data silos, Planning on available data (limited knowledge on demand, ...), Data on land use only available with differe scope, GDPR compliance, Interoperability of data, Interoperable data are expensive, Public data proxies' logistics.</p>
VALUES	
Public management & Legislation	<p>To have a clear guidelines vision; top-down approach, Possibility to implement policy, Political buy-in, A good new ordinance to allow this change encourage this change, Main driver: restrictions on car-use, Participatory process in defining SUMP, Alignment with mobility planning, housing, e activities and overall, urban plans, New SULP in place with concrete targets and monitoring obligation, To define data-based policy, Making the u (un)loading zones obligatory, To reduce space for private car and to increase for other uses.</p>
Infrastructure	<p>Structural approach instead of project based, Land use for city hubs, micro-hubs, lockers, New loading and unloading zones, Temporary land-us depots, Micro-logistic hubs, Optimal location of hubs/UCCs; less congestion, costs, wasted time, Shared spaces for different actors, Distribution points.</p>
Sustainability	<p>LEZs protect the cities consolidation, Increased awareness about the challenge, Consumers' choice; less polluting operators, Increase of unders situation among citizens, New small electric and narrow vehicles.</p>
Business	<p>Logistics operators, Incentives, Better understand logistic flows and to know where and how to intervene, Data driven planning, IT-based modelli demand for micro-depots, To have more data implies potential more knowledge of city context; better optimization; cost reduction, Socio-econom beneficial to all stakeholders.</p>
Public Private Partnership	<p>Flexible approach, Fulfil strategic goals, Open discussion with main operators, Common goal to be achieved, Public councils open discussion, To understand t better, Self benefit (trust), Take advantage from the amount of data publicly available; the so called high value data sets.</p>
Smart City	<p>Looking into the future solutions and not only into existing problems, To make a similar technology that is able to make the change in any city, To monitor&analyse policy in a quantitative way, Logistics operation services have decent digital platforms for end users, Connected car; V2G data, for professionals to book the needed space, Research-assisted demand evaluation, Monitorization of public spaces.</p>
RECOMMENDATIONS	
Public management & Legislation	<p>Common regulation across Europe, To make it obligatory, Subsidies for the writing&implementation of SULP, Shared governance model, To mak actions measurable, Evaluate measures adopted by cities; SUMP/SULPs; development, Standardization, Common technology and data type (fo companies, cities, EU), To make data sharing obligatory; couple it to UVARs, To insert logistics needs for last mile delivery to discussions about s designs, Create awareness with urban planners, Give guidance to urban planners, To make (un)loading zones&hubs obligatory, Smart and adap use regulation, Logistics considered as a part of urban planning rather than a problem to be solved afterwards.</p>
Infrastructure	<p>Gain knowledge; planning of UCCs; optimization, New micro-logistic hub with same technology and facilities across EU, Optimised network of st logistics infrastructure, To identify in SULPs mobility hubs in city centres; surroundings areas, possibly shared by multiple operators.</p>
Sustainability	<p>OEM market evolution (lowering vehicle prices), Raise awareness on the environmental impact (e.g. express courier), Awareness on the impact fo logistic system by all the actors and end users included, Active delivery (customer moves), Different types of vehicles, More sustainable, low em particular to entry in city centre, Well structured and organized user-oriented.</p>
Business	<p>Incentives for companies following good practices, Never forget local commerce, helping them to be involved, To overcome data silos, share dat stakeholders, Business models for data sharing, Data brokerage; stewardship logistics data; 3rd party.</p>
Public Private Partnership	<p>To involve different city departments and also citizens and private sector, if possible, To facilitate research project with private operators, To ensu collaboration in technical groups with logistic operators&cities consultancies, No top-down decision, Realistic and simple strategies, Real involve stakeholders (collaborative), To implement protocols&agreement to facilitate data exchange with private sector (e.g. aggregated or anonymised), sharing for public services.</p>
Smart City	<p>Better communications on needs of logistics, To monitor KPI for SULP effectiveness consistently, To support research based data acquisition, Pt more visibility, To create an European IT platform that can be used in different countries cities, Easily accessible singular platform for information sharing, To develop successful pilot app proving benefit for operators, Connection in real time with vehicles, hubs, governments, companies, To needs (for improvements); more data quality, more better decisions, Use of digital twins (e.g. Lead project), Constantly re-assess situation base monitoring.</p>

As shown in Table 4, the categories identified that grouped all the contributions are:

- Public management & Legislation,
- Infrastructure,
- Sustainability,
- Business,
- Public Private Partnership and
- Smart City.

The Table 4 presents the statements belonging to each category.

The number of contributions collected suggests that the inadequate *Public Management & Legislation* and the lack of appropriate Infrastructure are the main urban logistics barriers today (Table 4). Following this rationale, the next level of barriers are *Public Private Partnership*, *Smart City* and *Business* related to data sharing. Sustainability seems to be a low-level barrier.

Regarding values, *Public Management & Legislation* is the most relevant strength of urban logistics; the main barrier arises also as the main facilitator to change nowadays situation. In addition, *Infrastructure* and *Public Private Partnership* to generate *Business* related to data share in the context of the *Smart City* seem to be important assets for the urban logistics.

Regarding recommendations, *Public Management & Legislation* appears again as the main factor. These results suggest that public administration has the key to change a market, which main actors (enterprises) demand new infrastructures and digital resources to move towards a more sustainable scenario.

The results generated in the interviews with the Madrid use case local agents are presented in Table 5. The categories used to group the contribution are the same presented in Table 4, but the interviews focused on describing the *Current Process* of urban logistics, identifying *Stoppers* and *Recommendations*.

The main findings derived from the interviews with Madrid local agents are related to recommendations to improve the urban logistics. Specifically, *Public Management & Legislation* could contribute by developing common city logistics regulations in the European area. These regulations should be dynamic (not rigid), and adapted to different criteria like the type of product, delivery schedule or the tonnage of the vehicle.

Table 5: Current Process-Values-Recommendations, generated in the interviews with local agents from Madrid.

RECOMMENDATIONS	
Public management & Legislation	To regulate the use of the bus lane by agreement until 8:00 a.m. or the established time, To be very strict with schedules if issuing fines, To regulate the use of pedes zones by agreement, To define loading/unloading schedules based on the type of product (e.g. food) to coordinate the work and foresee priorities of use, according to product, Do not use the average delivery as a regulation measure (segment), Regulate night delivery from 12:00 p.m. and 7:00 a.m. in areas that do not affect the neighborhood, To provide for stock warehouse spaces (the delivery person leaves the parcel, digital delivery note signed and picked up by the customer at another tir To regulate that the product is left at the door of the premises, without access to the basement or attic; difficult because the customer do not want it, but this would res occupational risks reduction, and delivery times reduction, To regulate where heavy merchandise can be stored (at street level or warehouse next to it); it would make delivery faster and safer, Flexible control, To prioritize schedules according to delivery typology; in the morning, from 7:00 to 12:30, food, pharmacy and press; half da equipment, furniture; afternoon fashion, accessories. To unify municipal regulations to have a framework with certainty; knowing whether or not you comply with the regulations, Regulations according to neighborhood typology.
Infrastructure	To monitor where the vehicle is, in real time, Being able to book a loading/unloading space, flexible in time occupancy, To use parking lots for small vehicles (at certa hours), To use blue and green parking lots for loading/unloading, To enable parking areas in the perimeter of difficult-to-access neighborhoods, HUBS in perimeter ar and from there to deliver with electric vehicle through a shared platform.
Sustainability	OEM market evolution (vehicle prices reduction), To raise awareness on the environmental, LEZs protect the cities consolidation, To increase awareness about the logistics needs, To carry out complex analysys of what the improvement in CO ₂ (reduction) implies; e.g. a heavy vehicle, even being diesel, if it is allowed to remain in same loading/unloading space for the time it needs, reduces pollution because it travels almost no kilometers and does not generate traffic congestion, To create spe permits for access of unlabeled vehicles, Implementation of a network of shared platforms with clean vehicles for last mile delivery.
Business	Incentives for companies following good practices, Never forget local commerce, helping them to be involved, To provide deadlines and facilities to make changes in type of vehicle and fleet renewal, Transporters within 5 years of retiring who do not have to change their vehicle (extensions), To strengthen common delivery areas (kiosks, small businesses...), To reduce home delivery, Commerce as a delivery point, Associations as delivery managers of the last mile delivery.
Public Private Partnership	To involve different city departments and also citizens and private sector, To promote dialogue to search for solutions, To include logistics companies in the search fo solutions, Direct interlocution with city council directors, To be able to coordinate and to integrate with urban planners, To work with the municipal police to identify the location of loading/unloading areas, The delivery people want to collaborate to speed up the processes (but they do not want to be harmed, control / inspection), Registration, type of vehicle, and environmental certification are already share by logistics companies; other data of their own could be shared if the city council gives data to improve their delivery route.
Smart City	Better communications to cover logistics needs, Metropolitan area must have a common regulation, integrating common urban plans, App to optimize routes, book a loading/unloading area (contrast with apps from cities that already have them in place).
STOPPERS	
Public management & Legislation	Don't give a clear guidelines, Fines related to exceed the established loading/unloading time, The loading/unloading time must be regulated by tonnage, Parcel delivery operators can use shared areas (parking lots, different resources depending on weight and size...), Uncertainty by unclear regulation, Ci councils must address the needs of logistics (not all the product delivered is the same), The lack of proper legislation has consequences for professional and society, Lack of coordination between municipalities, Dispersed regulations and lack of equity in the delivery requirements, Legislation is different in each city and there is no common framework (what is legal in one city could be illegal in other), The legislation that applies to delivery vehicles is similar that applied to private vehicles; different one is required, The rules are very inflexible (not adapted to delivery typology), During the first hours of the day loading/unloading areas are saturated, There are access restrictions (LEZs), Some vehicles, due to tonnage, cannot access the downtown district.
Infrastructure	No space dedicated to complex deliveries, Lack of loading/unloading areas, Lack of available space, Loading/unloading areas not in accordance with the size and load of the vehicles, Better distribution of loading/unloading areas to minimize last mile delivery, To restrict the use of these spaces only for loading/unloading, To monitor real time location is rejected, as it could be employed to fine professionals, There is no space to leave the load in the abse of commerce, The reduction in lanes has to be compensated with more loading/unloading areas.
Sustainability	To have to move the truck due to lack of flexibility in parking time, on loading/unloading areas; this results in more km driven, The indicators to assess logistics processes are very limited and do not adjust to the activity; other ways to reduce emissions must be explored, Diesel vehicles are consumption competitive with hybrids vehicles.
Business	Better understanding of logistic flows to know where and how to intervene, Difficulties in carrying out other loading and unloading tasks such as reverse logistics, Removals have the same treatment as transportation and distribution (they cannot usually comply with schedules as they are parked the whole day), The construction sector is having problems (restricted hours + ecological vehicle); they have to leave at 5 p.m. when perhaps they would have finis in 2 hours and they are forced to return for another day.
Public Private Partnership	Logistics operators do not participate in decision making regarding the regulation of logistics activities, Lack of tolerance in logistics activities, Lack of understanding of their needs, The distribution generates inconvenience to citizens that must be taken into account (noise, deterioration of the pavement congestion, reduction of space...).
Smart City	In the city there is very little tolerance for distribution and logistics work, Problems of coexistence with the mobility of citizens, Route apps generate doubt Fear that the app measures have a supervisory objective.
RECOMMENDATIONS	
Public management & Legislation	To regulate the use of the bus lane by agreement until 8:00 a.m. or the established time, To be very strict with schedules if issuing fines, To regulate the use of pedes zones by agreement, To define loading/unloading schedules based on the type of product (e.g. food) to coordinate the work and foresee priorities of use, according to product, Do not use the average delivery as a regulation measure (segment), Regulate night delivery from 12:00 p.m. and 7:00 a.m. in areas that do not affect the neighborhood, To provide for stock warehouse spaces (the delivery person leaves the parcel, digital delivery note signed and picked up by the customer at another tir To regulate that the product is left at the door of the premises, without access to the basement or attic; difficult because the customer do not want it, but this would res occupational risks reduction, and delivery times reduction, To regulate where heavy merchandise can be stored (at street level or warehouse next to it); it would make delivery faster and safer, Flexible control, To prioritize schedules according to delivery typology; in the morning, from 7:00 to 12:30, food, pharmacy and press; half da equipment, furniture; afternoon fashion, accessories. To unify municipal regulations to have a framework with certainty; knowing whether or not you comply with the regulations, Regulations according to neighborhood typology.
Infrastructure	To monitor where the vehicle is, in real time, Being able to book a loading/unloading space, flexible in time occupancy, To use parking lots for small vehicles (at certa hours), To use blue and green parking lots for loading/unloading, To enable parking areas in the perimeter of difficult-to-access neighborhoods, HUBS in perimeter ar and from there to deliver with electric vehicle through a shared platform.
Sustainability	OEM market evolution (vehicle prices reduction), To raise awareness on the environmental, LEZs protect the cities consolidation, To increase awareness about the logistics needs, To carry out complex analysys of what the improvement in CO ₂ (reduction) implies; e.g. a heavy vehicle, even being diesel, if it is allowed to remain in same loading/unloading space for the time it needs, reduces pollution because it travels almost no kilometers and does not generate traffic congestion, To create spe permits for access of unlabeled vehicles, Implementation of a network of shared platforms with clean vehicles for last mile delivery.
Business	Incentives for companies following good practices, Never forget local commerce, helping them to be involved, To provide deadlines and facilities to make changes in type of vehicle and fleet renewal, Transporters within 5 years of retiring who do not have to change their vehicle (extensions), To strengthen common delivery areas (kiosks, small businesses...), To reduce home delivery, Commerce as a delivery point, Associations as delivery managers of the last mile delivery.
Public Private Partnership	To involve different city departments and also citizens and private sector, To promote dialogue to search for solutions, To include logistics companies in the search fo solutions, Direct interlocution with city council directors, To be able to coordinate and to integrate with urban planners, To work with the municipal police to identify the location of loading/unloading areas, The delivery people want to collaborate to speed up the processes (but they do not want to be harmed, control / inspection), Registration, type of vehicle, and environmental certification are already share by logistics companies; other data of their own could be shared if the city council gives data to improve their delivery route.
Smart City	Better communications to cover logistics needs, Metropolitan area must have a common regulation, integrating common urban plans, App to optimize routes, book a loading/unloading area (contrast with apps from cities that already have them in place).

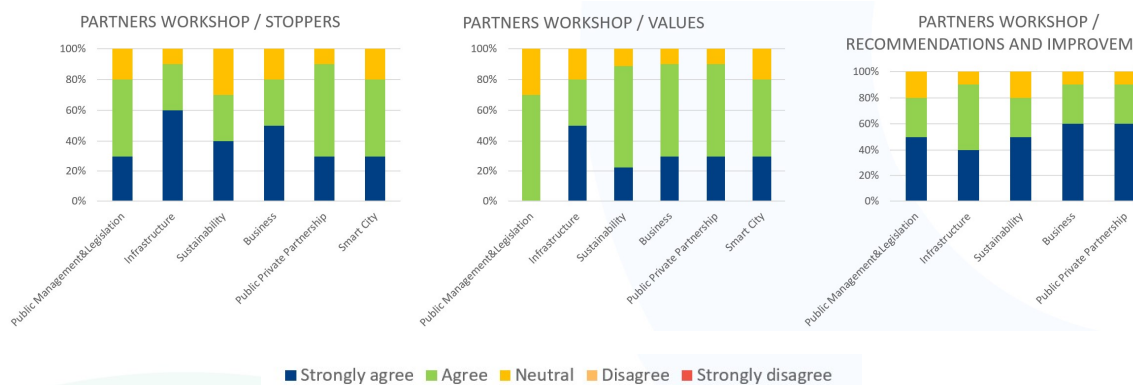


Figure 12: Agreement level with the results generated in the workshop during the UNCHAIN Kick of Meeting

Regarding *Infrastructure*, the urban logistics necessitates to increase the types of loading and unloading areas considered in the urban environment, developing priority use's policies for each type of zone, according to criteria like the product, delivery time or the tonnage of vehicle used.

Sustainability should consider criteria adapted to the characteristics of the products and type of vehicle used, such as the ecological footprint related to the whole process, or the consideration of impact on traffic congestion.

From the point of view of Business, to support the logistics operations with data (e.g., to send in advance requirements to be met for delivery in a given area, conditions to book a loading/unloading area, or priorities related to the type of product/schedule), the real-time information on traffic or route management are very relevant. The *Public Private Partnership* involves creating logistics regulation and management processes agreed with companies, and the Smart City has to incorporate logistics activities into mobility policies in order to improve coexistence with citizens.

The 2nd round of the Delphi questionnaire was focused on defining the agreement level with the main conclusions and findings identified in the previous stage. These conclusions and findings are those presented in the precedent paragraphs, as shown in the questionnaire shown in ANNEX 4.

Figure 12 shows the agreement level with the topics (categories) that are the main *Stoppers-Values-Improvements* for urban logistics. To pinpoint these topics as the most relevant for urban logistics is shared by all participants (no users disagrees with the identified conclusions).

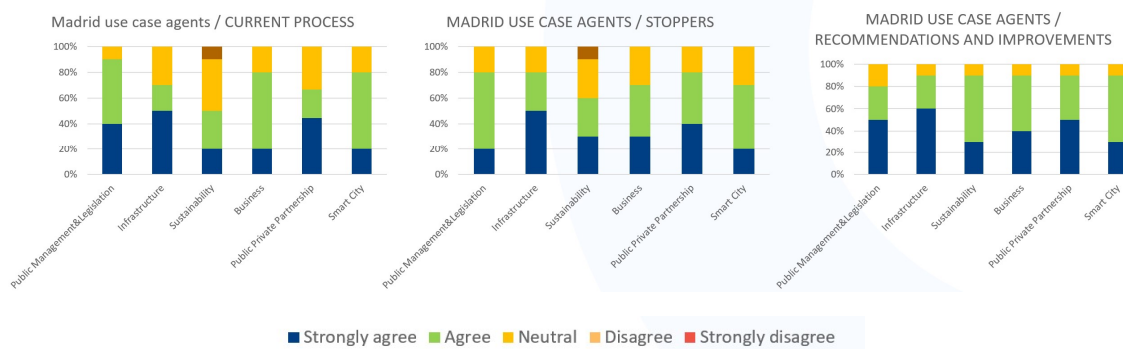


Figure 13: Agreement level with the results generated in the interviews.

Regarding *Stoppers*, (Figure 12) two topics are the ones which accumulate higher agreement level: *Infrastructure* and *Public Private Partnership*. For *Values*, *Infrastructure* presents a lower agreement level, and *Infrastructure*, *Sustainability*, *Business*, and *Public Private Partnership* are identified as the most relevant. On *Improvements'* side, *Infrastructure*, *Business*, *Public Private Partnership* are the topics concentrating higher agreement level.

Infrastructure and *Public Private Partnership* emerge as critical topics, as they are considered *Stoppers*, but also *Values* and *Improvements*. This reveals the need to provide urban logistics with dedicated infrastructures, managed in close collaboration with the public administration.

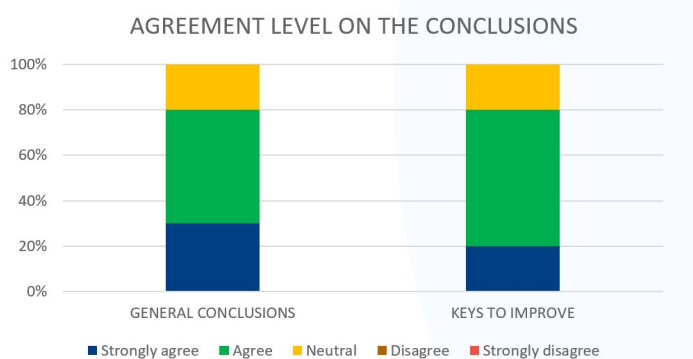


Figure 14: Agreement level with the general conclusions and key improvements of Delphi intervention.

Figure 13 shows the agreement level with the topics (categories) that describe the *Current Process*, and are the main *Stoppers-Improvements* for urban logistics. To pinpoint these topics as the most relevant for urban logistics is shared by all participants (no users disagrees with the identified conclusions), except a disagree regarding *Sustainability* (Figure 13).

Table 6: General conclusions and key improvements derived from Delphi intervention.

<p>DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTCS CONCLUSIONS (i)</p> <ul style="list-style-type: none"> • Considering the amount of contributions, the results suggest the inadequate Public Management&Legislation and the lack of appropriate Infrastructure are the main UL barriers today. • Following this rationale, the next level of barriers are Public Private Partnership, Smart City and Business related to data sharing. Sustainability seems to be a low level barrier. • Regarding values, Public Management&Legislation is the most relevant strength of UL; the main barrier arises also as the main facilitator to change nowadays situation. • Infrastructure and Public Private Partnership to generate Business related to data share in the context of the Smart City seem to be important assets for the UL. • Regarding recommendations, Public Management&Legislation appears again as the main factor. • These results suggest that public administration has the key to change a market, which main actors demand new infrastructures and digital resources to move towards a more sustainable scenario. <hr/> <p>DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTCS CONCLUSIONS (ii)</p> <p>Specifically, some keys to improve these areas would be:</p> <ul style="list-style-type: none"> • Public Management&Legislation: To develop common regulations in the European area, dynamic (not rigid) and based on the type of product, schedule (regulation) and tonnage of the vehicle. • Infrastructure: To increase the typologies of loading and unloading areas and to develop priority use policies for each type of zone, according to the product, delivery time (logistics process) and tonnage of vehicle used. • Sustainability: To consider sustainability criteria adapted to the characteristics of the products and type of vehicle used, which defines the type of delivery, with compensatory criteria (pollutes more but makes fewer trips, ecological footprint vs. impact on traffic congestion). • Business: To develop solutions that support the logistics operations (e.g., to send in advance information about requirements to be met for delivery in a given area, conditions to book a loading/unloading area, priorities related to the type of product/schedule), real-time information on traffic and route management. • Public Private Partnership: To create logistics regulation and management processes agreed with companies. • Smart City: To incorporate logistics activities into mobility policies, to improve coexistence with citizens.

The topics that better describe the *Current Process* are *Public Management & Legislation*, *Business* and *Smart City*. Regarding *Stoppers*, *Public Management & Legislation*, *Infrastructure* and *Public Private Partnership* are the most relevant for consortium partners. On *Improvements'* side, all the topics are relevant for the participants.

In the assessment of interviews results, the topic which arises as critical is the *Public Management & Legislation*. These results are not identical to the one obtained for workshop results, but it is closely related. Indeed, public management involvement is necessary to make available infrastructures for urban logistics, managed collaboratively between private sector and public sector.

Figure 14 shows the high agreement level that participants exhibit with the general conclusions and the key improvements presented in the Delphi intervention (Table 6).

4. Quantitative research: survey.

4.1. Survey design and definition.

In order to obtain the relative weight of the most relevant aspects related to urban logistics improvements identified through the qualitative research, we performed a survey in seven different countries. These countries are those represented in the UNCHAIN consortium by pilot sites: Berlin-Germany, Florence-Italy, Madrid-Spain, Funchal-Portugal, Mechelen-Belgium, Prague-Czech Republic, and Riga-Latvia.

The survey is addressed to professionals that are the main actors of urban logistics in these seven EU countries, i.e., Public administration & Logistics regulator, Logistics planner, Logistics manager & Distribution manager, Delivery person & dealer (delivery employee), Big retailer (distribution to private customer), and Small retailer (distribution to private customer). As shown in ANNEX 6, additionally to the country of origin, different demographic variables such as *age*, *gender*, or *professional profile* have been employed to get the participants characterization. According to the DoA document, the target size of the sample was 500 participants, distributed among all the participant countries.

The survey (ANNEX 6), created from the results generated in the qualitative research, includes 22 questions, distributed in six sections (including the user characterization). The questions have been created according to the results generated in the qualitative research, and address the following topics:

1. User characterization
2. Delivery mode characterization,
3. Logistics quality (importance and satisfaction),
4. Potential improvements during the route,
5. Potential improvements during park and deliver, and
6. Other aspects to improve the logistics.

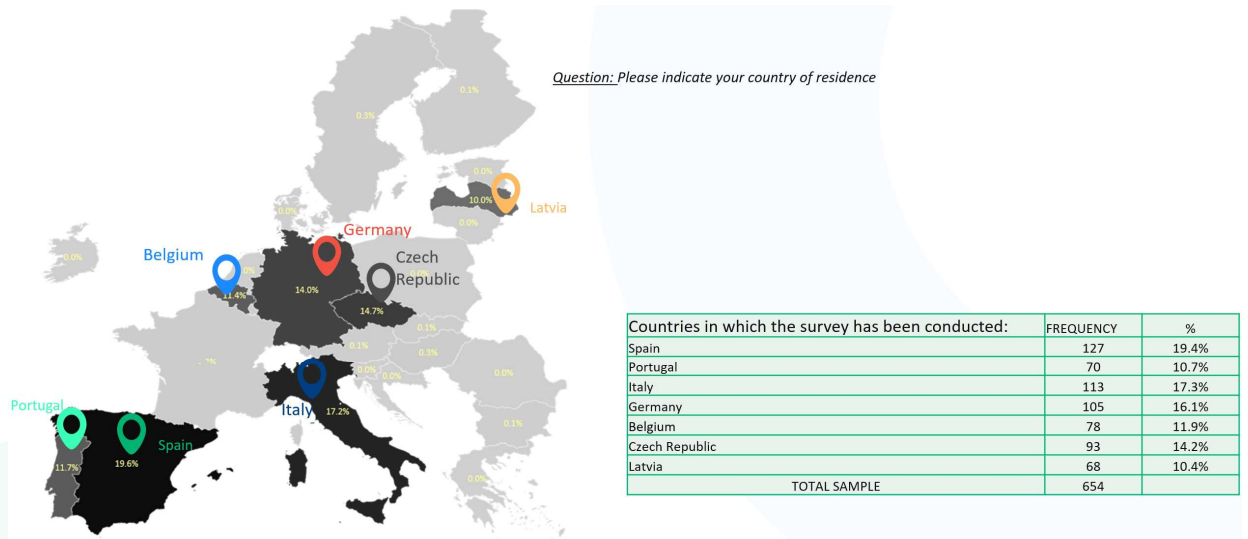
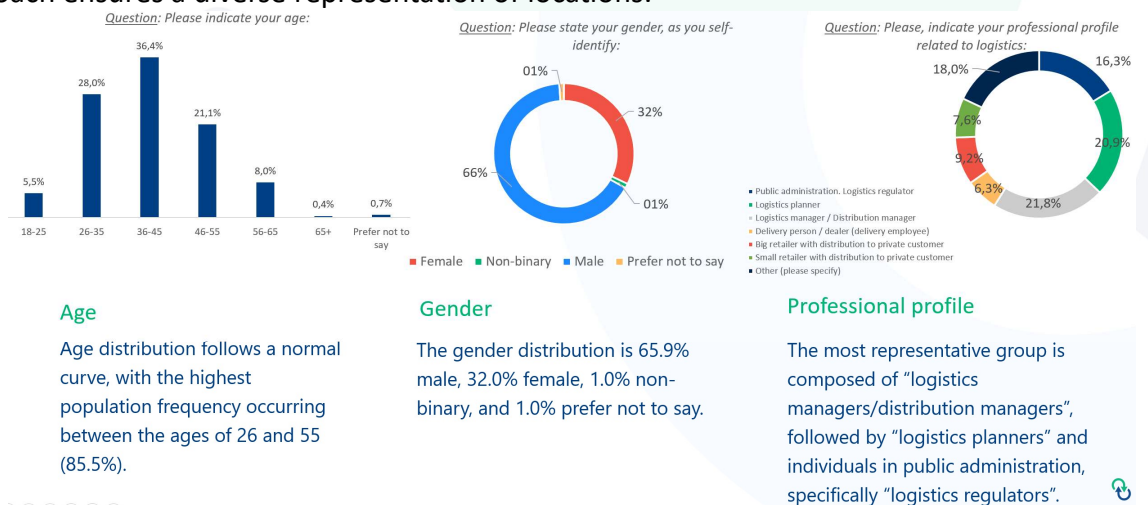


Figure 15: Description of the study sample.

The total sample comprises **654 participants**, distributed across the 7 countries as presented in Figure 15. Participants from each country vary in percentage, although a minimum participation rate of 10% per country has been achieved.

The sample distribution is shown in Figure 16. The participants’ age follows a normal distribution, and the gender distribution is not equally balanced as the rate of male participants (65.9%) doubles the rate of females. This gender distribution has not been imposed by survey’s design, and considering our target population are professionals, it could be related to the nowadays situation in the logistics sector¹.

Geographically, the sample is concentrated in major cities within the studied countries, including their respective capitals and the UNCHAIN’s pilot sites, i.e., Madrid, Prague, Berlin, Riga, Florence, Lisbon, Funchal, Brussels, Loulé, Porto, Siena, Rome, Pisa, and Livorno. This approach ensures a diverse representation of locations.



Age
Age distribution follows a normal curve, with the highest population frequency occurring between the ages of 26 and 55 (85.5%).

Gender
The gender distribution is 65.9% male, 32.0% female, 1.0% non-binary, and 1.0% prefer not to say.

Professional profile
The most representative group is composed of “logistics managers/distribution managers”, followed by “logistics planners” and individuals in public administration, specifically “logistics regulators”.

Figure 16: Sample distribution.

Although initially it was planned to get the required sample of participants through the contact list of the UNCHAIN project partners, in order to ensure the size and the quality of the sample we bought users' panels. These users' panels have been provided by Cint7. A user panel is a group of target users, who match the characteristic of the sample defined for a survey. The participants should match the professional profile defined for the study, what in practice means a limitation in the guaranteed amount of survey's respondents, so we had to adjust our requirements to our objective sample size in each country.

The survey was launched at the beginning of November 2023 (November 8th), and responses were collected nearly for the entire month (December 4th, 2023). In the following section we present the main results obtained from the survey, although a complete collection of these results can be found in ANNEX 7.

4.2. Analysis and results.

4.2.1. Delivery mode characterization (for logistics professionals).

Figure 17 presents the results we get when asking the type of product mainly distributed by a delivery person during its journey. The results are ordered from most widely distributed products, in descending order. In terms of frequency, the most widely distributed products are *electronic devices and computing, metallurgy and construction, and food, drink, catering (distribution to point of sale)*. There is a second block of products including *Textile, Pharmacy, Household items, and e-commerce deliveries*.

⁷ <https://www.cint.com/>

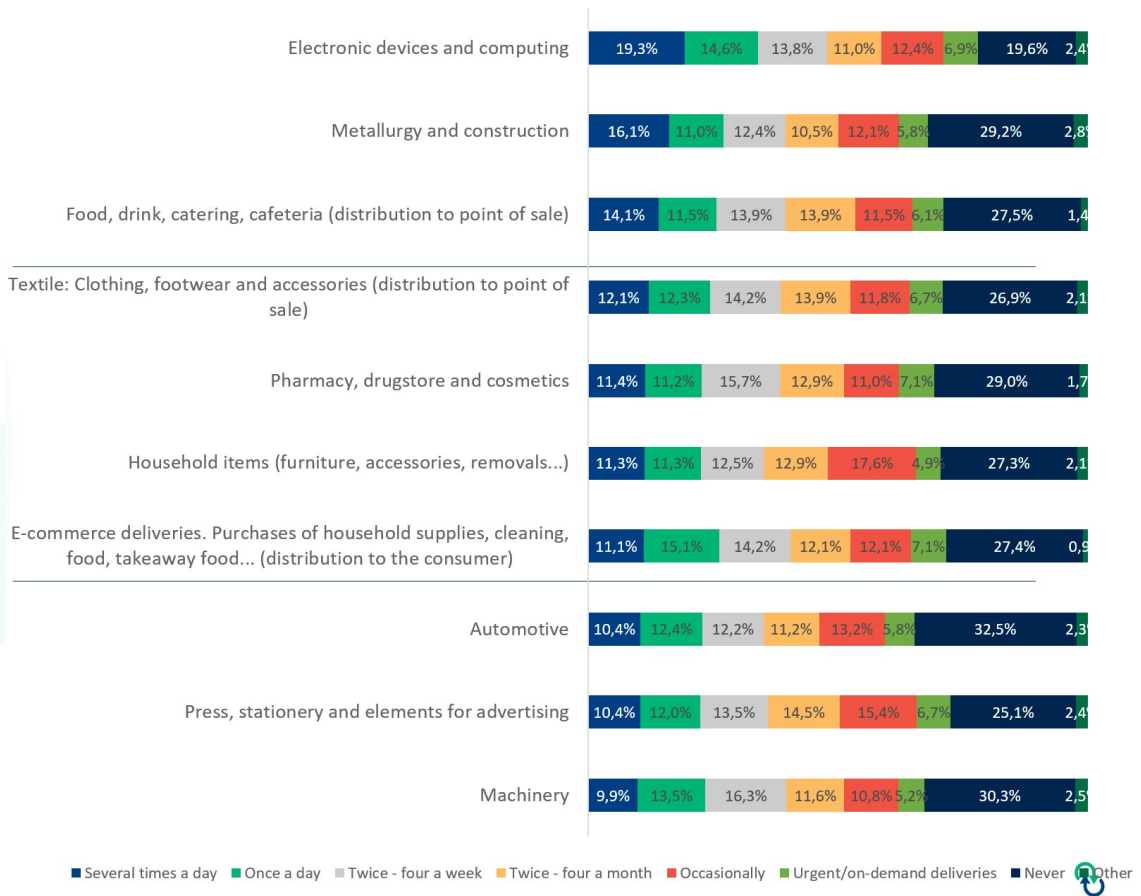


Figure 17: Type of product mainly distributed.

These results suggest that the most delivered products have big volume and are heavy. Indeed, *Metallurgy and construction*, and *Food, drink, catering, cafeteria* are among the most delivered products, while e-commerce is at the tail of the second block. But results presented in Figure 19 reveal that although the heavy deliveries are very relevant, the medium load deliveries and the light deliveries are prevalent.

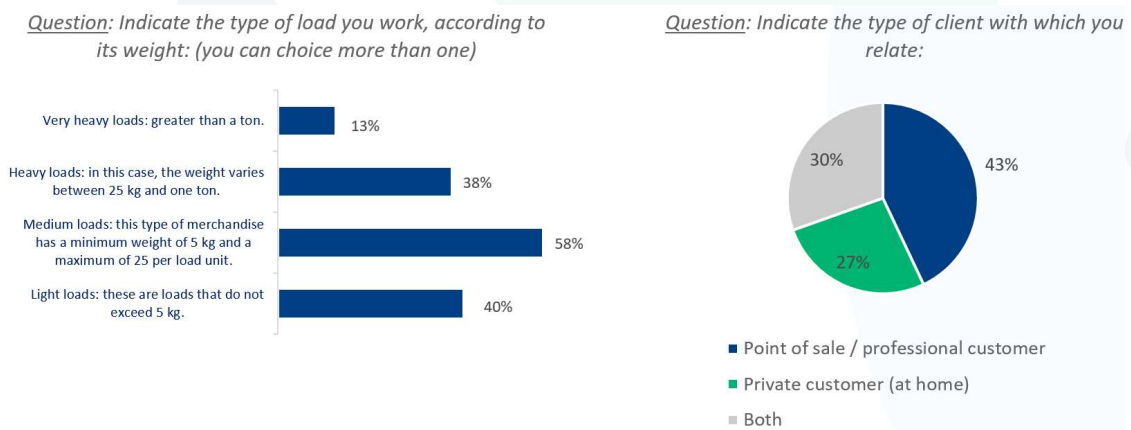


Figure 18: Most common deliveries per type of load and per type of customer.

According to Figure 19, medium weight deliveries and light weight deliveries double the heavy deliveries, although the amount of heavy deliveries is very relevant.

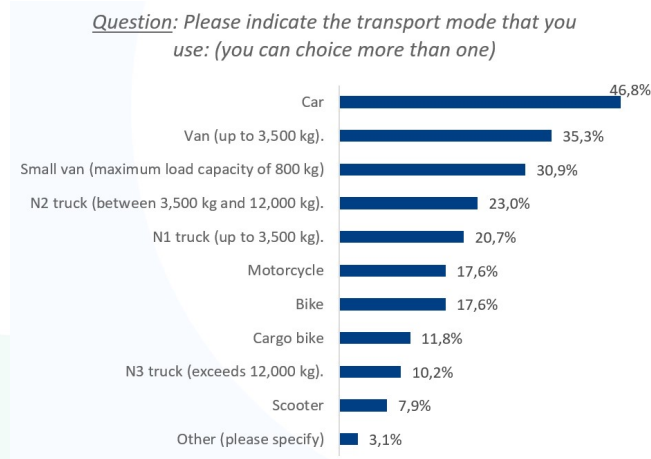


Figure 19: Most common deliveries by Type of load, Type of client and Transport mode.

If we consider the type of client (Figure 19), deliveries for professionals are prevalent over private customer, what evidences the how important logistics supplying businesses like shops and restaurants are.

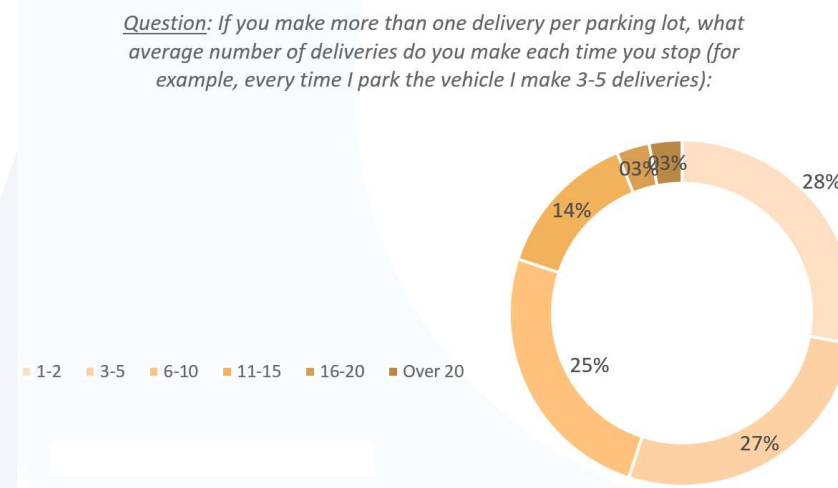
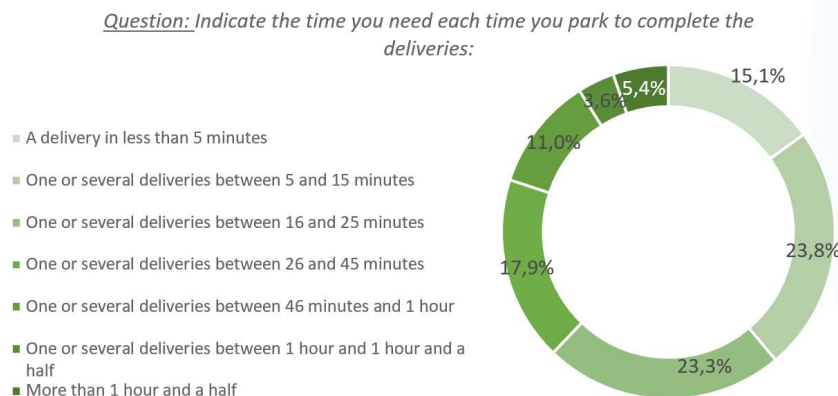


Figure 20: Time per stop and average number of deliveries per stop.

Figure 19 shows the variety of vehicles employed in daily logistics, covering from bikes to different size vans. This bar diagram also reveals that cars, vans and trucks (small and medium) are the most common vehicles employed in urban logistics. According to this, the length of the trucks and vans up to 3,500 kg should be considered as a reference for logistics parking lots.

Figure 20 presents the results related to the time consumed per stop to make deliveries in a neighbourhood, and the number of deliveries related to each stop. 40% of respondents need 15 minutes or even less per stop, while other 40% require between 16 and 45 minutes. This result could be considered as a reference to define the booking time per delivery in dedicated parking lots for logistics, due to the fact that 80% of delivery persons need between 5 minutes and 45 minutes to complete their deliveries. In addition, it could also be considered in the development of the services within WP5 (Operational and management services).

Regarding the amount of deliveries per stop, the diagram of Figure 20 shows that 80% of participants claim to make between 1 and 10 deliveries in each stop. Other 14% of the participants make between 11 and 15 deliveries per stop, so making more than 15 deliveries per stop is very unusual in urban logistics.

4.2.2. Logistics service quality

Figure 21 presents the results related to the main challenges that logistics is facing nowadays. The main issues according to average points (*0-Does not apply, 1-Secondary incidence, 2-Main incidence, 3-Critical incidence*)⁸, have been bounded by a dotted rectangle. The main difficulties that logistics professionals have to manage in their daily duties are all related to *traffic management and loading/unloading areas* (size, occupancy, accessibility, quantity, etc.). There are other relevant aspects related to *failed deliveries* or *the reduction of street lane*, but the main challenges are related to reduce the impact of traffic congestion in the deliveries, and the provision of areas dedicated to logistic processes.

Regarding logistics requirements, Figure 22 presents them, ranking its importance. The diagram highlights the six better rated requirements according to average points (0 points for *Not applicable* answer, and 5 points for *Essential* answer), and five out of six are related to customer satisfaction. Indeed, *Delivery of the product in good condition*, *Customer satisfaction*, *Delivery without order confusion*, *Communication with the customer*, and *Delivery of the product at the agreed time (punctuality)* are related to service quality, and consequently to user satisfaction. The *Safety process for the operator*, which is also part of the better rated requirements, is related to the working conditions of the delivery persons. Other relevant aspects of the logistics processes, as presented in Figure 22, are the regulatory compliance,

⁸ Although the scale of this question is unique for this study, it was considered by the authors to be the most appropriate scale to assess this topic.

and the tools availability to manage the unexpected events, like having an *Alternative delivery point*, or the *Incidence management*.

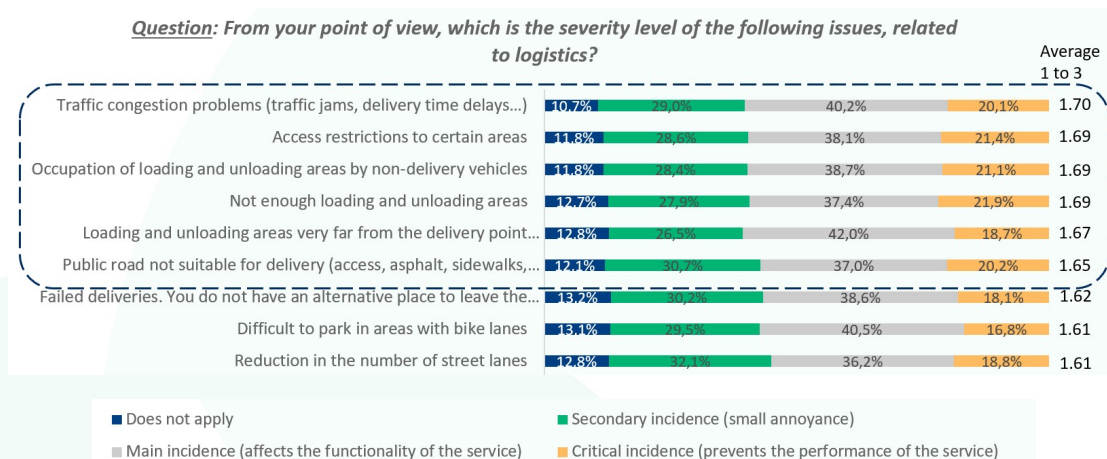


Figure 21: Logistics related challenges.

Both questions feature Likert scales, comprising 3 and 5 points, respectively, along with an additional option for "not applicable".

Likert scales are widely employed in research and surveys due to their flexibility in measuring attitudes and opinions. Featuring graded response options ranging from positive to negative, Likert scales enable respondents to express their degree of agreement or disagreement, facilitating the collection of quantitative data. The inclusion of neutral options allows for a nuanced representation of diverse responses. This method is versatile, finding applications in psychology, sociology, education, and health research. Likert scales simplify data interpretation and enable statistical analyses, including the calculation of averages and standard deviations. Overall, Likert scales provide a structured and quantifiable means to assess perceptions and attitudes across various fields⁹.

⁹ Adams, J. (2019). "The Role of Likert Scales in Survey Research." *Journal of Research Methods*, 14(3), 123-137. doi:10.1234/jrm.2019.1234567890.

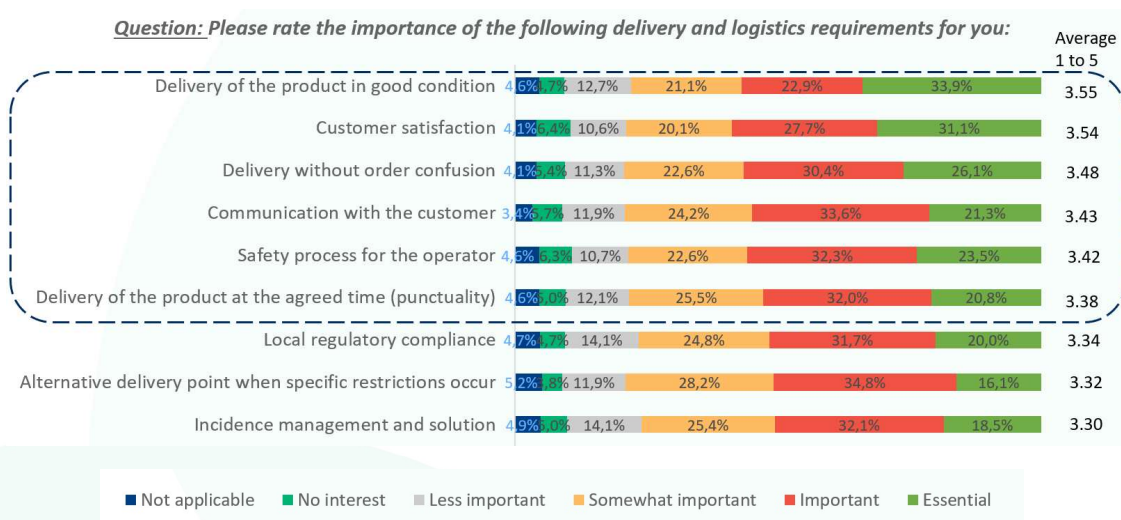


Figure 22: Most important delivery and logistics requirements.

The satisfaction level with the logistics requirements (Figure 23) reveals a high level of correlation with the importance. Indeed, *Delivery of the product in good condition* and *Customer satisfaction* are coincident as the most relevant requirements by importance and satisfaction. In addition, *Delivery without order confusion*, *Communication with customer* and *Safety process for the operator* are included in the group of better rated requirements by importance and satisfaction.



Figure 23: Satisfaction level with the logistics requirements.

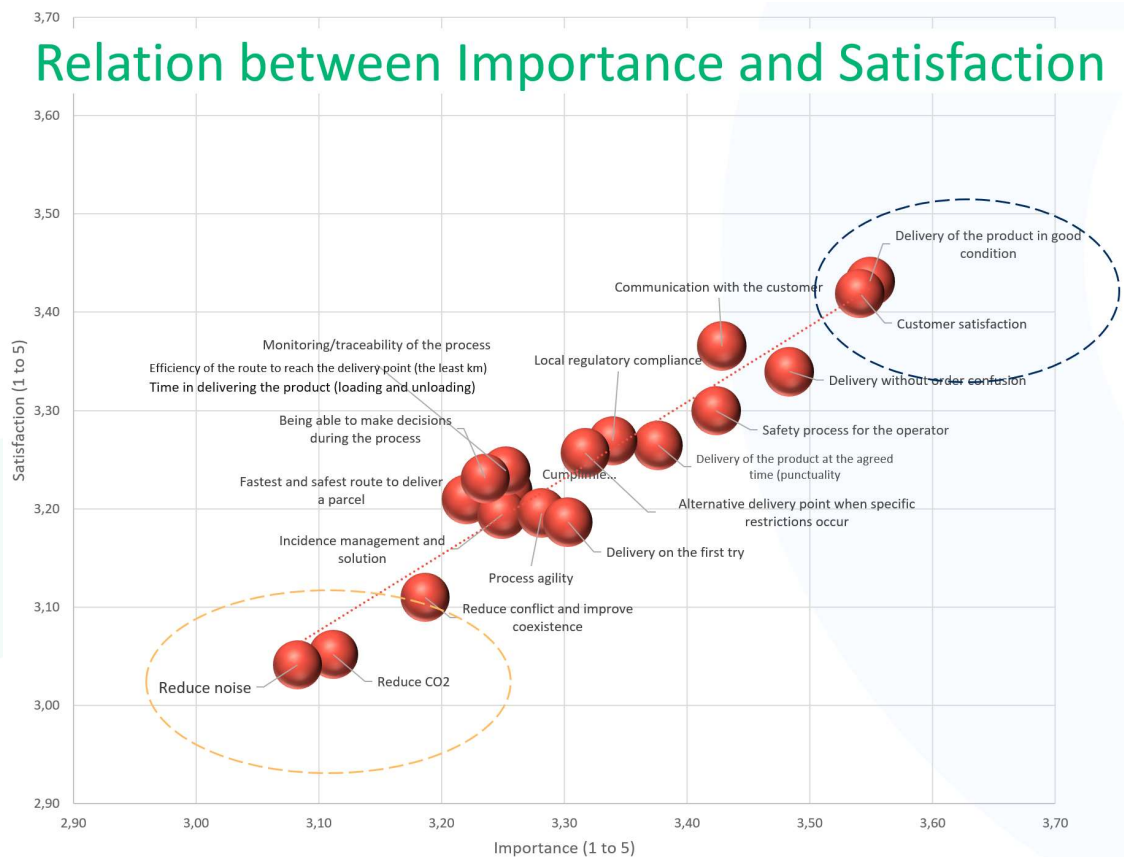


Figure 24: Importance vs. Satisfaction in logistics requirements.

The correlation between *Importance* and *Satisfaction* for logistics requirements is presented in Figure 24. The graph clearly shows the high correlation level between *Delivery of the product in good condition* and *Customer satisfaction*, but also reveals what stands out as less important and less properly solved. Indeed, *Reduce noise* and *Reduce CO₂* have the lower satisfaction level, and the lower importance level. These two topics emerge as relevant improvement factors for the urban logistics.

4.2.3. Potential improvements during the route.

In the three remaining subsections, the questions were linked with the UNCHAIN services (KERs), those that will be developed in the WP4. *Urban logistics services marketplace: Urban planning and policy making* and in WP5. *Urban logistics services marketplace: Space management and operation*.

Table 7: Requirements highly impacted by services focused on traffic management.

WHAT AND HOW MATRIX	DATA STANDARDISATION	PLANNING KIT	ACTIVE UVARs	ROUTE PLANNING	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	31.0%	30.0%	23.7%	40.1%	5.5%
Efficiency of the route to reach the delivery point (the last km)	25.9%	34.0%	25.9%	37.7%	5.7%
Time in delivering the product (loading and unloading)	27.4%	33.2%	26.4%	32.1%	7.1%
Delivery of the product in good condition	24.4%	33.8%	27.8%	25.9%	12.3%
Delivery of the product at the agreed time (punctuality)	25.2%	34.0%	27.0%	36.6%	7.7%
Safety process for the operator	25.3%	32.9%	28.0%	28.8%	11.0%
Customer satisfaction	25.9%	33.3%	27.4%	30.8%	9.4%
Local regulatory compliance	26.1%	30.5%	31.9%	25.8%	10.1%
Delivery on the first try	23.0%	32.9%	27.4%	33.2%	9.9%
Delivery without order confusion	25.5%	35.1%	24.4%	29.2%	10.7%
Process agility	24.5%	33.8%	30.5%	29.2%	9.4%
Monitoring/traceability of the process	28.5%	32.4%	28.1%	31.3%	8.8%
Being able to make decisions during the process	25.6%	36.0%	26.1%	27.4%	10.7%
Reduce CO2	20.9%	30.2%	28.6%	30.0%	11.5%
Reduce noise	19.2%	29.9%	30.2%	24.5%	14.8%
Reduce conflict and improve coexistence	23.6%	32.1%	33.3%	28.5%	12.9%
Incidence management and solution	23.9%	32.9%	28.6%	29.4%	11.6%
Communication with the customer	26.7%	29.9%	29.4%	25.8%	12.4%
Alternative delivery point when specific restrictions occur	22.6%	34.1%	29.1%	31.8%	10.1%
TOTAL	25.0%	32.7%	28.1%	30.4%	10.1%

The questions to collect users’ insights related to the fulfilment of logistics requirements by UNCHAIN services have been organised following a Quality Function Development (QFD^{10,11}) format, as stated in the DoA document.⁹

As presented in Table 7, survey’s participants were asked to select three logistics requirements, among those listed, highly impacted by the UNCHAIN’s services focused on *traffic management*, in the context of *potential improvements during the route*.

The services classified as *traffic management* are *Data Standardisation*; *Planning KIT*; *Active UVARs*; and *Route planning*, which accordingly to Table 8 are *KER1*, *KER4*, *KER6* and *KER12* respectively.

¹⁰ https://en.wikipedia.org/wiki/Quality_function_deployment

¹¹ Yong, L. Pekkarinen, S., QFD-based modular logistics service design, Journal of Business & Industrial Marketing, 26/5 (2011) 344–356, DOI: 10.1108/08858621111144406.

Table 8: List of services to be developed and demonstrated in UNCHAIN project.

Developer	Service description
KER1	Data standardization IDS connectors and microservices for ICT mobility platforms
KER5	On-street loading zones planning tool
KER8	Dynamic curb side management
KER10	IT Pop-Up delivery points management tool
KER13	Advanced Management IT Cockpit of Shared Facilities
KER2	SUMPs and SULPs guidance tool
KER4	UCC location and integrated planning KIT
KER12	Congestion forecasting and safe route planning
KER3	Freight Efficiency Land Use
KER6	Active UVARs and city regulations tools
KER9	Dynamic management of pick-up/drop-off points
KER11	Logistics operator monitoring system and incentives tool
KER7	Knowledge powerhouse for urban logistics

Those requirements impacted by a service for at least the 30% of the participants have been highlighted in the matrix (Table 7), employing three different levels of red colour. The survey's results show that all the *KERs* focused on *traffic management* generate a positive impact on logistics requirements. Nevertheless, *KER12* and *KER4* concentrate a higher agreement level regarding the impact on logistics requirements. In this sense, survey's participants consider that *KER4*, and specially *KER12*, will have a very positive impact on generating a *Fastest and safest route to deliver a parcel*, and in the *Efficiency of the route to reach the delivery point (the last km)*.

4.2.4. Potential improvements during park and deliver

Table 9 presents the logistics requirements highly impacted by services focused on *parking and delivery activities*. The services considered under this category are *Efficient land use (linked to KER3, Table 8)*, *Loading zones (linked to KER5, Table 8)*, *Curb Side management (linked to KER8, Table 8)*, *Pick-up/Drop-off (linked to KER9, Table 8)* and *IT Pop-up deliveries (linked to KER10, Table 8)*.

Those requirements impacted by a service for at least the 30% of the participants have been highlighted in the matrix (Table 9), employing three different levels of red colour. The survey's results show that all the *KERs* focused on *parking and delivery activities* generate a positive impact on logistics requirements. Nevertheless, *KER3*, *KER5*, *KER8* and *KER9* concentrate a higher agreement level regarding the impact on logistics requirements. In this sense, survey's participants consider that *KER3*, *KER5* and *KER9* will have a very positive impact on generating a *Fastest and safest route to deliver a parcel*. Additionally, *KER5*, *KER8* and *KER9* will impact on *Time in delivering the product*, and a high impact on *Delivery of the product at the agreed time* is expected by implementing *KER5* and *KER9*.

Table 9: Requirements highly impacted by services focused on park and delivery activities.

WHAT AND HOW MATRIX	EFFICIENT LAND USE	LOADING ZONES PLANNING TOOL	CURB SIDE MANAGEMENT	PICKUP/DROP-OFF POINTS	IT POP-UP DELIVERY POINTS	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	32.4%	35.1%	24.3%	31.3%	13.8%	4.9%
Efficiency of the route to reach the delivery point (the last km)	28.0%	36.8%	27.0%	29.8%	13.8%	5.6%
Time in delivering the product (loading and unloading)	23.4%	35.8%	30.6%	32.6%	15.2%	5.1%
Delivery of the product in good condition	19.1%	32.7%	24.9%	30.8%	16.3%	10.5%
Delivery of the product at the agreed time (punctuality)	26.1%	42.0%	33.5%	39.3%	20.4%	7.4%
Safety process for the operator	20.0%	35.4%	31.7%	27.2%	14.7%	9.8%
Customer satisfaction	19.6%	28.7%	27.4%	34.2%	16.9%	10.3%
Local regulatory compliance	22.9%	35.4%	29.1%	28.0%	15.8%	9.0%
Delivery on the first try	19.9%	34.8%	26.8%	33.2%	16.7%	7.2%
Delivery without order confusion	20.1%	33.5%	23.6%	32.7%	13.7%	11.3%
Process agility	23.3%	36.9%	29.1%	28.4%	16.5%	8.2%
Monitoring/traceability of the process	18.9%	34.2%	27.1%	31.5%	16.9%	9.5%
Being able to make decisions during the process	18.6%	35.2%	27.0%	28.3%	14.1%	12.0%
Reduce CO2	21.0%	32.3%	26.3%	29.1%	14.9%	12.0%
Reduce noise	18.5%	30.7%	26.8%	28.6%	14.9%	12.7%
Reduce conflict and improve coexistence	21.2%	32.1%	28.9%	31.3%	12.5%	11.9%
Incidence management and solution	22.8%	31.3%	27.0%	27.6%	13.3%	13.3%
Communication with the customer	14.1%	31.1%	22.8%	29.7%	16.7%	13.5%
Alternative delivery point when specific restrictions occur	17.8%	33.1%	28.6%	35.8%	18.3%	8.3%
TOTAL	21.5%	34.1%	27.5%	31.0%	15.6%	9.6%

4.2.5. Potential environmental impact improvements

Table 10 presents the logistics requirements highly impacted by services focused on *reducing environmental impacts*. The services considered under this category are *SUMPs and SULPs guidance, Knowledge powerhouse, Monitoring and incentives, IT Cockpit of shared*, which according to *Table 8* are *KER2, KER7, KER11* and *KER13* respectively.

Those requirements impacted by a service for at least the 30% of the participants have been highlighted in the matrix (*Table 10*). The survey's results show that all the *KERs* focused on *reducing environmental impact* generate a positive impact on logistics requirements. Nevertheless, *KER2, KER7, and KER11* concentrate a higher agreement level regarding the impact on logistics requirements. In this sense, survey's participants consider that *KER2* and *KER7* will have a very positive impact on generating a *Fastest and safest route to deliver a parcel*, and on the *Efficiency of the route to reach the delivery point*. Additionally, *KER2* will have a high impact on *Time in delivering the product, Delivery of the product at the agreed time, Customer satisfaction, Local regulatory compliance, Delivery on the first try, Delivery without order confusion, Monitoring/traceability of the process, and Alternative delivery point when specific restrictions occur*.

Table 10: Requirements highly impacted by services focused on reducing environmental impact.

WHAT AND HOW MATRIX	SUMPS AND SULPs GUIDANCE	KNOWLEDGE POWERHOUSE	MONITORING AND INCENTIVES	IT Cockpit of SHARED FACILITIES	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	32.1%	34.1%	36.2%	22.8%	6.7%
Efficiency of the route to reach the delivery point (the last km)	30.6%	39.1%	36.1%	21.2%	5.9%
Time in delivering the product (loading and unloading)	29.2%	31.4%	39.3%	26.3%	7.1%
Delivery of the product in good condition	20.8%	31.7%	37.3%	24.5%	12.3%
Delivery of the product at the agreed time (punctuality)	25.2%	34.9%	40.7%	25.5%	8.8%
Safety process for the operator	22.3%	34.8%	38.8%	25.6%	10.1%
Customer satisfaction	22.0%	30.6%	39.3%	26.1%	11.2%
Local regulatory compliance	26.8%	32.7%	41.5%	21.8%	8.7%
Delivery on the first try	21.5%	34.6%	39.1%	21.2%	9.8%
Delivery without order confusion	22.9%	35.7%	39.4%	22.1%	11.2%
Process agility	23.4%	37.0%	35.9%	24.8%	7.9%
Monitoring/traceability of the process	22.4%	34.8%	41.5%	22.8%	8.2%
Being able to make decisions during the process	23.6%	34.6%	36.5%	22.6%	11.4%
Reduce CO2	28.4%	30.1%	34.0%	21.6%	11.5%
Reduce noise	25.8%	28.8%	34.1%	21.2%	11.7%
Reduce conflict and improve coexistence	26.4%	33.8%	35.4%	24.2%	13.1%
Incidence management and solution	21.8%	36.2%	38.6%	21.5%	10.6%
Communication with the customer	18.4%	33.8%	38.8%	24.2%	12.5%
Alternative delivery point when specific restrictions occur	22.3%	32.5%	41.2%	26.3%	9.1%
TOTAL	24.5%	33.8%	38.1%	23.5%	9.9%

4.2.6. Significant differences

The survey analysis has included the identification of significant differences⁴ in the answers for *gender, load type, transportation type, age* and *professional profile*.

Figure 25 present the results of significant differences analysis for *gender* and *load type*. The dotted rectangle displays where significant differences arise. In the case of *gender* and *load type*, differences occur with men being the ones who predominantly handle *heavy load* distribution. However, there are no significant differences in handling light, medium, and very heavy loads. The absence of differences in *very heavy loads* could be related with the employment of specific machinery when dealing with this load type.

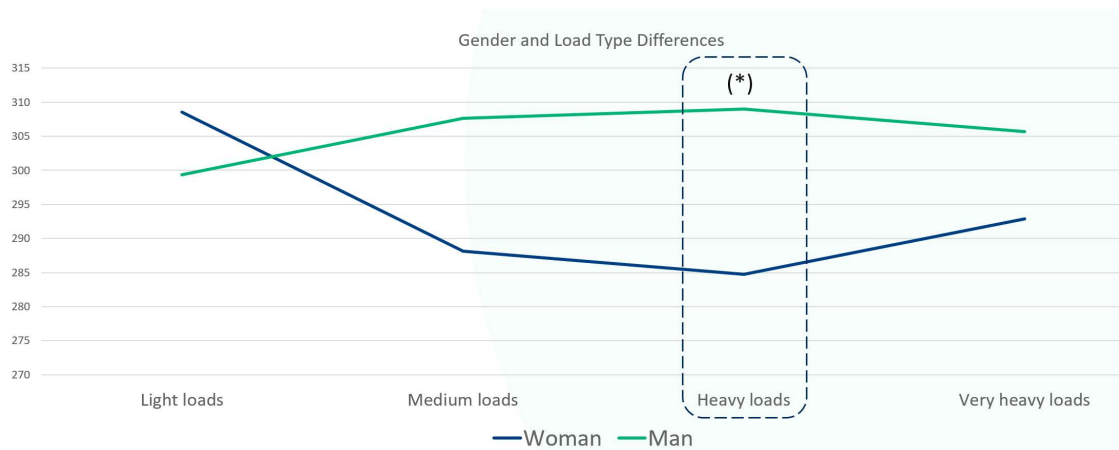


Figure 25: Significant differences for Gender and Load Type .

There are also significant differences in the type of transportation used. *Figure 26* presents the significant differences per *Gender and Transportation Type*. According to this result, men significantly use scooters, large vans, and trucks N1 and N2, more than women.

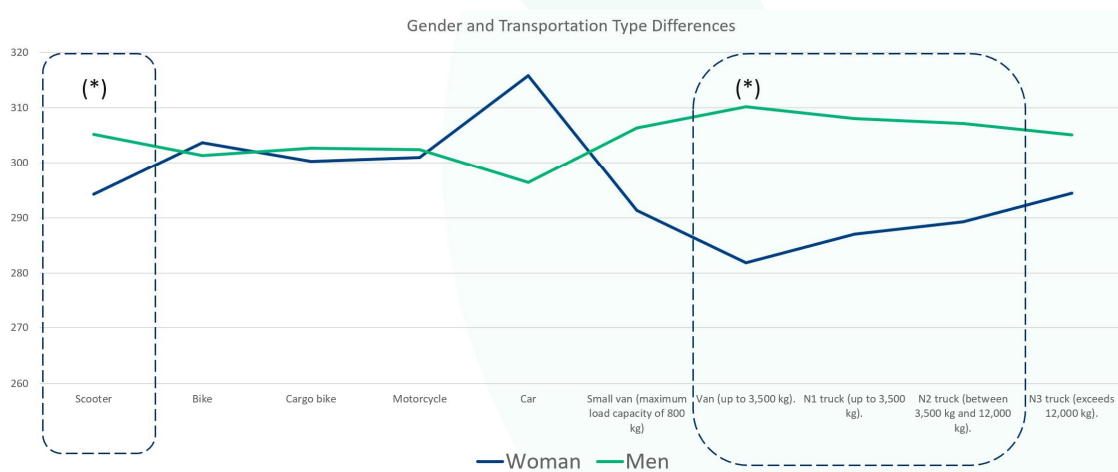


Figure 26: Significant differences for Gender and Transportation Type

5. Conclusions

The main conclusions derived from the results presented in the previous sections are:

- The main figures of the UNCHAIN user research are:
 - 2 qualitative interventions (*Netnography, and Delphi*), and 1 quantitative intervention (survey).
 - The 7 countries, where the demonstration sites of the project are located, have participated in the user research.

- End users (logistics customers), professional profiles of logistics sector (Logistics planner, Logistics manager & Distribution manager, Delivery person & dealer), administration professionals (Public administration & Logistics regulator) and distribution professionals (Big retailer, Small retailer) have participated in the user research (Delphi and survey).
- 60 professionals participated in the qualitative research.
- The *Netnography* intervention analyzed 10,296 reviews and 5,921 comments.
- 654 professionals (logistics, administration, distribution) participated in the survey (quantitative research).
- The satisfaction level of the logistics services, considered as the ratings collected in the *Netnography* study and measured on a scale from 1 to 5 (3 is the mean value), ranged for the three the cities of the study from 4.2 to 2.8. These values differ a lot (4.2 out of 5 in Berlin, and 2.8 out of 5 in Madrid), what evidences significant differences in the quality of the service in each city.
- The weighed value for *Netnography* study's rating is 3. This rating suggests that logistics services are acceptable (3 is the mean value of the ratings' scale), but there is big margin for improvements.
- The ratio between positive and negative comments is very different among the cities included in the *Netnography* study. While this ratio is around one to one for Florence, in Madrid the negative comments double the positive, and in Berlin only one out of five comments are negative.
- Although there are differences in the study for positive and negative comment among the three cities, the results for improvements present a higher coherence level. Indeed, the *Customer service (Service Support)* is identified as the first main improvement in Madrid and Florence, as the second main improvement in Berlin. In addition, *Punctuality* is the third main improvement in Florence and Berlin, and *Quality-price ratio* and *Quality and professionalism* are also among the three main improvements in Berlin and Madrid, respectively.
- According to *Netnography* results, the main improvements demanded by the urban logistics' customers are *Customer service, Punctuality and Quality*.
- From professionals' point of view, when they talk about urban logistics the main topics to be addressed are *Public management & Legislation, Infrastructure, Sustainability, Business, Public Private Partnership* and *Smart City*.
- According to professionals' criteria, *Public Management & Legislation* and the lack of appropriate *Infrastructure* are the main urban logistics barriers nowadays. The next level of barriers are *Public Private Partnership, Smart City* and *Business* related to data sharing. *Sustainability* seems to be a low-level barrier.
- *Infrastructure* and *Public Private Partnership* emerge as critical topics, as they are considered as barriers, but also as strengths and innovation opportunities. This reveals the need to provide urban logistics with dedicated infrastructures, managed in close collaboration with the public administration.
- *Public Management & Legislation* also arises as critical for improvements in urban logistics. This result is closely related to the previous one, as public management

involvement is necessary to make available infrastructures for urban logistics, managed collaboratively between private sector and public sector.

- Common regulations in the European area are required to improve urban logistics. These regulations should be dynamic (not rigid), and adapted to different criteria like the type of product, delivery schedule or the tonnage of the vehicle.
- According to survey results, the medium load deliveries and the light deliveries are prevalent in urban logistics, although the heavy deliveries are very relevant.
- These light deliveries and medium load deliveries are mainly transported by cars, and small and medium sized vans and trucks. Anyway, the prevalence of professional customers over consumers reveal how important logistics supplying businesses like shops and restaurants are.
- The amount of heavy deliveries, combined with the urban logistics for businesses, makes more evident the need to consider different criteria when legislating for urban logistics.
- Heavy loads have greater critical incidences in issues such as: *Very restrictive regulations due to their features (access, noise, vehicle tonnage, type, age...), Lack of electric vehicle charging infrastructure, Navigation apps and shared data aimed at monitoring the activity, Little tolerance from citizens due to noise, interference in activities with customers and Increased circulation and greater mileage are generated by having to change the loading/unloading zone.*
- *Delivery on the first try, Monitoring/traceability of the process, Being able to make decisions during the process and Alternative delivery point when specific restrictions occur*, are interesting aspects to improve to a better satisfaction due their relevance for a heavy goods.
- Survey results reveal that 40% of delivery professionals stop in a parking lot for fifteen minutes (15') or less to complete a delivery action, while other 40% needs longer time lapses (between 16 and 45 minutes). These time slots could be considered as a reference to define the booking time per delivery in dedicated parking lots for logistics.
- According to survey results, the main difficulties that logistics professionals have to manage in their daily duties are mainly related to *traffic management* (to reduce the impact of traffic congestion in the deliveries), and *loading/unloading areas* (the provision of areas dedicated to logistic processes). These results are coherent with the main barriers identified in the Delphi intervention, pointing out the lack of *Infrastructure* and the *Public Management & Legislation* as the main issues for urban logistics.
- The most relevant logistics requirements for professionals are *Delivery of the product in good condition, Customer satisfaction, Delivery without order confusion, Communication with the customer*, and *Delivery of the product at the agreed time (punctuality)*. This result is coherent with customers' demands of improvement, focused on the *Customer service (Communication with the customer), Punctuality and Quality*.
- For logistics professionals, the *Delivery of the product in good condition* and *Customer satisfaction* are the logistics requirements that are more important and generate to them a higher satisfaction level.
- On the contrary, *Reduce noise and Reduce CO₂* have the lower satisfaction level, and the lower importance level. These two topics emerge as relevant improvement factors for the urban logistics, as both of them have the potential to give extra quality to customers, once

the quality related to *Delivery of the product in good condition* and *Customer satisfaction* has been achieved.

- All the services to be developed by the UNCHAIN project focused on traffic management are considered by logistics professionals to generate a positive impact on logistics requirements. In this sense, survey's results reveal that KER12 (Route planning) and KER4 (Planning KIT) will have a very positive impact on generating a *Fastest and safest route to deliver a parcel, and in the Efficiency of the route to reach the delivery point (the last km)*.
- The similarities between these issues are evident, although it's crucial to note that efficiency encompasses a broader range of factors, including but not limited to fuel consumption.
- The survey's results show that all the UNCHAIN services focused on parking and delivery activities will generate a positive impact on logistics requirements. Nevertheless, survey's participants consider that KER3 (Efficient Land Use), KER5 (Loading zone plan tool) and KER9 (Pick-up/Drop-off points) will have a very positive impact on generating a *Fastest and safest route to deliver a parcel*. Additionally, KER5, KER8 (Curb side management) and KER9 will impact on *Time in delivering the product*, and a high impact on *Delivery of the product at the agreed time* is expected by implementing KER5 and KER9.
- According to survey's results, all the services focused on *reducing environmental impact* will generate a positive impact on logistics requirements. Survey's participants point out that KER2 (SUMP's and SULP's guidance) and KER7 (Knowledge powerhouse) will have a very positive impact on generating a *Fastest and safest route to deliver a parcel, and on the Efficiency of the route to reach the delivery point*. Additionally, KER2 will have a high impact on *Time in delivering the product, Delivery of the product at the agreed time, Customer satisfaction, Local regulatory compliance, Delivery on the first try, Delivery without order confusion, Monitoring/traceability of the process, and Alternative delivery point when specific restrictions occur*.
- Regarding gender issues, 40% of the comments analysed in the *Netnography* intervention were sent by female customer, and 60% by male customers. The analysis did not find significant differences between men and women regarding sentiment and levels of extreme negativity (hate). However, women tend to discuss topics such as *package, waiting, delivered, or absent, while men mention more frequently topics such as service, company, shipment, or hour*.
- The gender distribution of survey's participants is more unbalanced, as the rate of male professionals participating in the survey (65.9%) doubles the rate of females.
- Regarding gender significant differences, men are the ones who predominantly handle *heavy load* distribution. In addition, men significantly use scooters, large vans, and trucks N1 and N2, more than women.

ANNEX 1. Application for ULANC Ethics Committee

Research Ethics Application Form v19.8

Research Ethics Application Form v19.8



UNCHAIN

Information Regarding this Research Project

Are you conducting a research project?

(for more information on research projects please see our [ethics pages](#))

Yes No

Does your research only involve animals?

Yes No

Are you undertaking this research as are you filling this form out as:

- Academic/Research Staff
- Non Academic Staff
- Staff Undertaking a Programme of Study
- PhD or DClinPsy student or MPhil
- Undergraduate, Masters, Master by Research or other taught postgraduate programme

Which Faculty are you in?

Lancaster (Leadership Management School)

Which department are you in?

Management Science

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Reference #:

Please confirm/insert the title of this project:

UNCHAIN

Estimated Project Start Date

2004/2023

Estimated End Date

30/06/2028

Is this a funded Project?

Yes No

Funding Information

Funding Information

What is the ACP Reference?

A123456

What is the Agresco ID?

MTX789

Please note:

Your ACP reference number can be found on your grant application, it will start with an A and be followed by 6 numbers, e.g. A123456. Your Agresco ID is your grant code for expenditure allocated by post-award, e.g. EAA7001.

What is the funding organisation?

HORIZON EUROPE AND UKRI

What is your external grant reference? (if you do not have one, please enter "N/A")

N/A

Research Site(s) Information

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Reference #:

Will your project require NHS REC approval? (if you are not sure please read the guidance in the information button)

Yes No

Do you need Health Research Authority (HRA) approval? (Please read the guidance in the information button)

Yes No

Have you already obtained, or will you be applying for ethical approval, from another institution outside of Lancaster University? (For example, an external institution such as another University's Research Ethics Committee, the NHS or an institution abroad (eg an IRB in the USA)? Please select one of the following:

- No, I do not need ethical approval from an external institution.
- Yes, I have already received ethical approval from an external institution.
- Yes, I will be applying for ethical approval from an external institution after I have received confirmation of ethical approval from my Faculty Research Ethics Committee (FREC) at Lancaster University, if the FREC grants approval.

Is this an amendment to a project previously approved by Lancaster University using the previous 'paper-based' system (Pre-Jan 2022)?

Yes No

Are you seeking Approval in Principle for a research grant application?

Yes No

Will your research involve any of the following? (Multiple selections are possible, please see icon for details)

- Human Participants
- Data relating to humans (Secondary/Pre-existing data only)
- Data collection from online sources such as social media platforms, discussion forums, online chat-rooms
- Human Tissue
- None of the above

You have selected that you are gathering data from online sources such as social media platforms, discussion forums, online chat-rooms. Will you also be recruiting participants from this source?

Yes No

Project Information

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Reference #:

Will you be recruiting participants from research sites outside of Lancaster University? (E.g. Schools, workplaces, etc, please read the guidance in the information button for more information)

Yes No

Please provide the number, type and location of external research sites that you are using (please see help text for details)

There will be seven countries involved namely: Spain, Germany, Italy, Belgium, Czech Republic, Portugal, Latvia

Applicant Details

Are you the named Principal Investigator at Lancaster University?

Yes No

Please check your contact details are correct. You can update these fields via the personal details section located in the top right of the screen. Click on your name and email address in the top right to access 'Personal details'. For more details on how to do this, please read the guidance in the information button.

First Name

Konstantinos

Surname

Zografos

Department

Management Science

Faculty

Management School

Email

k.zografos@lancaster.ac.uk

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Reference #:

Principal Investigator

You have stated that you are the Principal Investigator for this project

First Name
Konstantinos

Surname
Zografos

Department
Management Science

Email
k.zografos@lancaster.ac.uk

Additional Team Members

Other than those already added, please select which type of team members will be working on this project

I am not working with any other team members
 Staff
 Student
 External

Please list all external contacts here

First Name
Elena

Surname
Garcia Jimenez

Organisation
ETRA

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Search for the names of all other internal staff here:

First Name
Konstantinos

Surname
Zografos

Department
Management Science
Faculty
Management School

Email
k.zografos@lancaster.ac.uk

Details about the participants

As you are conducting research with Human Participants/Tissue you will need to answer the following questions before your application can be reviewed.

If you have any queries about this please contact your Ethics Officer before proceeding.

What's the minimum number of participants needed for this project?
500

What's the maximum number of expected participants?
2000

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Please list all external contacts here

First Name
Alessio

Surname
Lorenz

Organisation
EBU

Please list all external contacts here

First Name
Juan Fernando

Surname
Simonez

Organisation
EBU

Please list all external contacts here

First Name
Lorena

Surname
Felix

Organisation
SPCA Consulting

Please list all external contacts here

First Name
Cardi

Surname
Sotero Garcia

Organisation
EBU

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Do you intend to recruit participants from online sources such as social media platforms, discussion forums, or online chat rooms?
 Yes No

Will you get written consent and give a participant information sheet with a written description of your research to all potential participants?
 Yes No I don't know

Will any participants be asked to take part in the study without their consent or knowledge at the time or will deception of any sort be involved?
 Yes No I don't know

Is your research with any vulnerable groups?
(Vulnerable group as defined by Lancaster University Guidelines)
 Yes No I don't know

Is your research with any adults (aged 18 or older)?
 Yes No

Is your research data collected with completely anonymous adult (aged 18 or older) participants, with no contact details or other uniquely identifying information (e.g. date of birth) being recorded?
 Yes No

Is your research with adult participants (aged 18 years, or older) in private interactions (for example, one to one interviews, online questionnaires)?
 Yes No

Is your research with any young people (under 18 years old)?
 Yes No I don't know

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Does your research involve discussion of personally sensitive subjects which the participant might not be willing to otherwise talk about in public (e.g. medical conditions)?

Yes No I don't know

Could the study induce psychological stress or anxiety, or produce humiliation or cause harm or negative consequences beyond the risks encountered in a participant's usual everyday life?

Yes No I don't know

Is there a risk that the nature of the research topic might lead to disclosures from the participant concerning either:

- Their own or others involvement in illegal activities
- Other activities that represent a threat to themselves or others (e.g. sexual activity, drug use, or professional misconduct)?

Yes No I don't know

Does the study involve any of the following:

- Physically intrusive procedures including touching or attaching equipment to participants
- Administration of substances
- Ultrasound or sources of non-ionising radiation (e.g. lasers)
- Sources of ionising radiation (e.g. X-rays)
- Collection or use of samples of human tissue (e.g. Saliva, skin cells, blood etc.)

Yes No I don't know

Details about Participant relationships

Do you have a current or prior relationship with potential participants? For example, teaching or assessing students or managing or influencing staff (this list is not exhaustive)

Yes No I don't know

If you need written permission from a senior manager in an organisation where research will take place (e.g. school, business) will you gain this in advance of undertaking your research?

Yes No I don't know N/A

Will you be using a gatekeeper to access participants?

Yes No I don't know if I will be using a gatekeeper

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Online Sources

Does your research comply with the site(s) terms and conditions? Before completing the section below please read the "Social Media Guidance for Researchers"

*Students can access the guidance here.

Yes No I'm unclear in the terms and conditions

Is there a reasonable expectation of privacy?

Yes No

Is it practical to obtain consent?

Yes No

Data Source

Is the online data you will be using in the public domain?

Yes No

Will you use data from potentially illicit, illegal, or unethical online sources (e.g. pornography, related to terrorism, dark web, leaked information)?

Yes No I don't know

Do you need consent for the use of the data for research purposes?

Yes No I don't know

Will you protect anonymity in your use and analysis of the data?

Yes No I don't know

General Queries

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Reference #:

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Will participants be subjected to any undue incentives to participate?

Yes No I don't know

Will you ensure that there is no perceived pressure to participate?

Yes No I don't know

Participant data

Will you be using video recording or photography as part of your research or publication of results?

Yes No

Will you be using audio recording as part of your research?

Yes No

Will you be using portable devices to record participants (e.g. audio, video recorders, mobile phone, etc)?

No

Yes, and all portable devices will be encrypted as per the Lancaster University ISS standards, in particular where they are used for recording identifiable data

Yes, but those cannot be encrypted because they do not have encryption functionality. Therefore I confirm that any identifiable data (including audio and video recordings of participants) will be deleted from the recording device(s) as quickly as possible (e.g. when it has been transferred to a secure medium, such as a password protected and encrypted laptop or stored in OneDrive) and that the device will be stored securely in the meantime

Will you be using other portable storage devices in particular for identifiable data (e.g. laptop, USB drive, etc)? (Please read the help text)

No

Yes, and they will be encrypted as per the Lancaster University ISS standards in particular where they are used for recording identifiable data

Will anybody external to the research team be transcribing the recorded data?

Yes No

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Does the funder or any organisations involved in the research have a vested interest in specific research outcomes that would affect the independence of the research?

Yes No I don't know

Does any member of the research team, or their families and friends, have any links to the funder or organisations involved in the research?

Yes No I don't know

Can the research results be freely disseminated?

Yes No I don't know

Will you use data from potentially illicit, illegal, or unethical sources (e.g. pornography, related to terrorism, dark web, leaked information)?

Yes No I don't know

Will you be gathering/working with any special category personal data?

Yes No I don't know

Are there any other ethical considerations which haven't been covered?

Yes No I don't know

REC Review Details

Based on the answers you have given so far you will need to answer some additional questions to allow reviewers to assess your application.

It is recommended that you do not proceed until you have completed all of the previous questions.

Please confirm that you have finished answering the previous questions and are happy to proceed.

I confirm that I have answered all of the previous questions, and am happy to proceed with the application.

Questions for REC Review

5 October 2023
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Summarise your research protocol in lay terms (indicate maximum length 150 words).

Use the summary when submitting your application for the UNCHAIN project. It will be made available to general communication activities.

PLEASE DO NOT INCLUDE: any details of research objectives and methods that are not directly related to the project or that are not necessary to understand the project or that are not necessary to understand the project or that are not necessary to understand the project.

The questionnaire will be distributed through a link to the project partners. The project partners will send the link to the questionnaire to their employees and collaborators. The questionnaire completion responses will be controlled by the participants. The answers will be received directly on the platform that hosts the questionnaire, which allows the export of the data to an excel format. If more statistics are required, an export company in Spanish or professional users will be hired and a bank of participating users will be purchased. The company has the contact information, but these data are not transferred to the contractor. From social media and Google reviews we will collect ratings and public comments related to logistics processes and satisfaction in Madrid, Florence and Berlin.

State the Aims and Objectives of the project in Lay persons' language.

The main objective of the UNCHAIN project is to improve and enhance the digital ecosystem and demand including digitalisation of urban freight to be implemented a standardised and reliable data exchange ecosystem, supported by a collaborative cooperation framework that will provide agreements of use for end users and reliable data exchange agreements, based on the needs and demands of logistics agents.

Participant Information

Please explain the number of participants you intend to include in your study and explain in your rationale in detail (eg who will be recruited, how, where, form and expected availability of participants). If your study contains multiple parts eg interviews, focus groups, online questionnaires) please clearly explain the numbers and recruitment details for each of these cohorts (see help text).

The study includes a single way of participation: this online questionnaire. Participants will be recruited by UNCHAIN project partners: employees of the entities or collaborators. The participating profiles are professionals from the following fields: managers of logistics companies, partners of logistics routes, operators, delivery drivers, local businesses owners, logistics partners for cities, urban planning planners for cities, and mobility planners for cities. A minimum study sample of 500 participants is established as it is an exploratory study to assess needs and solutions, without segmentation by different populations. We hope to obtain a larger sample than the established minimum. If necessary, panels of professionals will be purchased from the company where the online questionnaire will be hosted, to market research companies that offer this service. The study will also include Netnography. The sample size of this intervention will depend on the amount of ratings and comments available. It is expected a reference number of 200 comments per city (Madrid, Florence and Berlin).

Information about the Research

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You have stated that it is not possible to obtain consent for the use of the data for this project. Please explain how you propose to obtain consent.

Informed consent will form part of the online questionnaire (first page before starting the study questions). This first page will include the information about the project, the conditions to take questions and the sheet title of the acceptance of the usage of information, acceptance of data management and acceptance of participation. It will not be possible to start the survey if the conditions of the study are not accepted. Regarding Netnography, ratings and comments are posted by users to inform the digital community about products and services they have contracted. As researchers, our aim is to put together the assessment of various users, identifying positive and negative comments and topics related to their positive and negative ratings.

Data Storage

How long will you retain the research data?

The guidelines established in the European projects will be followed. Partners will only use the products, information, source code or other protected items owned by another partner in the UNCHAIN project, when the licensing conditions for their use and disposition in the project context have been clearly communicated by the holder. The partners have also agreed on the principle that they will respect each other's rights when disseminating project results. The partners have committed themselves to provide clear access to all scientific publications, free of charge, either access for any user and/or a self-archiving (green) open access scheme with an embargo period for peer-reviewed publications that will be agreed during the first meeting of project execution. For the operation of a successful open-access, it is important to have a sustainable IPM strategy in place so that all partners work sustainably in a coherent manner towards the achievement of common objectives. This also helps in maximising the returns on the human, capital and intellectual investments. As stated before, the management of knowledge is handled as the Open Agreement, rule for participation and particularly at the Consortium Agreement and among the UNCHAIN partners. During the project, IPM management will be part of a dedicated task in WP1, namely Task 1.2, "Technical management, Quality assurance and IPM". In addition to this, the consortium will provide a "Results Ownership List" (ROL) as part of the UNCHAIN final report. The ROL will provide info on which organisations/individuals have the right to specific project results, where these are shared via "open access", the name of the owner(s), the country of establishment of the owner(s), how they can be accessed by third parties etc. Project participants will be encouraged to use the European IPM Handbook (<https://ipm-handbook.eu>) for questions related to the protection of PI. The data will be retained for at least 10 years.

How long and where will you store any personal and/or sensitive data?

No personal or confidential data is collected during the proposed study. During the lifetime of this project the Regulation (EU) 2016/679 (General Data Protection Regulation) (GDPR), also known as "GDPR", will be in force. The applicants will take the necessary measures to ensure compliance. Ethical standards and guidelines compatible with and equivalent to those of Horizon Europe will be rigorously applied, regardless of the country in which the research is carried out.

Please explain when and how you will anonymise data and delete any identifiable records?

The essence of the study includes that the requirement of the participants is carried out by third parties and there are no questions of a personal nature in the questionnaire, guaranteeing in this way, that at no time are personal data recorded or stored. The Netnography ratings and comments are anonymous.

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What are your dissemination plans? (e.g. publishing in PhD thesis, publishing in academic journal, presenting in a conference (talk or poster).

UNCHAIN will use different communication measures for promoting the project and its findings and aims to: complement the project's dissemination and socialisation activities. The measures will be tailored to comply with the needs of various audiences also outside the consortium, increasing the visibility of Horizon Europe and meeting the societal challenges of the programme. The communication strategy will be included within the Dissemination and Communication Plan and will update informing and coordinating towards a wide range of audiences the societal and economic positive impacts generated by UNCHAIN, by communicating tangible results and success stories deriving from the project's validation activities.

Data Source

You have stated that you do not need consent for the use of the data. Please explain why you do not need consent.

The netnography ratings and comments will be collected and analysed anonymously. From social media and Google reviews we will collect ratings and public comments related to logistics processes and satisfaction in Madrid, Florence and Berlin. These ratings and comments are posted by users to inform the digital community about products and services they have contracted. It will be necessary to sign to view users' comments or need to have a request to join a group, this is a public information. (BY) notes and considers the Google's privacy policy <https://policies.google.com/terms/conditions/privacy-policy>

Online Sources

Briefly describe your data collection methods from the online source(s), state which online sources you intend to use, and why the data is relevant to your research.

To perform the online observation, Netnography will be applied. This is an online research method aimed at understanding social interaction in contemporary digital communication contexts. Netnography uses the assessments and comments occurring in social web applications as data, substituting the traditional in-person observation techniques by interactions and experiences manifesting through digital communication. You will be using Web Scraping to identify general and resonance aspects (themes vs. local resonances), using language extraction and gender detection tools (e.g. ScopusTools or Gender API), and the assessment (sentiment analysis). Analysis of reviews. Analysis of textual data (natural language processing) represented in: • Content analysis, identifying the comments as POSITIVE, NEGATIVE, MIXED or NEUTRAL. • Analysis of emotions and a hedonic/aggressive level of the comments. • Keyword clouds. The word cloud allows us to visually identify key terms, according to their frequency of occurrence. • Semantic analysis by manual coding manual coding codes of repeating the set or a representative sample of the answers (around 10%). Corresponding topics and categories are chosen, according to meaning in expert level. • Extraction of hashtags: website. Once the topics of the comments have been identified, the website are extracted to illustrate the topics addressed. The number of reviews is higher than the number of comments, as all the comments are linked to a review, but a review does not imply writing a comment. Google sources will be the data sources of the study. (The tables provided below are in response to the reviewers' feedback) • We will only get comments and reviews from Google Reviews. • The comments and reviews are public, and the scraping is not prohibited. • We employ a commercial tool (Scrapy (https://scrapy.org/)) to do the web scraping on Google reviews, through Google maps.

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Project Documentation*

Important Notice about uploaded documents:

When your application has been reviewed if you are asked to make any changes to your uploaded documents please highlight the changes on the updated document(s) using the highlighter so that they are easy to see.

Please confirm that you have read and applied, where appropriate, the guidance on completing the Participant Information Sheet, Consent Form, and other related documents, and that you followed the guidance in the help button for a quality check of these documents. For information and guidance, please use the relevant link below.

PSF Ethics Webpage
PHM Ethics Webpage
FASS - LIMS Ethics Webpage
REIMS Webpage

I confirm that I have followed the guidance.

In addition to completing this form you must submit all supporting materials.

Please indicate which of the following documents are appropriate for your project:

I have no updated documents and confirm that all relevant documents were included in previous submissions.
 Advertising materials (posters, emails)
 Research Proposal (DCA/PA)
 Letters/emails of invitation to participate
 Consent forms
 Participant information sheet(s)
 Interview question guides
 Focus group scripts
 Questionnaires, surveys, demographic sheets
 Workshop guide(s)
 Debrief sheet(s)
 Transcription (written/orally) agreement
 Other
 None of the above.

Please upload the documents in the correct sections below.

Please ensure these are the latest version of the documents to prevent the application being returned for corrections you have already made.

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Reference #: Page 16 of 16

Please upload all consent forms to be used in this project.

Type	Document Name	File Name	Version Date	Version	Size
Consent Form	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_CONSENT_FORM.docx	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_CONSENT_FORM.docx	04/08/2023	01	531.8 KB

Please upload all Participant Information Sheets.

Type	Document Name	File Name	Version Date	Version	Size
Participant Information Sheet	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_PARTICIPANT_INFORMATION_FORM.docx	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_PARTICIPANT_INFORMATION_FORM.docx	04/08/2023	01	651.8 KB

Please upload all Questionnaires, surveys, demographic sheets.

Type	Document Name	File Name	Version Date	Version	Size
Questionnaires, surveys, demographic sheets	Surveyconsent_UNCHAIN_tetraco_minfo_sheet	Surveyconsent_UNCHAIN_tetraco_minfo_sheet.pdf	06/08/2023	v0.2	279.0 KB

Declaration

Please Note

Research Services monitors projects entered into the online system, and may select projects for quality control.

All research at Lancaster university must comply with the LU data storage and governance guidance as well as the General Data Protection Regulation (GDPR) and the UK Data Protection Act 2018. ([Data Protection Guidance webpage](#))

I confirm that I have read and will comply with the LU Data Storage and Governance guidance and that my data use and storage plans comply with the General data Protection Regulation (GDPR) and the UK Data Protection Act 2018.

Have you that you have undertaken a health and safety risk assessment for your project through your departmental process? ([Health and Safety Guidance](#))

I have undertaken a health and safety assessment for your project through my departmental process, and where required will follow the appropriate guidance for the control and management of any foreseeable risks.

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Reference #:

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Please read the terms and conditions below:

- You have read and will abide by Lancaster University's Code of Practice and will ensure that all staff and students involved in the project will also abide by it.
- If appropriate a confidentiality agreement will be used.
- You will complete a data management plan with the Library if appropriate. [Data Protection Library](#)
- You will provide your contact details, as well as those of either your supervisor (for students) or an appropriate person for complaints (such as I HoC) to any participants with whom you interact, so they know whom to contact in case of questions or complaints?
- That University policy will be followed for secure storage of identifiable data on all portable devices and if necessary you will seek guidance from ISS.
- That you have completed the ISS Information Security training and passed the assessment.
- That you will abide by Lancaster University's lone working policy for field work if appropriate.
- On behalf of the institution you accept responsibility for the project in relation to promoting good research practice and the prevention of misconduct (including plagiarism and fabrication or misrepresentation of results).
- To the best of your knowledge the information you have provided is correct at the time of submission.
- If anything changes in your research project you will submit an amendment.

Applicant Only: To complete and submit this application please click "Sign" below:

Signed: This form was signed by Professor Konstantinos Zografos (k.zografos@lancaster.ac.uk) on 03/10/2023 09:22

5 October 2023

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ANNEX 2. Amendment for ULANC Ethics Committee

Substantial Amendment Form v1.9.2

Substantial Amendment Form v1.9.2 - 1 SA



UNCHAIN - Approved

Amendment Information

Please note:

This form is for making substantial amendments to applications previously approved in RERMS. All "Substantial Amendments" will go through the review process again. Please check the "Amendment Guidance" to see if you can use the "Minor Amendment" form.

Please number which amendment this is:

1

Amendment Summary

Please summarise your changes and the reasons why you are making them. Ensure that you indicate which parts of the form have been altered.

The number of the countries that will potentially be added is extended to all 27 EU countries. An updated questionnaire for the survey is attached. The questionnaire will be translated to all seven EU National Languages.

Will your project require NHS REC approval? (If you are not sure please read the guidance in the information button)

Yes No

Do you need Health Research Authority (HRA) approval? (Please read the guidance in the information button)

Yes No

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Reference #: 8522208202370165-2

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Will your research involve any of the following? (Multiple selections are possible, please see icon for details)

- Human Participants
- Data relating to humans (Secondary/Pre-existing data only)
- Data collection from online sources such as social media platforms, discussion forums, online chat rooms
- Human Tissue
- None of the above

Project Information

Please confirm/insert the title of this project.

UNCHAIN

Estimated Project Start Date

2/06/2023

Amended Start Date - if the start date hasn't changed please re-enter

24/10/2023

Estimated End Date

30/09/2026

Is this a funded Project?

Yes No

Funding Information

Funding information

What is the ACP Reference?

A102939

What is the Agresso ID?

MTA7791

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Reference #: 8522208202370165-2

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Have you already obtained, or will you be applying for ethical approval, from another institution outside of Lancaster University? (For example, an external institution such as another University's Research Ethics Committee, the NIJS or an institution abroad (eg an IRB in the USA)? Please select one of the following.

- No, I do not need ethical approval from an external institution.
- Yes, I have already received ethical approval from an external institution.
- Yes, I will be applying for ethical approval from an external institution after I have received confirmation of ethical approval from my Faculty Research Ethics Committee (FREC) at Lancaster University, if the FREC grants approval.

Is this an amendment to a project previously approved by Lancaster University using the previous "paper-based" system (Pre-Jan 2023)?

Yes No

To note: please do not change your answer to this question, as you are completing the Substantial Amendment form therefore it is assumed that this is an amendment to a previously approved Lancaster University project.

Which Faculty are you in?

Lancaster University Management School

Which department are you in?

Management Science

Are you undertaking this research as part of your filling this form out as:

- Academic/Research Staff
- Non Academic Staff
- Staff Undertaking a Programme of Study
- PhD or DCl or Postgraduate or MPhil
- Undergraduate, Masters, Master by Research or other taught postgraduate programme

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Please note:

Your ACP reference number can be found on your grant application, it will start with an A and be followed by 9 numbers, e.g. A123456 Your Agresso ID is your grant code for expenditure allocated by post-awards, e.g. EAAT001.

What is the funding organisation?

HOOR/COM EUROPE and UKRI

What is your external grant reference? (if you do not have one, please enter "N/A")

N/A

Research Site(s) Information

Will you be recruiting participants from research sites outside of Lancaster University? (E.g. Schools, workplaces, etc, please read the guidance in the information button for more information)

Yes No

Please provide the number, type and location of external research sites that you are using (please see help text for details)

There will be seven countries involved namely: Spain, Germany, Italy, Belgium, Czech Republic, Portugal, Latvia. The survey will be extended to potentially include all 27 EU countries. The questionnaire will be translated to all seven EU National Languages.

Applicant Details

Are you the named Principal Investigator at Lancaster University?

Yes No

Please check your contact details are correct. You can update these fields via the personal details section located in the top right of the screen. Click on your name and email address in the top right to access "Personal details". For more details on how to do this, please read the guidance in the information button.

First Name

Konstantinos

26 October 2023

Reference #: 8522208202370165-2

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Surname
 [Redacted]

Organization
 [Redacted]

Department
 Management Science

Faculty
 Management School

Email
 k.zogopoulos@lancaster.ac.uk

Please enter a phone number that can be used in order to reach you should an emergency arise.
 01424065482

Additional Team Members

Other than those already added, please select which type of team members will be working on this project:

I am not working with any other team members.
 Staff
 Student
 External

Please list all external contacts here:

First Name
 Elena

Surname
 Garcia Jimenez

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 Reference #: 85521048-2023-10-26-2 Page 5 of 18

Surname
 Soledad Garcia

Organization
 ISV

Search for the names of all other internal staff here:

First Name
 Soledad

Surname
 Garcia

Department
 Management Science

Faculty
 Management School

Email
 k.zogopoulos@lancaster.ac.uk

Details about the participants

As you are conducting research with Human Participants/Issue you will need to answer the following questions before your application can be reviewed.

If you have any queries about this please contact your Ethics Officer before proceeding.

What's the minimum number of participants needed for this project?
 500

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Organization
 ETRA

Please list all external contacts here:

First Name
 Alberto

Surname
 Lopez

Organization
 ISV

Please list all external contacts here:

First Name
 Juan Fernando

Surname
 Sienra

Organization
 ISV

Please list all external contacts here:

First Name
 Lorena

Surname
 Fato

Organization
 SPSS Consulting

Please list all external contacts here:

First Name
 Carol

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What's the maximum number of expected participants?
 2000

Do you intend to recruit participants from online sources such as social media platforms, discussion forums, or online chat rooms?
 Yes No

You stated that you will be engaging in recruiting participants from online sources such as social media platforms, discussion forums, or online chat rooms. Please confirm that this either:
 Is clearly in compliance with the online source(s) published terms and conditions.
 Not clear within the online source(s) published terms and conditions, therefore you have obtained written approval from the platform.
 Neither of the above

Will you get written consent and give a participant information sheet with a written description of your research to all potential participants?
 Yes No I don't know

Will any participants be asked to take part in the study without their consent or knowledge at the time or will deception of any sort be involved?
 Yes No I don't know

Is your research with any vulnerable groups?
 (Vulnerable group as defined by Lancaster University Guidelines)
 Yes No I don't know

Is your research with any adults (aged 18 or older)?
 Yes No

Is your research data collected with completely anonymous adult (aged 18 or older) participants, with no contact details or other uniquely identifying information (e.g. date of birth) being recorded?
 Yes No

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Is your research with any young people (under 18 years old)?

Yes No I don't know

Does your research involve discussion of personally sensitive subjects which the participant might not be willing to otherwise talk about in public (e.g. medical conditions)?

Yes No I don't know

Is there a risk that the nature of the research topic might lead to disclosures from the participant concerning either:

- Their own or others involvement in illegal activities
- Other activities that represent a threat to themselves or others (e.g. sexual activity, drug use, or professional misconduct)?

Yes No I don't know

Does the study involve any of the following:

- Physically intrusive procedures including touching or attaching equipment to participants
- Administration of substances
- Ultrasound or sources of non-ionising radiation (e.g. lasers)
- Sources of ionising radiation (e.g. X-rays)
- Collection or use of samples of human tissue (e.g. Saliva, skin cells, blood etc.)

Yes No I don't know

Details about the relationships with participants

Do you have a current or prior relationship with potential participants? For example, teaching or assessing students or managing or influencing staff (this list is not exhaustive)

Yes No I don't know

If you need written permission from a senior manager in an organisation where research will take place (e.g. school, business) will you gain this in advance of undertaking your research?

Yes No I don't know N/A

Will you be using a gatekeeper to access participants?

Yes No I don't know if I will be using a gatekeeper

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Details about the online sources

You stated that you will be engaging in data collection from online sources such as social media platforms, discussion forums, online chat rooms. Please confirm that the data you intend to collect and the mode of analysis and communication is either:

- Clearly in compliance with the online source(s) published terms and conditions
- Not clearly within the online source(s) published terms and conditions, therefore you have obtained written approval from the platform to conduct your project
- Neither of the above

Data Source

Is the online data you will be using in the public domain?

Yes No

Will you use data from potentially illicit, illegal, or unethical online sources (e.g. pornography, related to terrorism, dark web, leaked information)?

Yes No I don't know

Do you need consent for the use of the data for research purposes?

Yes No I don't know

Will you protect anonymity in your use and analysis of the data?

Yes No I don't know

General Queries

Does the funder or any organisations involved in the research have a vested interest in specific research outcomes that would affect the independence of the research?

Yes No I don't know

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Will participants be subjected to any undue incentives to participate?

Yes No I don't know

Will you ensure that there is no perceived pressure to participate?

Yes No I don't know

Details about participant data

Will you be using video recording or photography as part of your research or publication of results?

Yes No

Will you be using audio recording as part of your research?

Yes No

Will you be using portable devices to record participants (e.g. audio, video recorders, mobile phone, etc)?

No

Yes, and all portable devices will be encrypted as per the Lancaster University ISS standards, in particular where they are used for recording identifiable data

Yes, but these cannot be encrypted because they do not have encryption functionality. Therefore I confirm that any identifiable data (including audio and video recordings of participants) will be deleted from the recording device(s) as quickly as possible (e.g. when it has been transferred to a secure medium, such as a password protected and encrypted laptop or stored in OneDrive) and that the device will be stored securely in the premises

Will you be using other portable storage devices in particular for identifiable data (e.g. laptop, USB drive, etc)? (Please read the help text)

No

Yes, and they will be encrypted as per the Lancaster University ISS standards in particular where they are used for recording identifiable data

Will anybody external to the research team be transcribing the research data?

Yes No

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Does any member of the research team, or their families and friends, have any links to the funder or organisations involved in the research?

Yes No I don't know

Can the research results be freely disseminated?

Yes No I don't know

Will you use data from potentially illicit, illegal, or unethical sources (e.g. pornography, related to terrorism, dark web, leaked information)?

Yes No I don't know

Will you be gathering/working with any special category personal data?

Yes No I don't know

Are there any other ethical considerations which haven't been covered?

Yes No I don't know

REC Review Details

Based on the answers you have given so far you will need to answer some additional questions to allow reviewers to assess your application.

It is recommended that you do not proceed until you have completed **all of the previous questions**.

Please confirm that you have finished answering the previous questions and are happy to proceed.

I confirm that I have answered all of the previous questions, and am happy to proceed with the application.

Questions for REC Review

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Summarise your research protocol in lay terms (notative maximum length 150 words).

Use the summary below to inform the way you describe the project to the general public and to other stakeholders (e.g. local media and politicians). We would like to see how you describe the project in your own words. It is important that you describe the project in your own words. It is important that you describe the project in your own words. It is important that you describe the project in your own words.

The questionnaire will be distributed through a link to the project partners. The project partners will send the link to the questionnaire to their employees and collaborators. The questionnaire is completely anonymous and will be operated by the participants. The answers will be received directly on the platform that hosts the questionnaire, which allows the export of the data to an excel format. If more samples are required, an expert company in panels of professional users will be hired and a panel of participating users will be purchased. The company has the contact information, but these data are not transferred to the contractor.

From social media and public reviews we will collect ratings and public comments related to logistics processes and satisfaction in Madrid, Florence and Berlin.

State the Aims and Objectives of the project in Lay persons' language.

The main objective of the UNCHAIN project is to understand and planning a city logistics urban freight generation and demand including regulation or urban freight is implemented, standardized and reliable data and usage scenarios, supported by a public-private cooperation framework that will involve agreements of free data use and reliable data exchange agreements, based on the needs and demands of logistics agents.

Participant Information

Please explain the number of participants you intend to include in your study and explain your intention in detail (eg who will be recruited, how, where from, and expected availability of participants). If your study concerns multiple parts (eg interviews, focus groups, online questionnaires) please clearly explain the numbers and recruitment details for each of these cohorts (see help text).

The study includes a single survey of participants via online questionnaires. Participants will be recruited by UNCHAIN project partners, employees of the entities or collaborators. The participating profiles are professionals from the following fields: managers of logistics companies, partners of logistics routes, operators - delivery drivers, local business owners, logistics partners for cities, urban planning planners for cities, and mobility partners for cities. A minimum survey sample of 300 participants is established as it is an exploratory study to assess needs and solutions, without segmentation by different possibilities. We hope to obtain a larger sample than the established minimum. If necessary, panels of professionals will be purchased from the company where the online questionnaires will be hosted or external research companies that offer this service.

The study will also include Netnography. The sample size of this intervention will depend on the amount of ratings and comments available. It is expected a reference number of 200 comments per city (Madrid, Florence and Berlin).

Additional Information

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You have stated that you do not need consent for the use of the data for this project. Please explain how you propose to obtain consent.

Informed consent will form part of the online questionnaire (first page before starting the study questions). This first page will include the information about the project, the conditions to ask questions and the sheet title of the acceptance of the usage of information, acceptance of data management and acceptance of participation. It will not be possible to start the survey if the conditions of the study are not accepted.

Regarding Netnography, ratings and comments are posted by users to inform the digital community about products and services they have consumed. As researchers, our aim is to put together the assessment of various users, identifying positive and negative comments and topics related to their positive and negative ratings.

Data Storage

How long will you retain the research data?

The guidelines established in the European projects will be followed. Partners will only use the products, information, source code or other protected items owned by another partner in the UNCHAIN project, when the licensing conditions for their use and exploitation in the project context have been clearly communicated by the holder. The partners have also agreed on the principle that they will respect each other's rights when disseminating project results. The partners have committed themselves to provide clear access to all scientific publications, free of charge online access for any user, under a Self-archiving (green) open access scheme with an embargo period for peer-reviewed publications that will be agreed during the first meeting of project execution. For the operation of a successful open-access, it is important to have a sustainable IPM strategy in place so that all partners work sustainably in a coherent manner towards the achievement of common objectives. This also helps in maximizing the returns on the human, capital and intellectual investments. As stated before, the management of knowledge is based on the Grant Agreement, rules for participation and particularly on the Consortium Agreement and among the UNCHAIN partners. During the project, IPM management will be part of a dedicated task in WP1, namely Task 1.2. Technical management, Quality assurance and IPM. In addition to this, the consortium will provide a Results Ownership List (ROCL) as part of the UNCHAIN final report. The ROCL will provide info on which organization/individuals have the right to specific project results, where those are shared via 'open access', the name of the owner(s), the country of establishment of the owner(s), how they can be accessed by third parties etc. Project participants will be encouraged to use the European IPM Handbook ([www.ipmhandbook.eu](#)) for questions related to the protection of PI. The data will be retained for at least 10 years.

How long and where will you store any personal and/or sensitive data?

No personal or confidential data is collected during the proposed study. During the lifetime of this project the Regulation (EU) 2016/679 (General Data Protection Regulation) (GDPR, also known as "GDPR"), will be in force. The applicants will take the necessary measures to ensure compliance. Ethical standards and guidelines comparable with equivalent to those of Horizon Europe will be rigorously applied, regardless of the country in which the research is carried out.

Please explain when and how you will anonymise data and delete any identifiable records?

The essence of the study includes that the recruitment of the participants is carried out by third parties and there are no requirements of a personal nature in the questionnaire guaranteeing in this way, that at no time any personal data recorded or stored. The Netnography ratings and comments are anonymous.

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What are your dissemination plans? (E.g. publishing in a PhD thesis, publishing in academic journal, presenting in a conference (talk or poster)

UNCHAIN will use different communication measures for promoting the project and its findings and aims to: complement the project's dissemination and mobilisation activities. The resources will be tailored to comply with the needs of various audiences also outside the consortium, increasing the visibility of Horizon Europe and meeting the societal challenges of the programme. The communication strategy will be included within the Dissemination and Communication Plan and will update informing and coordinating towards a wide range of stakeholders the societal and economic positive impacts generated by UNCHAIN, by communicating tangible results and success stories coming from the project's validation activities.

Data Sources

You have stated that you do not need consent for the use of the data. Please explain why you do not need consent.

The netnography ratings and comments will be collected and analysed anonymously. From social media and public reviews we will collect ratings and public comments related to logistics processes and satisfaction in Madrid, Florence and Berlin. These ratings and comments are posted by users to inform the digital community about products and services they have consumed. It will not be necessary to sign by users' comments or need to have a request to join a group. This is a public information. (BY) invites and complies the Google's privacy policy ([https://policies.google.com/terms/conditions/privacy-policy](#)).

Online Sources

Briefly describe your data collection methods from the online source(s), state which online sources you intend to use, and why the data is relevant to your research.

To perform the online observation, Netnography will be applied. This is an online research method aimed at understanding social interaction in contemporary digital communication contexts. Netnography uses the assessments and comments occurring in social media as primary data, substituting the traditional in-person observation techniques by interactions and experiences manifesting through digital communication.

You will be using Web Scraping to identify general and resonance aspects (thumbs up vs. total reactions), using language extraction and gender detection tools (e.g. Scrapythena or Gender API), and the assessment (sentiment analysis).

Analysis of reviews:

- Analysis of textual data (natural language processing) representative in:
 - Content analysis: identifying the comments as POSITIVE, NEGATIVE, MIXED or NEUTRAL.
 - Analysis of emotions and a hedonic level of the comments.
 - Keyword clouds: the word cloud allows us to particularly see keywords, according to their frequency of occurrence.
 - Semantic analysis by manual coding: manual coding consists of reading the set or a representative sample of the answers (around 10%). Corresponding topics and categories are chosen, according to meaning in expert view.
 - Extraction of hashtags: website: Once the topics of the comments have been identified, the website are extracted to illustrate the topics addressed.

The number of reviews is higher than the number of comments, as all the comments are linked to a review, but a review does not imply writing a comment. Google reviews will be the data source of the study. (The bullets provided below are in response to the reviewers' feedback)

- We will only get comments and reviews from Google Reviews.
- The comments and reviews are public, and the scraping is not prohibited.
- We employ a commercial tool ([https://www.scrapsters.com/](#)) to do the web scraping on Google reviews, through Google maps.

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Project Documentation*

Important Notice about uploaded documents:

When your application has been reviewed if you are asked to make any changes to your uploaded documents please highlight the changes on the updated document(s) using the highlighter so that they are easy to see.

Please confirm that you have read and applied, where appropriate, the guidance on completing the Participant Information Sheet, Consent Form, and other related documents, and that you followed the guidance in the help button for a quality check of these documents. For information and guidance, please use the relevant link below:

[PST Ethics Webpage](#)
[P4M Ethics Webpage](#)
[FASS - LIMS Ethics Webpage](#)
[REANS Webpage](#)

I confirm that I have followed the guidance.

In addition to completing this form you must submit all supporting materials.

Please indicate which of the following documents are appropriate for your project:

- I have no updated documents and confirm that all relevant documents were included in previous submissions.
- Advertising materials (posters, emails)
- Research Proposal (DCA/PP)
- Letters/materials of invitation to participate
- Consent forms
- Participant information sheet(s)
- Interview question guides
- Focus group scripts
- Questionnaires, surveys, demographic sheets
- Workshop guide(s)
- Debrief sheet(s)
- Transcription (verbal/written) agreement
- Other
- None of the above.

Please upload the documents in the correct sections below.

Please ensure these are the latest version of the documents to prevent the application being returned for corrections you have already made.

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Please upload all consent forms to be used in this project.

Type	Document Name	File Name	Version Date	Version	Size
Consent Form	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_CONSENT_FORM.docx	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_CONSENT_FORM.docx	04/08/2023	01	531.8 KB

Please upload all Participant Information Sheets.

Type	Document Name	File Name	Version Date	Version	Size
Participant Information Sheet	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_PARTICIPANT_INFORMATION_FORM.docx	UNCHAIN_Ethics application Lancaster University_21_07_23_ETRA_28_07_23_BV_31_07_23_PARTICIPANT_INFORMATION_FORM.docx	04/08/2023	01	651.8 KB

Please upload all Questionnaires, surveys, demographic sheets.

Type	Document Name	File Name	Version Date	Version	Size
Questionnaires, surveys, demographic sheets	Surveyconsent_UNCHAIN_tetraco_minfo_sheet	Surveyconsent_UNCHAIN_tetraco_minfo_sheet.pdf	06/08/2023	v0.2	279.0 KB

Declaration

Please Note

Research Services monitors projects entered into the online system, and may select projects for quality control.

All research at Lancaster university must comply with the LU data storage and governance guidance as well as the General Data Protection Regulation (GDPR) and the UK Data Protection Act 2018. ([Data Protection Guidance webpage](#))

I confirm that I have read and will comply with the LU Data Storage and Governance guidance and that my data use and storage plans comply with the General data Protection Regulation (GDPR) and the UK Data Protection Act 2018.

Have you that you have undertaken a health and safety risk assessment for your project through your departmental process? ([Health and Safety Guidance](#))

I have undertaken a health and safety assessment for your project through my departmental process, and where required will follow the appropriate guidance for the control and management of any foreseeable risks.

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Please read the terms and conditions below:

- You have read and will abide by Lancaster University's Code of Practice and will ensure that all staff and students involved in the project will also abide by it.
- If appropriate a confidentiality agreement will be used.
- You will complete a data management plan with the Library if appropriate. [Data Protection Library](#)
- You will provide your contact details, as well as those of either your supervisor (for students) or an appropriate person for complaints (such as I HoC) to any participants with whom you interact, so they know whom to contact in case of questions or complaints?
- That University policy will be followed for secure storage of identifiable data on all portable devices and if necessary you will seek guidance from ISS.
- That you have completed the ISS Information Security training and passed the assessment.
- That you will abide by Lancaster University's lone working policy for field work if appropriate.
- On behalf of the institution you accept responsibility for the project in relation to promoting good research practice and the prevention of misconduct (including plagiarism and fabrication or misrepresentation of results).
- To the best of your knowledge the information you have provided is correct at the time of submission.
- If anything changes in your research project you will submit an amendment.

Applicant Only: To complete and submit this application please click "Sign" below:

Signed: This form was signed by Professor Konstantinos Zografos (k.zografos@lancaster.ac.uk) on 03/10/2023 09:22

5 October 2023

Reference #:

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ANNEX 3. *Netnography results*



C. Soriano
A. López
J. Giménez



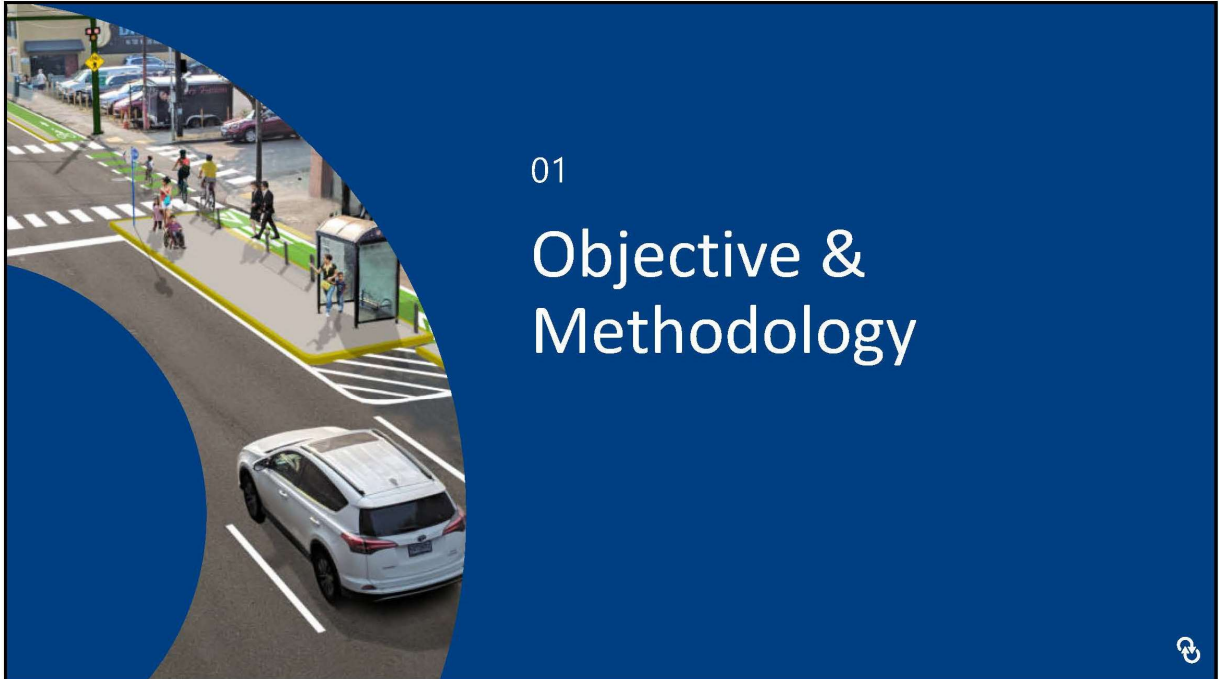
Netnography Report: Analyzing End-User Needs in the Merchandise Delivery and Courier Sector -

A Case Study of **Madrid, Florence, and Berlin**



Overview

- 01 Objective & Methodology
- 02 Analysis of Madrid (Spain)
- 03 Analysis of Florence (Italy)
- 04 Analysis of Berlin (Germany)
- 05 Gender analysis
- 06 Conclusions & Actions


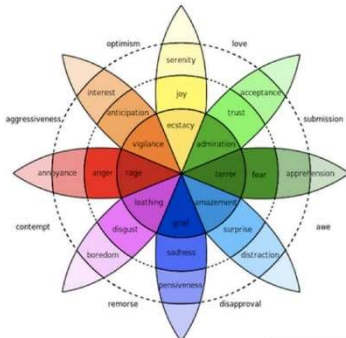


Netnography, an online research method originating in ethnography, is understanding social interaction in contemporary digital communications contexts. **Netnography** is a specific set of research practices related to data collection, analysis, research ethics, and representation, rooted in participant observation. In netnography, a significant amount of the data originates in and manifests through the digital traces of naturally occurring public conversations recorded by contemporary communications networks. Netnography uses these conversations as data. It is an interpretive research method that adapts the traditional, in-person participant observation techniques of anthropology to the study of interactions and experiences manifesting through digital communications (*).


(*)Robert V. Kozinets (1998), "On Netnography: Initial Reflections on Consumer Research Investigations of Cyberculture", in *NA - Advances in Consumer Research* Volume 25, eds. Joseph W. Alba & J. Wesley Hutchinson, Provo, UT : Association for Consumer Research, Pages: 366-371.

1. Objective & Methodology

- The **objective** of this work is to analyze of the needs of the end user regarding the merchandise delivery and courier sector through the analysis of online comments (*Netnography*).
- The **methodology** consisted of analyzing 3 representative cities in Europe that participate in the UNCHAIN project: **Madrid, Florence, and Berlin.**
- The **methodological phases** are:
 1. Utilizing **Web Scraping** for Gender Identification through tools such as ScrapeHero or Gender API, along with language extraction and detection, as well as comment
 2. **Number of reviews per year**, to determine the evolution of usage.
 3. **Analysis of textual data** (natural language processing) represented in:
 - **Sentiment-polarity analysis**; classifying the comments as POSITIVE, NEGATIVE, MIXED or NEUTRAL
 - **Analyzing the emotions** and the **hate/aggressive** level of the comments.
 - **Word clouds**: The word cloud allow us to synthetically view key words, according to their frequency of occurrence.
 - **Semantic analysis** by manual coding: manual coding consists of reading the set or a representative sample of the answers (around 100). Corresponding topics and categories are chosen, according to meaning at expert level.
 - Extraction of **characteristic verbatim**: Once the topics of the comments have been identified, the verbatim are extracted to illustrate the topics addressed.

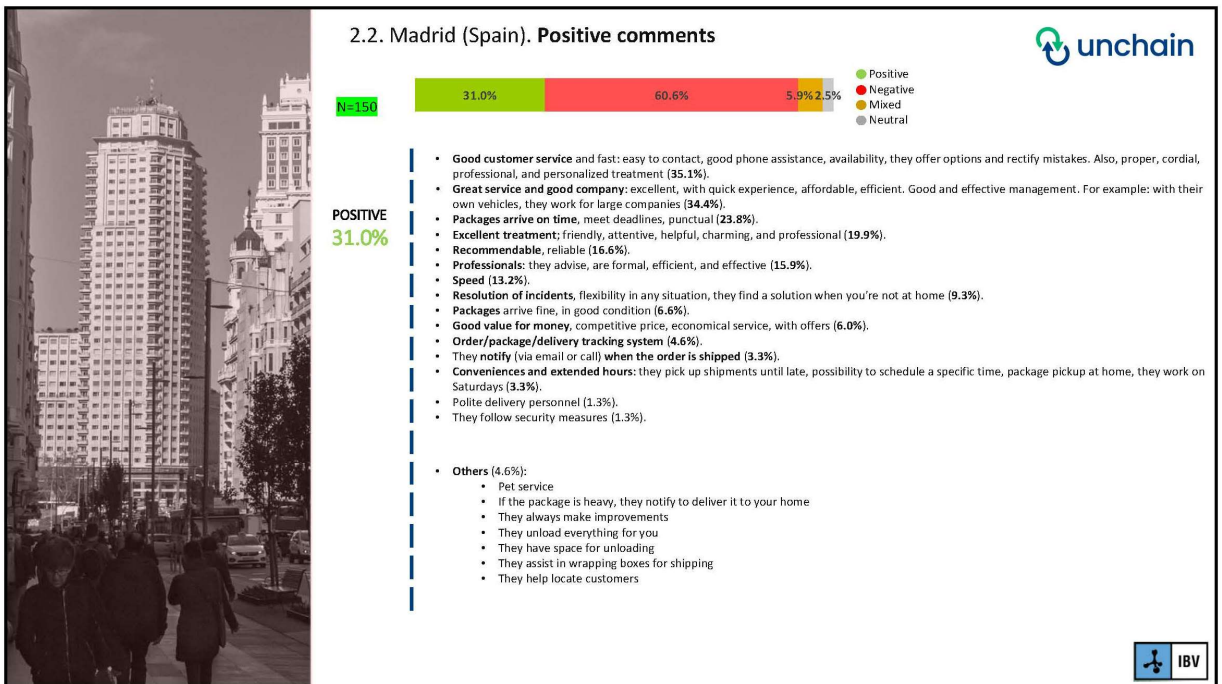
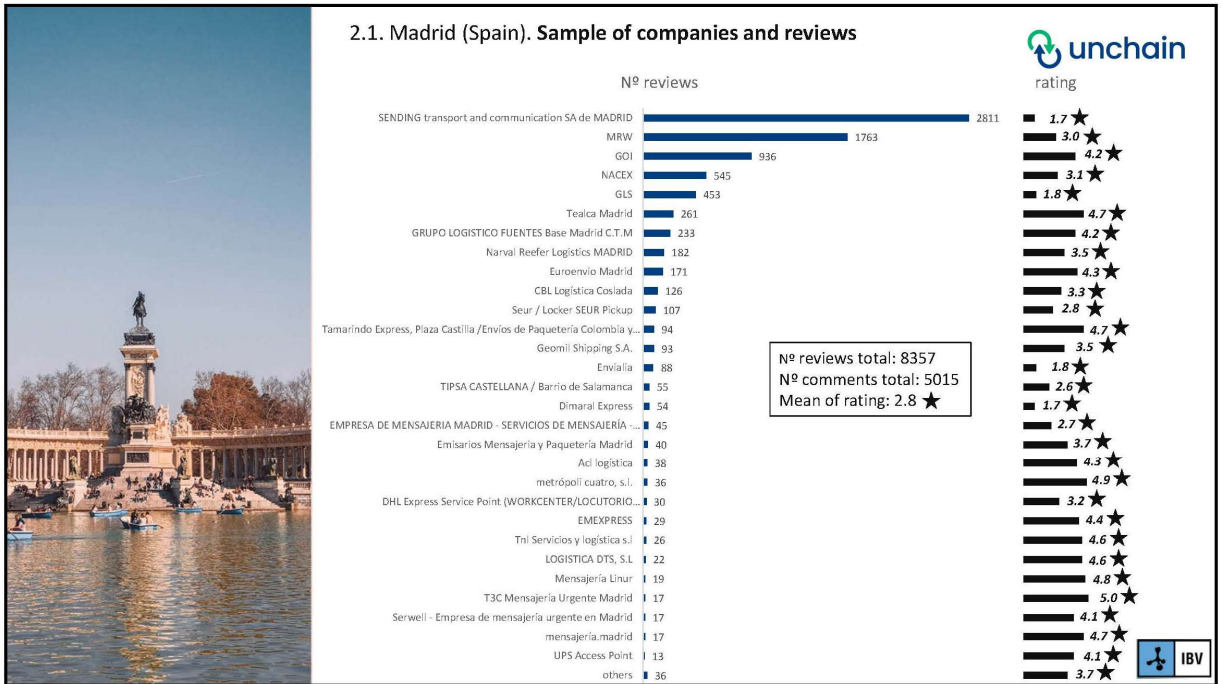
Robert Plutchik's Wheel of Emotions

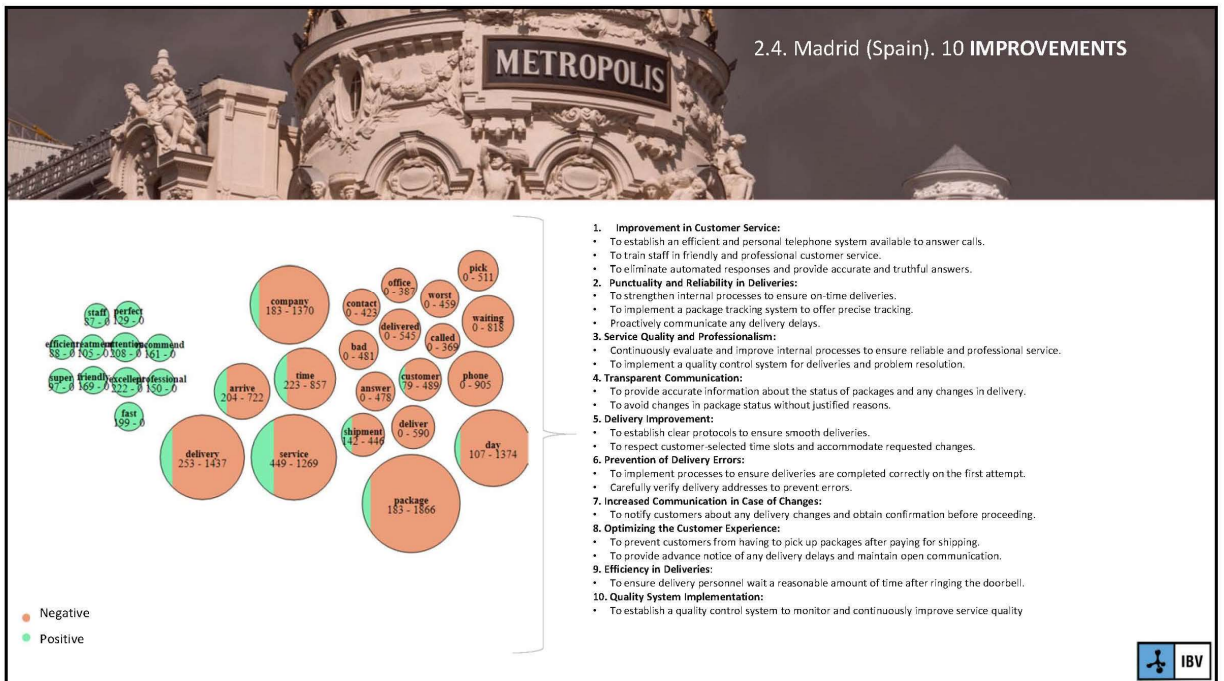
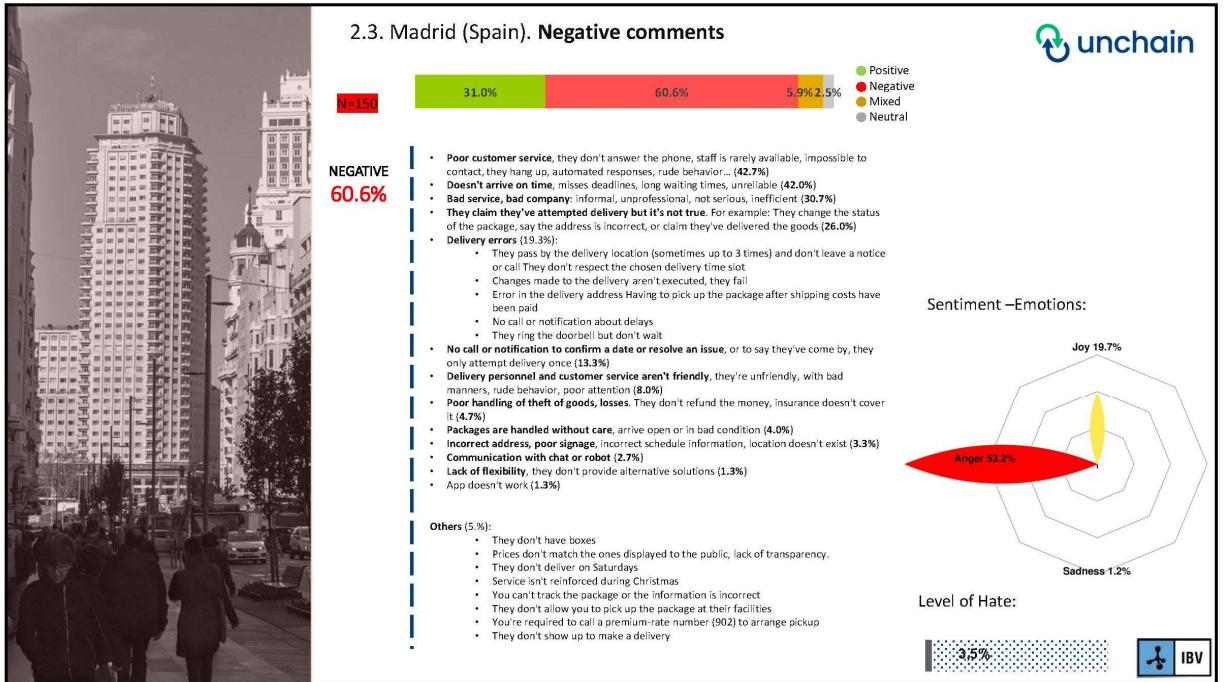


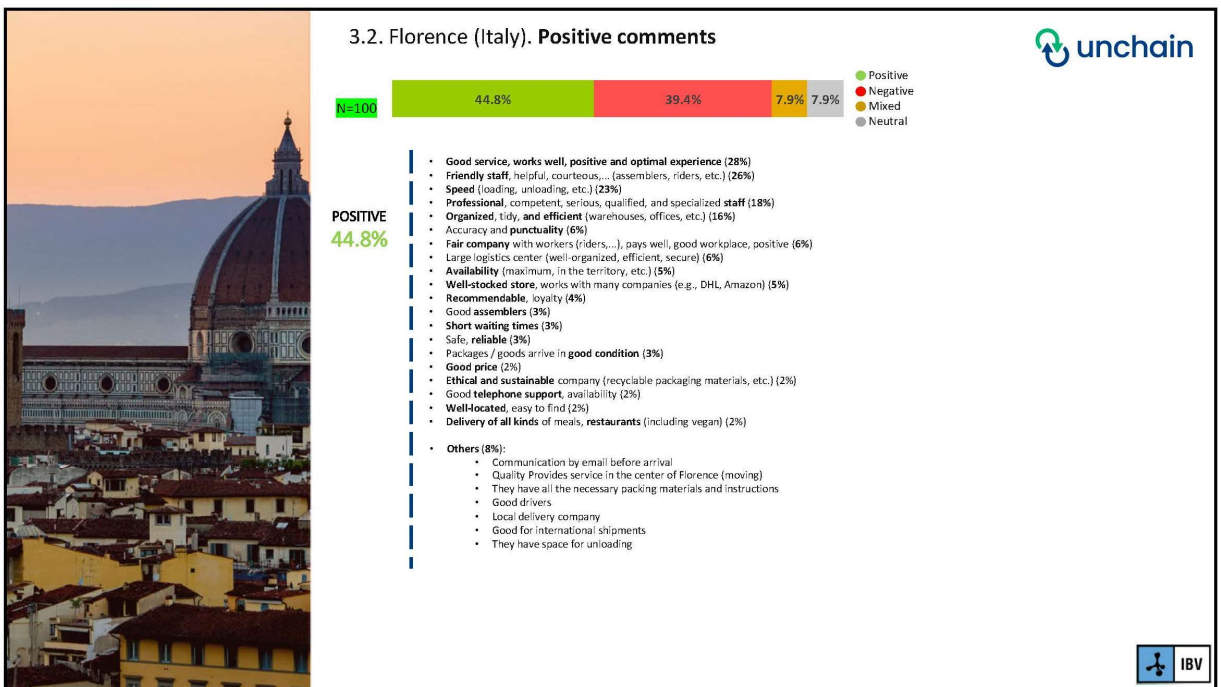
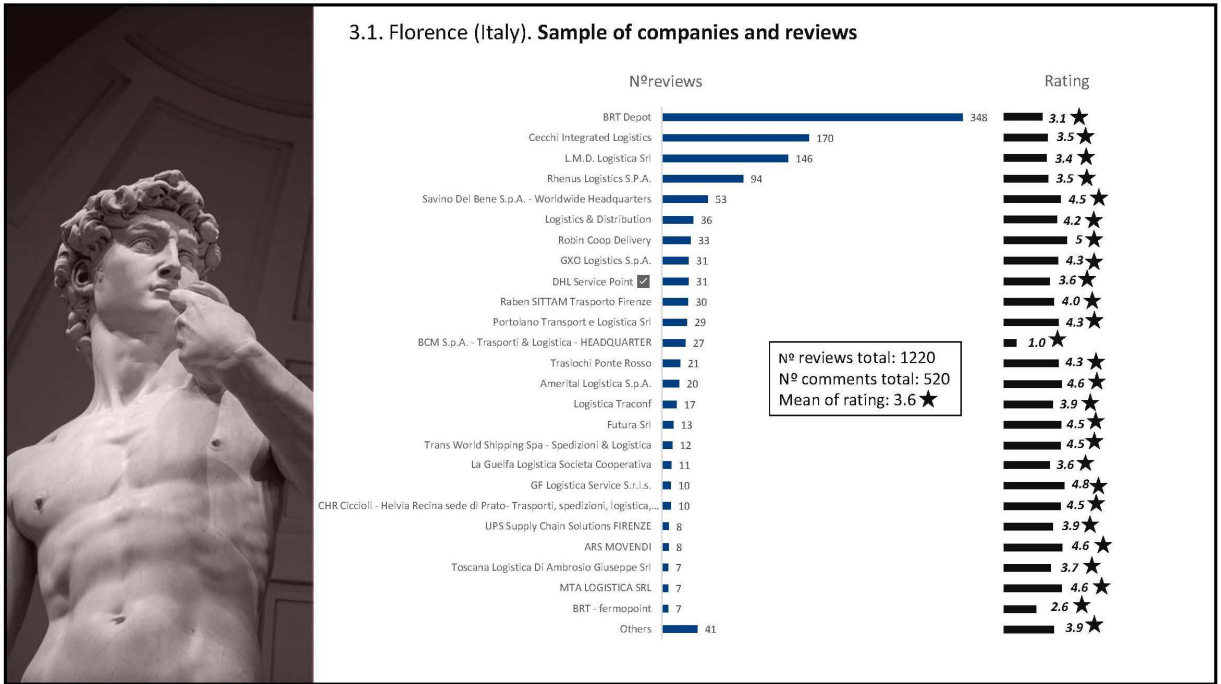
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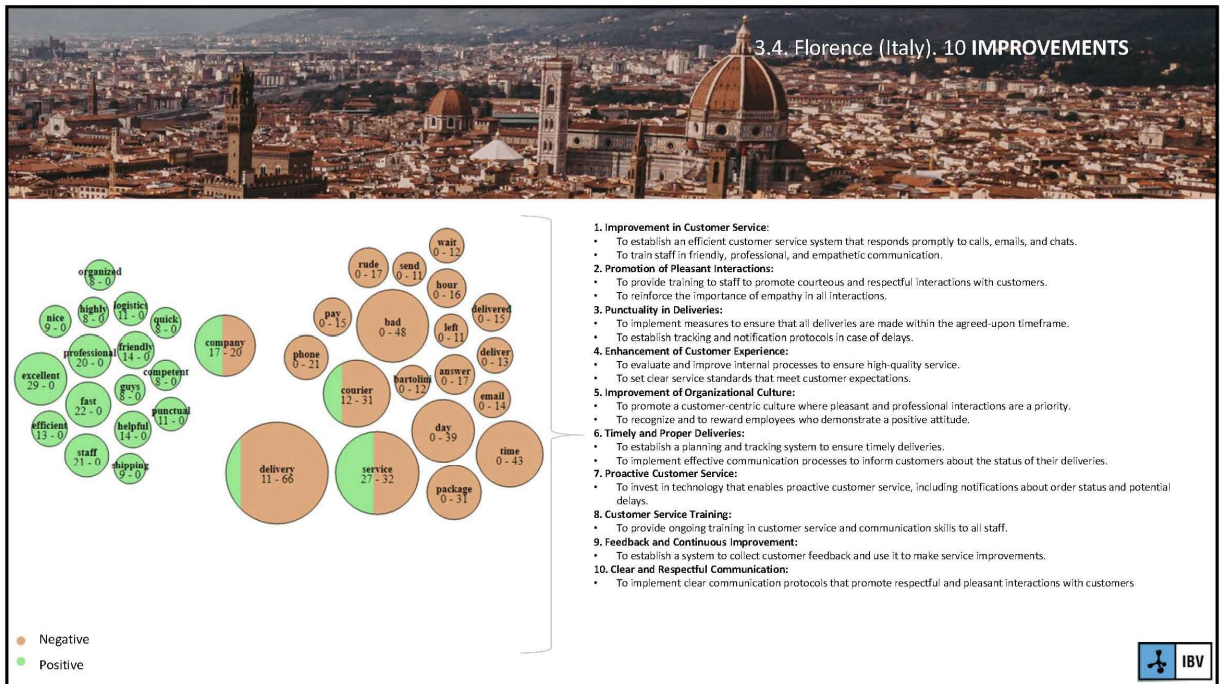
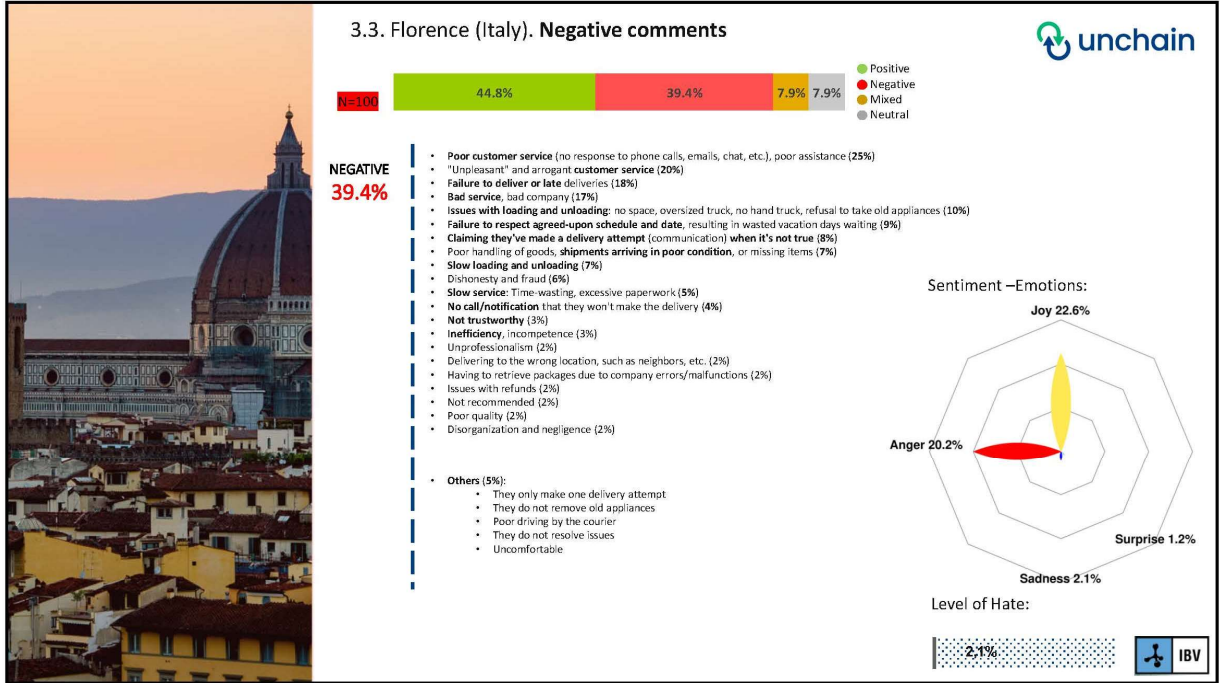
Analysis of Madrid (Spain)

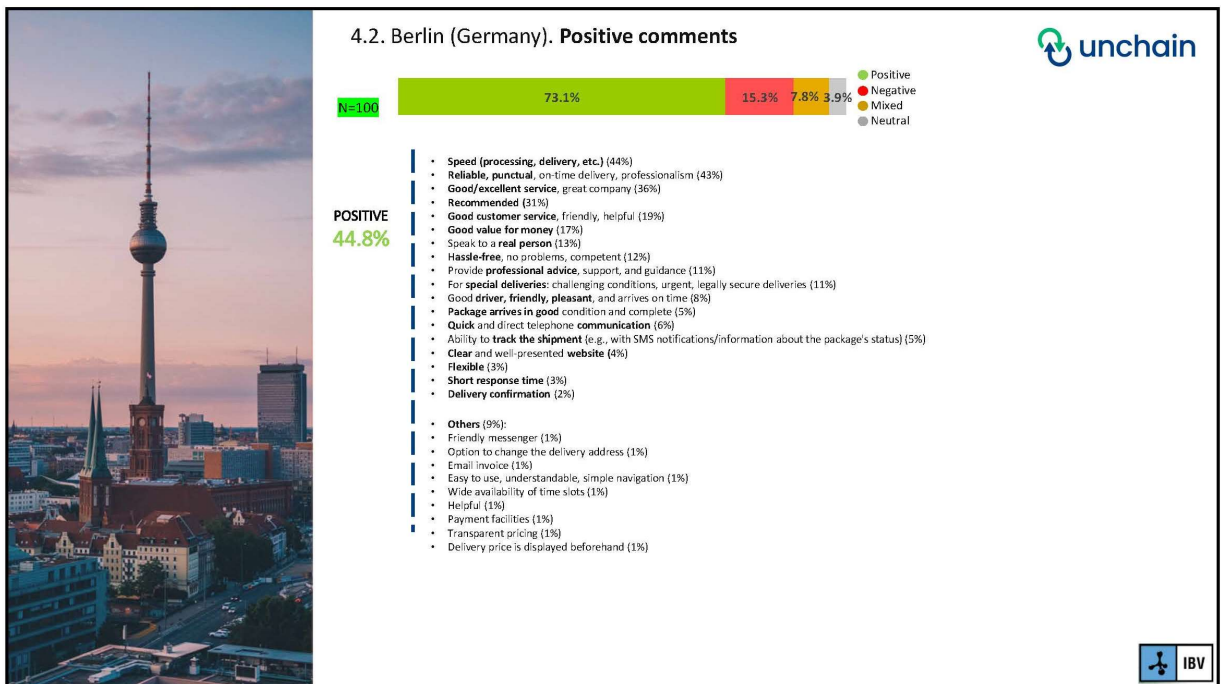
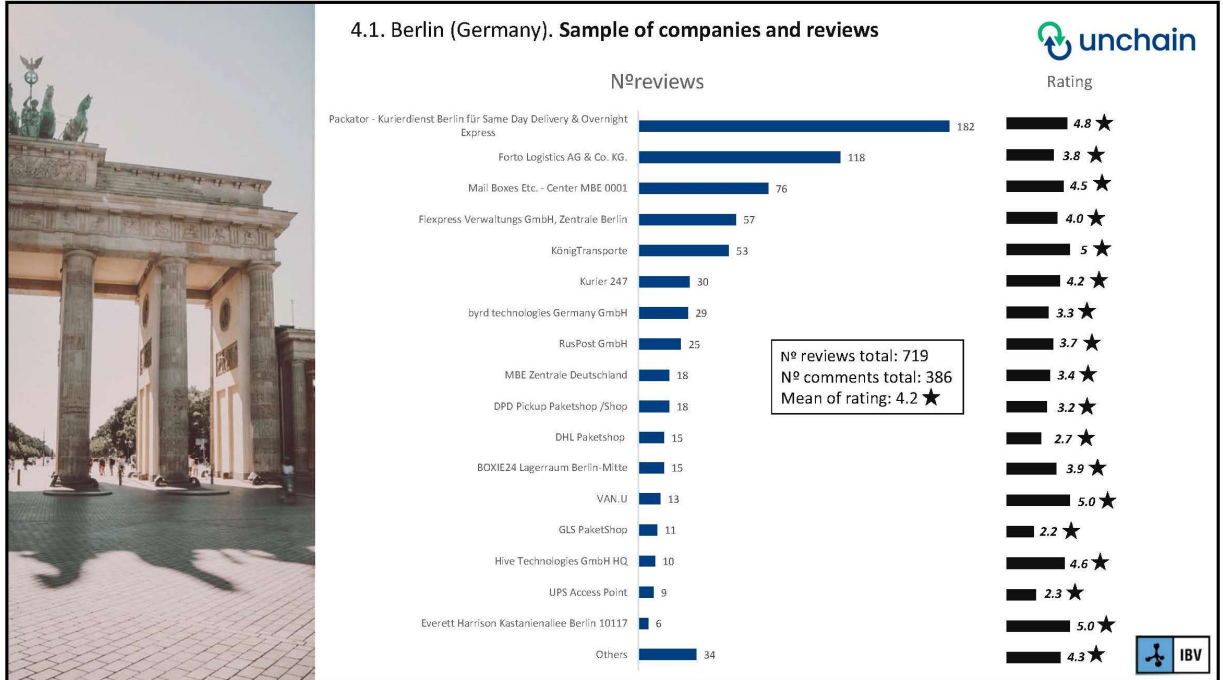


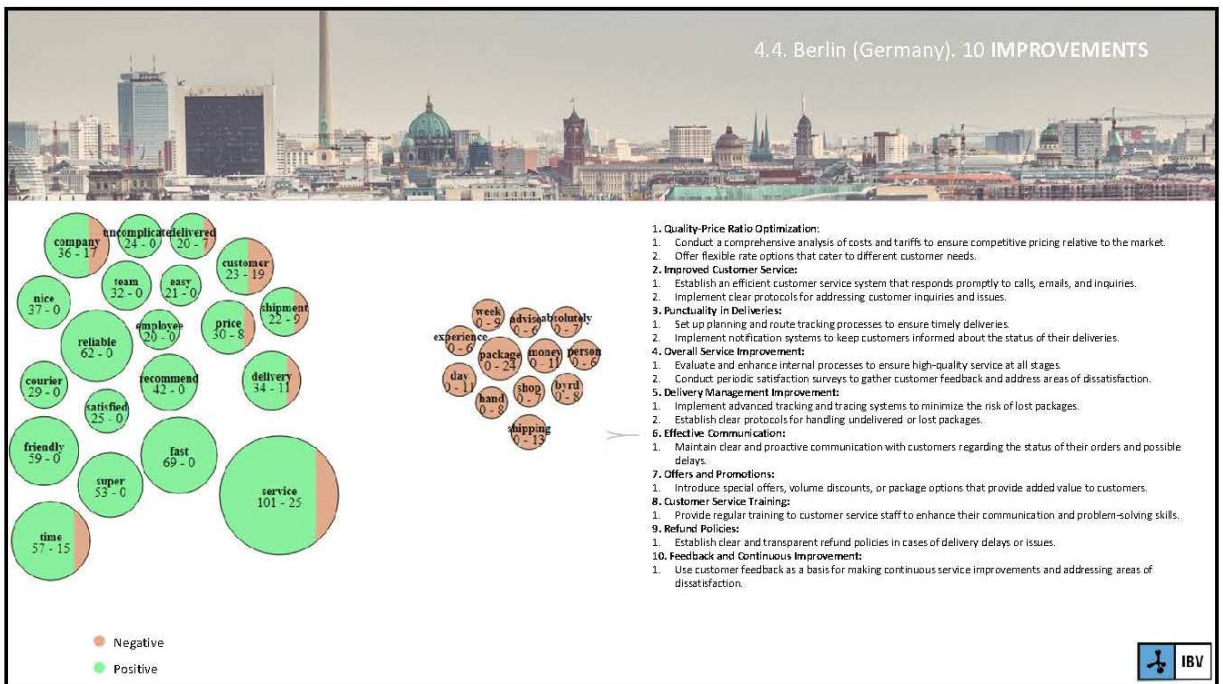
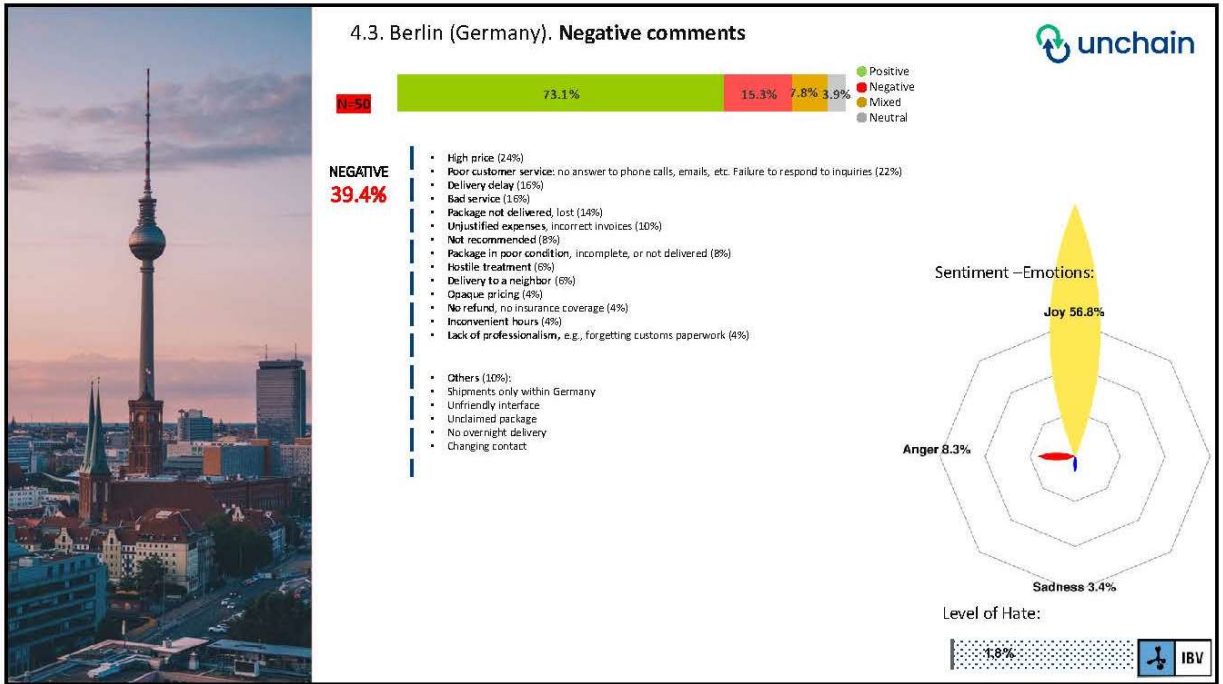


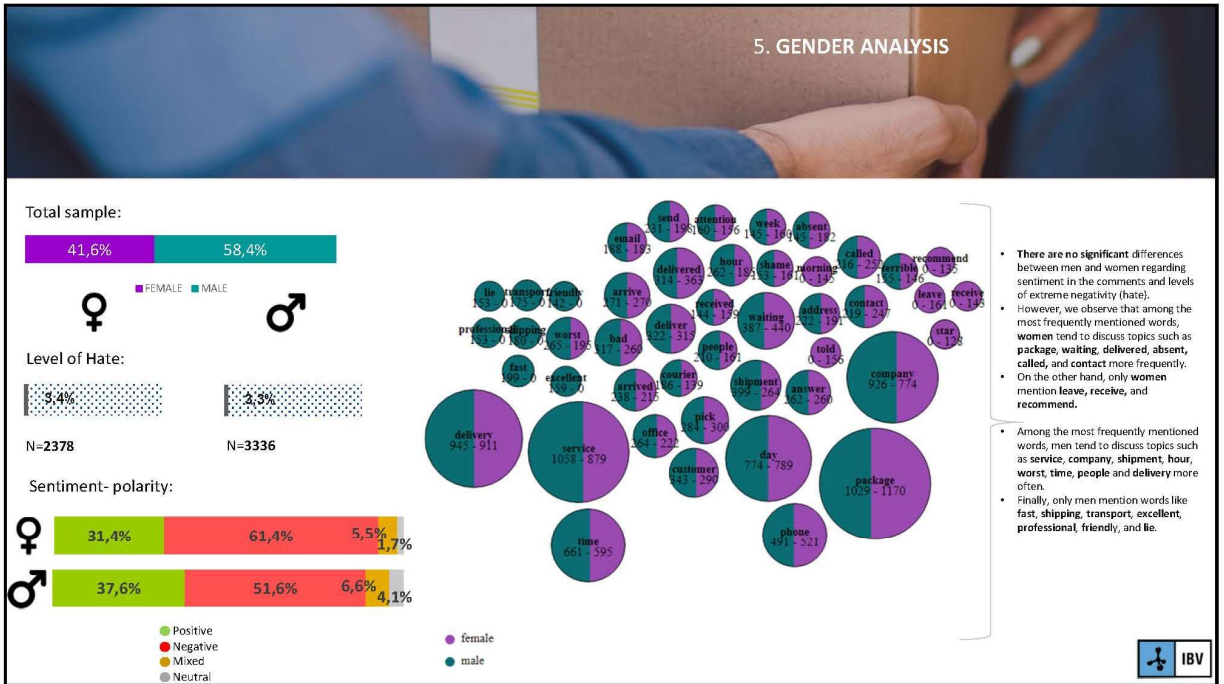












06 Conclusions & Actions

6. Conclusions & Actions (i)

Methodology & Sample

- Netnography allows us to understand users' opinions about both the aspects that have been well addressed and those that need resolution in the field of package delivery and logistics. This understanding is derived from the information users share on the internet, including social media platforms and review websites.
- Users are observed and analyzed without their awareness, and this spontaneously expressed information holds significant value. It serves as complementary data to other techniques and sources involving relevant stakeholders.
- The analyzed sample is extensive and meaningful, encompassing all available comments on Google Reviews. Qualitative analysis was performed by reading and interpreting a subset, while quantitative analysis involved natural language processing (NLP) algorithms.
- In total, 10,291 reviews (with star ratings ranging from 1 to 5) and 5,921 user comments were analyzed. Of the users expressing their opinions, 66.9% are male, 29.6% are female, and 3.4% are of unknown gender. This gender distribution may be attributed to a higher level of male engagement and/or interest in the topic.
- Companies tagged on Google Reviews and included in the analysis belong to categories such as courier companies, messenger services, logistics, transportation, distribution services, and cargo transportation.
- The sample comprises comments from three participating cities in the project: Madrid, Florence, and Berlin. The sample size varies because it depends on the availability of comments, influenced by factors such as the city's size and its specific characteristics and profile.

Sentiment and Emotion Language Analysis:

- 49.6% of the comments in the three cities are positive, 38.4% of the comments are negative, and therefore, areas for improvement. The rest are MIXED (7.2%) and NEUTRAL (5.0%). The average rating is 3.5 out of 5.
- The aspects that stand out as well-addressed are:

<p>Madrid</p> <ol style="list-style-type: none"> 1. Good Customer Service and Fast Response (35.1%) <ol style="list-style-type: none"> 1. Easy contactability 2. Excellent phone assistance 3. Availability 4. Offering options and rectifying mistakes 5. Proper, cordial, professional, and personalized treatment 2. Great Service and Company (34.4%) <ol style="list-style-type: none"> 1. Excellent service with a quick and efficient experience 2. Affordable and cost-effective 3. Efficient management, including the use of their own vehicles 4. Serving large companies 3. Punctual Deliveries (23.8%) <ol style="list-style-type: none"> 1. Packages consistently arrive on time 2. Reliable adherence to deadlines 4. Excellent and Friendly Treatment (19.9%) <ol style="list-style-type: none"> 1. Friendly, attentive, helpful, charming, and professional customer service 2. High level of satisfaction with the treatment received 	<p>Florence</p> <ol style="list-style-type: none"> 1. Good Service and Positive Experience (28%) <ol style="list-style-type: none"> 1. Reliable and efficient service 2. Providing a positive and optimal experience for customers 2. Friendly and Helpful Staff (26%) <ol style="list-style-type: none"> 1. Courteous and helpful employees, including assemblers and riders 2. Friendly and customer-oriented service 3. Speed and Efficiency (23%) <ol style="list-style-type: none"> 1. Quick loading and unloading processes 2. Swift and efficient operations 4. Professional and Competent Staff (18%) <ol style="list-style-type: none"> 1. Employing qualified and specialized personnel 2. Maintaining a professional and competent workforce 	<p>Berlin</p> <ol style="list-style-type: none"> 1. Speed (44%) <ol style="list-style-type: none"> 1. Swift processing and delivery, prioritizing efficiency 2. Reliability and Punctuality (43%) <ol style="list-style-type: none"> 1. Consistent on-time delivery 2. High level of professionalism and reliability 3. Good Service and Company Reputation (36%) <ol style="list-style-type: none"> 1. Excellent service quality 2. A strong reputation as a great company 4. Recommendation (31%) <ol style="list-style-type: none"> 1. A significant number of customers recommend the service
---	--	--

6. Conclusions & Actions (ii). Level of hate

- Special attention must be paid to the levels of hatred, which represent the extreme manifestation of negative aspects. On average, the levels are low, accounting for 2.5% of the total comments analyzed.
- The identified comments discuss the following aspects:

package	99
company	82
delivery	72
day	71
phone	68
time	65
service	60
shipment	46
deliver	40
rude	39
pick	36
send	35
bad	34
called	33
office	30
arrive	28
pay	28
people	28
person	27
answer	27
customer	27
waiting	26
worst	26
girl	26
leave	25
told	23
terrible	22
star	21
left	19
house	18
transport	18
charge	18
door	17
hour	16
shipping	16
lie	16
delivered	16
attention	16
address	15
arrived	15

"I am waiting for a package and in its tracking it says that it was delivered today and it is a lie"

"The worst company and the worst delegation of MRW They dont pick up the phone by hanging up Or they play a little music for you But they don't answer"

"If negative stars could be put, they would be rude, non-compliant, unprofessional, doubling the delivery time and still not receiving the shipment"

"They make me stay at home all day to receive a package that never arrived"

"Terrible management on the phone of the lady in this office Tacky and angry with the world it puts me on hold and instead of that the call crosses me with another client"

"Of all the times that I have had shipments with this office, they have NEVER been delivered on time (and there are more than 5 already) They always deliver last when other companies deliver throughout the morning They tell you that there was no one at home even though you are inside because the delivery man on duty does not even show up since there is a janitor on my farm and he collects the packages when there is no one at home"

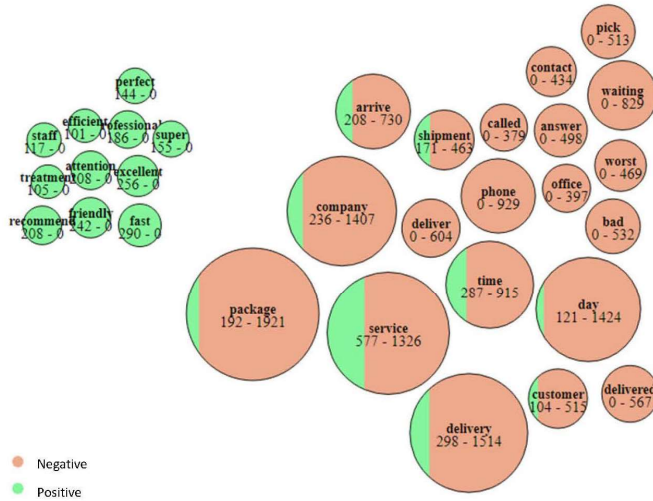
"If negative stars could be put, they would be rude, non-compliant, unprofessional, doubling the delivery time and still not receiving the shipment"

"Disastrous The girl at the counter is rude and arrogant, they do not notify that the packages arrive"

"They kept us 3 days without moving from home to pick up a package When they do not appear, they call the next day saying that the address was incomplete, a story already very burned 3 days of vacation wasted waiting for these people"

6. Conclusions & Actions (iii). Improvements

- Finally, the areas for improvement and the most important improvement proposals are:



1. Improved Customer Service:

- To establish an efficient and responsive system available to promptly handle calls, emails, and chats.
- To implement clear protocols for resolving customer inquiries and issues.
- To train staff in friendly, professional, and empathetic communication.
- To eliminate scripted responses and provide accurate and truthful answers.

2. Punctuality and Reliability in Deliveries:

- To reinforce internal processes to ensure timely deliveries within the appropriate timeframe.
- To implement a package tracking and notification system to provide precise tracking and notify customers of any delays.
- To proactively communicate any delivery delays.

3. Quality-Price Ratio Optimization:

- To conduct a comprehensive analysis of costs and tariffs to ensure competitive pricing relative to the market.
- To offer flexible pricing options that cater to different customer needs.

4. Promotion of Friendly Interactions:

- To provide training to staff to promote courteous and respectful interactions with customers.
- To emphasize the importance of empathy in all interactions.

5. Service Quality and Professionalism Enhancement:

- To evaluate and improve internal processes to ensure high-quality service at all stages, maintaining a reliable and professional service.
- To conduct periodic satisfaction surveys to gather customer feedback and address areas of dissatisfaction.
- To implement quality control in deliveries and issue resolution.

6. Transparent and Effective Communication:

- Accurately inform customers about the status of packages and any changes in delivery.
- To avoid changes in the package status without justified reasons.
- To maintain clear and proactive communication with customers regarding the status of their orders and possible delays.

7. Delivery Management Improvement:

- To implement advanced tracking and tracing systems to minimize the possibility of lost packages and ensure on-time deliveries.
- To establish clear protocols for handling undelivered or lost packages.
- To respect customer-selected time slots and accommodate requested changes. Implement effective communication processes to inform customers about the status of their deliveries.

8. Customer Experience Improvement:

- To evaluate and improve internal processes to ensure high-quality service.
- To establish clear service standards that meet customer expectations.
- To prevent customers from having to pick up packages after paying for shipping.
- To provide advance notice of any delivery delays and maintain open communication.

ANNEX 4. Delphi's second round questionnaire



UNCHAIN - SECOND ROUND DELPHI

Welcome to the second round DELPHI questionnaire of the UNCHAIN project.

We would like you to validate the information that integrate the diagnosis of the logistics (barriers, values and expectations/improvements). The agreement level and the necessary aspects to complete the diagnosis.

UNCHAIN project will implement a standardised and reliable data exchange ecosystem supported by a public-private collaborative framework that will allow the establishment of reliable data sharing agreements, break data silos and make the urban freight data more available and accessible. Driven by the unlocked data, an innovative set of 12 urban logistics services will be implemented to optimise the allocation of urban space, improve the policy-making capacity of local authorities and optimise network management and logistics operation.

The "DELPHI" second round activities consists of the following tasks:

- 1- To detail the agreement level of the identified barriers.
- 2- To detail the agreement level of the identified values.
- 3- To detail the aspects and factors missing in the diagnosis.

The deadline to fill up the questionnaire is September 18th.

This participation is completely anonymous. No personal data will be requested (only a few socio-demographic characteristics). If you consider that any of these demographic questions could reveal any personal data, please, do not answer. The information will be analysed in aggregate and grouped form. No specific data or cases will be identified.

Thank you very much for your cooperation!



UNCHAIN - SECOND ROUND DELPHI

Some information about you

* 1. Please indicate the sectors you work with:

- Consulting and regions
- Technology providers
- Core capacity and resources
- Network
- Logistic operator
- Use case agent
- Other:

2. Please indicate your country:

3. Please indicate the entity that you represent:

4. Indicate your occupation / position in the entity:

5. Indicate the years of experience with the collective:



UNCHAIN - SECOND ROUND DELPHI

Agreement level and other factors description

* 6. Please indicate the agreement of the identified logistic process information (slide 10):

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
Results 2. Madrid use case agents - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Explain the factors and aspects that are missing in the diagnosis about the logistics current process: (Please, indicate the topic of reference)

* 10. Please indicate the agreement of the identified values (slide 7):

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
Results 1. Partners workshop - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Explain the factors and aspects that are missing in the diagnosis about the values: (Please, indicate the topic of reference)

* 8. Please indicate the agreement of the identified stoppers (slides 6 and 11):

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
Results 1. Partners workshop - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Explain the factors and aspects that are missing in the diagnosis about the stoppers: (Please, indicate the topic of reference)

* 12. Please indicate the agreement of the identified recommendations and improvements (slides 8 and 12):

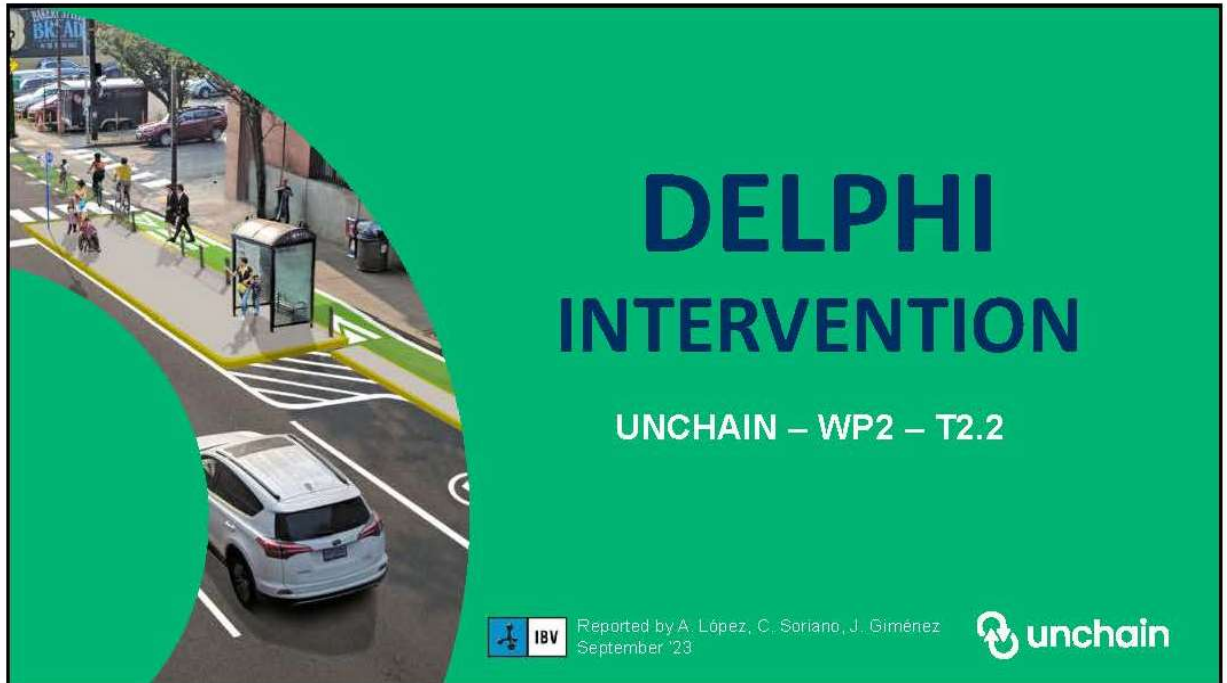
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
Results 1. Partners workshop - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 1. Partners workshop - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Public Management & Legislation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Sustainability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Public Private Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Results 2. Madrid use case agents - Smart City	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Explain the factors and aspects that are missing in the diagnosis about the recommendations and improvements: (Please, indicate the topic of reference)


* 14. Finally, indicate the agreement with the conclusions (slides 13 and 14) and explain the factors and aspects that you miss:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	N/A
First slide conclusions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extend or explain the factors and aspects that you miss:	<input type="text"/>					
Second slide conclusions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extend or explain the factors and aspects that you miss:	<input type="text"/>					

ANNEX 5. Delphi intervention results




Overview	01	METHODOLOGY
	02	RESULTS 1, UNCHAIN PARTNERS WHORKSHOP
	03	RESULTS 2, MADRID USE CASE LOCAL AGENTS GRUPAL INTERVIEWS
	04	CONCLUSIONS



DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS METHODOLOGY (i)

G1. UL COLLABORATIVE DIAGNOSIS




UNCHAIN PARTNERS WORKSHOP

STOPPERS, BARRIERS AND WEAKNESSES
WHICH INITIATIVES HAVE FAILED IN URBAN LOGISTICS? WHY?
WHICH ARE THE MAIN FACTORS TO EXPLAIN THIS FAILURE?

VALUES, STRENGTHS AND CURRENT SUCCESSFUL FACTORS
WHICH ARE THE SUCCESSFUL INITIATIVES IMPLEMENTED TODAY IN THE URBAN LOGISTICS?
WHICH ARE THE MAIN DRIVERS TO FACILITATE THIS SUCCESS?



RECOMMENDATIONS AND IMPROVEMENTS
HOW WILL BE URBAN LOGISTICS IN 2030?

G2. UL COLLABORATIVE DIAGNOSIS




- In the first stage, participants are distributed in 2 groups by partner profile. After the presentation of contributions, participants will contribute in the other flip chart.
- One WP leader moderates each flip chart, explaining the main contributions and listening to participants during the first stage.
- Partners write in post-its their contributions related to requirements, needs, problems, expectations, barriers... for each flip chart.
- During the second stage, participants will draw & describe different solutions to improve the urban logistics.

• 30 PARTICIPANTS

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS METHODOLOGY (ii)



MADRID USE CASE LOCAL AGENTS GRUPAL INTERVIEWS



- To know the current product/package/courier reception, distribution and delivery processes, including what works and what does not work now.
- To identify current logistics barriers and problems that must be resolved.
- To identify keys to improve logistics and distribution from the point of view of Madrid local agents (requirements, keys for improvement and expectations).
- To analyse the possibilities of using public land, commercial land, parking, shared information and data... for logistics.
- To identify potential barriers to the use of these resources for loading and unloading.

- 15 PARTICIPANTS

• 15 PARTICIPANTS


DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS METHODOLOGY (iii)

- To validate the obtained results in the first round, was be defined a questionnaire addressed to project partners.
- To stablish the level of agreement with the registered information in the first round.
- To assess and evaluate the information (type of data and adaptation of reality).
- To identify information gaps.
- To add key information to complete the contextual diagnosis.

• 15 PARTICIPANTS

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 1. PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS





DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 1. PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS

STOPPERS

<p>Public management & Legislation</p> <p>●</p>	<p>Need to align strategies SUMP-SULP, New solutions are often not profitable; only pilots, Confusing regulation, Different regulation, Lack of modern regulation, No adapted to change legislation and administrative regulation, Hard to define the necessity and subject of procurement, Policy coherence across sectors, Conflict with economy; nobody wants regulations, KPI must be declined to measure success of framework goals, Dynamic change in patterns and stakeholders; hard to define regulation, Limited budget & manpower/personnel, No political support, Outdated regulations, Inflexible regulations, Inadequate enforcement traffic regulation, Missing knowledge&capacities in administration, Lack of trust to municipality about effect of data sharing, Restrictive regulation; cargo bike vs. pedestrians, Last mile delivery vs. active mobility, SULP as part of SUMP, Traffic regulations, Approach by city managers often/too many times driven by electoral needs, Lack of regulation, Missing link; transportation planning vs. urban planning, No awareness on logistics by urban planners, No legal regulation to enforce, for example, loading zones, Shared space with public and private mobility active modes, Public administrations have limited skills&resources.</p>
<p>Infrastructure</p> <p>●</p>	<p>No space dedicated to complex deliveries solutions, Lack of loading/unloading areas, Lack of available space, Delivery companies competition for space: lockers, UCCs, hubs, More micro-logistic hubs needed; lack of space and facilities, Lack of public surface on central/old districts, Matching needs/spaces, Not enough space for all needs, Infrastructure competition (different uses and demands, e.g. on streets, parking), Limited energy alternative infrastructure availability, Availability of space; space conflict with other land uses, Location of UCC; dedicated spaces for logistics, Lack of space; fight for space.</p>
<p>Sustainability</p> <p>●</p>	<p>No sustainability culture, Need to reduce the home delivery and to increase the lockers or shops' deliveries, Cultural heritage boundaries; Unesco area, Commitment with sustainable companies, Sustainability makes it more difficult.</p>
<p>Business</p> <p>●</p>	<p>Micro-size companies in logistics, difficult to reach, Enterprises and companies do not want to share info, No willingness to cooperate by involved stakeholders, Confidential, Accessibility of available data limited (data ownership), LSPs not prepared to share data, Competitors, Load/Unload area is never enough, Big vehicles used, EVs are expensive; the range, Data is companies' asset; value for them.</p>
<p>Public Private Partnership</p> <p>●</p>	<p>Involvement of private sectors in the process, No common idea about the future, Local market operators too fragmented; small operators, Failure in the hourly regulation of the drop off/pick up spaces (non compliance), Logistics is not prioritized, Access to city centre, LEZ in cities, Everyone thinks about its own future, Protocols&agreements between public and private sector, Land is private to a large extent, Mixed private-public logistics policies on same limited infrastructure, Lack of interest in logistics by society&investors.</p>
<p>Smart City</p> <p>●</p>	<p>Framework must be monitored automatically, Data needed: demand, usage, capacity (of infrastructure), No systematic approach to data monitoring, No framework (IT solution) to share data in a safe&confident way, Data silos, Planning on available data (limited knowledge on demand, ...), Data on land use only available with different scope, GDPR compliance, Interoperability of data, Interoperable data are expensive, Public data proxies' logistics.</p>



DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 1. PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS

VALUES

<p>Public management & Legislation</p> <p>●</p>	<p>To have a clear guidelines vision; top-down approach, Possibility to implement policy, Political buy-in, A good new ordinance to allow this change and to encourage this change, Main driver: restrictions on car-use, Participatory process in defining SUMP, Alignment with mobility planning, housing, economic, activities and overall, urban plans, New SULP in place with concrete targets and monitoring obligation, To define data-based policy, Making the use of (un)loading zones obligatory, To reduce space for private car and to increase for other uses.</p>
<p>Infrastructure</p> <p>●</p>	<p>Structural approach instead of project based, Land use for city hubs, micro-hubs, lockers, New loading and unloading zones, Temporary land-use for micro-depots, Micro-logistic hubs, Optimal location of hubs/UCCs; less congestion, costs, wasted time, Shared spaces for different actors, Distribution of pick-up points.</p>
<p>Sustainability</p> <p>●</p>	<p>LEZs protect the cities consolidation, Increased awareness about the challenge, Consumers' choice; less polluting operators, Increase of understanding of situation among citizens, New small electric and narrow vehicles.</p>
<p>Business</p> <p>●</p>	<p>Logistics operators, Incentives, Better understand logistic flows and to know where and how to intervene, Data driven planning, IT-based modelling of demand for micro-depots, To have more data implies potential more knowledge of city context; better optimization; cost reduction, Socio-economically beneficial to all stakeholders.</p>
<p>Public Private Partnership</p> <p>●</p>	<p>Flexible approach, Fulfil strategic goals, Open discussion with main operators, Common goal to be achieved, Public councils open discussion, To understand the sector better, Self benefit (trust), Take advantage from the amount of data publicly available; the so called high value data sets.</p>
<p>Smart City</p> <p>●</p>	<p>Looking into the future solutions and not only into existing problems, To make a similar technology that is able to make the change in any city, To monitor&analyse policy in a quantitative way, Logistics operation services have decent digital platforms for end users, Connected car; V2G data, New app for professionals to book the needed space, Research-assisted demand evaluation, Monitorization of public spaces.</p>

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 1. PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS

RECOMMENDATIONS

Public management & Legislation	Common regulation across Europe, To make it obligatory, Subsidies for the writing&implementation of SULP, Shared governance model, To make SULP actions measurable, Evaluate measures adopted by cities; SUMP/SULPs; development, Standardization, Common technology and data type (for companies, cities, EU), To make data sharing obligatory; couple it to UVARs, To insert logistics needs for last mile delivery to discussions about street designs, Create awareness with urban planners, Give guidance to urban planners, To make (un)loading zones&hubs obligatory, Smart and adaptive land use regulation, Logistics considered as a part of urban planning rather than a problem to be solved afterwards.
Infrastructure	Gain knowledge; planning of UCCs; optimization, New micro-logistic hub with same technology and facilities across EU, Optimised network of shared logistics infrastructure, To identify in SULPs mobility hubs in city centres; surroundings areas, possibly shared by multiple operators.
Sustainability	OEM market evolution (lowering vehicle prices), Raise awareness on the environmental impact (e.g. express courier), Awareness on the impact for the urban logistic system by all the actors and end users included, Active delivery (customer moves), Different types of vehicles, More sustainable, low emissions, in particular to entry in city centre, Well structured and organized user-oriented.
Business	Incentives for companies following good practices, Never forget local commerce, helping them to be involved, To overcome data silos, share data among stakeholders, Business models for data sharing, Data brokerage; stewardship logistics data; 3 rd party.
Public Private Partnership	To involve different city departments and also citizens and private sector, if possible, To facilitate research project with private operators, To ensure collaboration in technical groups with logistic operators&cities consultancies, No top-down decision, Realistic and simple strategies, Real involvement of stakeholders (collaborative), To implement protocols&agreement to facilitate data exchange with private sector (e.g. aggregated or anonymised), BtoG data sharing for public services.
Smart City	Better communications on needs of logistics, To monitor KPI for SULP effectiveness consistently, To support research based data acquisition, Public data for more visibility, To create an European IT platform that can be used in different countries cities, Easily accessible singular platform for information and data sharing, To develop successful pilot app proving benefit for operators, Connection in real time with vehicles, hubs, governments, companies, To know user needs (for improvements); more data quality, more better decisions, Use of digital twins (e.g. Lead project), Constantly re-assess situation based on monitoring.

DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS



DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS PROJECT PARTNERS STOPPERS, VALUES AND RECOMMENDATIONS

Information to add (contributions from the 2nd round questionnaire):

- **Public management & Legislation:** Besides the question of following a top-down approach or not, legislation should include users needs and suppliers requirements. Political support is important, but the empowerment of planners and to act despite of political agenda is even more crucial for the actions to take place.
- **Business:** Data might not always provide the full explanation. All the actors (city+businesses+users) should be always involved in the process, by at least receiving contextual information about planning and operations.
- **Public-private partnerships:** The highlight of actors' involvement and users is needed.
- **Public Management:** top down approach can lead to lower acceptance levels of businesses and end users.
- **Recommendations:**
 - Regulation only considering the type of goods to be delivered might be very tricky since different businesses have very different opening times and may require the same type of goods to be delivered (e.g. cafeteria operating from early in the morning and a pub/restaurant operating from the evening).
 - Not enabling logistics operators to deliver the goods inside the businesses premises will be extremely conflictive. Customers pay to the logistics operators to handle those goods, especially if they are very heavy; customers may not want to move on their own those goods.

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 2. MADRID USE CASE LOCAL AGENTS. CURRENT PROCESS, STOPPERS AND IMPROVEMENTS



DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS

RESULTS 2. MADRID USE CASE LOCAL AGENTS. CURRENT PROCESS, STOPPERS AND IMPROVEMENTS



CURRENT PROCESS

Public management & Legislation	The regulation of the Urban Distribution of Goods is very complex (overlapped layers, in different neighborhoods, zones, time slots...). At 11:00 a.m. ends the permission to use the pedestrian zones for logistics operations. There is no priority to use public space for loading and unloading. In pedestrian zones such as squares you can park to make the delivery although there is no regulation that specifies it. Regulation of space and times is needed depending on the size and weight of the product to be delivered.
Infrastructure	Infrastructure is key to product delivery, Infrastructure is insufficient at certain hours.
Sustainability	Deliveries involving high volume products or high weight products tend to be concentrated; the vehicles travel few kilometers due to deliveries concentration; pavement deterioration. The deliveries are organized by proximity (of establishments). They go 2-3 times a week. At one stop they make 12-16 deliveries (restaurants/bars). They are considering the purchase of electric trucks. The parcels' deliveries vehicle travels a lot of mileage. They work with a 12-ton truck (different deliveries of goods such as furniture, appliances, equipment, removals, etc.). Each barrel weighs 70kg, boxes 12kg, deliveries of 80-200kg minimum (bars&restaurants). They carry out reverse logistics (they collect loads of empty barrels, appliances to withdraw...). They assemble the delivered product and/or collect a product to remove. Importance of efficiency. Times are key because the margins are very low and the key is to deliver quickly (effective and efficient). The restaurant does not have warehouses and they do not have stock. They arrive at a delivery area and do not make a single delivery (they have a route, through neighborhoods and streets). The driver makes an average of 10-12 deliveries each time the vehicle is parked. Small vehicles make quick deliveries (20%), in short stops (25'), while big trucks stop for 2 hours, making 80% of deliveries (bars&restaurants). The deliveries are planned (the logistics managers plan the routes). The logistics managers group the deliveries by zones. Time is key due to schedules. Parcels are delivered quickly and with a high dispersion. Each operator knows where they have to go and sometimes they cannot make decisions to change the route. Delivery is a repetitive scheme. Different delivery timetables for diverse businesses (bars&restaurants, food stores, ...). The less time delivery takes the more benefit professionals get (and less time the delivery vehicles occupy the public space). E-commerce has grown 25%, so has grown the number of delivery vehicles.
Business	
Public Private Partnership	Each company works independently. Currently there is no contact with the administration to collaborate in defining the logistics conditions.
Smart City	There are applications for logistics activities in cities such as https://apps.apple.com/es/app/madrid-dum-360/id1637611301 . Some customers ask for deliveries out of commercial time (but close to it).

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS

RESULTS 2. MADRID USE CASE LOCAL AGENTS. CURRENT PROCESS, STOPPERS AND IMPROVEMENTS



STOPPERS

Public management & Legislation	Don't give a clear guidelines. Fines related to exceed the established loading/unloading time. The loading/unloading time must be regulated by tonnage. Parcel delivery operators can use shared areas (parking lots, different resources depending on weight and size...). Uncertainty by unclear regulation. City councils must address the needs of logistics (not all the product delivered is the same). The lack of proper legislation has consequences for professionals and society. Lack of coordination between municipalities. Dispersed regulations and lack of equity in the delivery requirements. Legislation is different in each city and there is no common framework (what is legal in one city could be illegal in other). The legislation that applies to delivery vehicles is similar to that applied to private vehicles; different one is required. The rules are very inflexible (not adapted to delivery typology). During the first hours of the day the loading/unloading areas are saturated. There are access restrictions (LEZs). Some vehicles, due to tonnage, cannot access the downtown district.
Infrastructure	No space dedicated to complex deliveries. Lack of loading/unloading areas. Lack of available space. Loading/unloading areas not in accordance with the size and load of the vehicles. Better distribution of loading/unloading areas to minimize last mile delivery. To restrict the use of these spaces only for loading/unloading. To monitor real time location is rejected, as it could be employed to fine professionals. There is no space to leave the load in the absence of commerce. The reduction in lanes has to be compensated with more loading/unloading areas.
Sustainability	To have to move the truck due to lack of flexibility in parking time, on loading/unloading areas; this results in more km driven. The indicators to assess logistics processes are very limited and do not adjust to the activity; other ways to reduce emissions must be explored. Diesel vehicles are consumption competitive with hybrids vehicles.
Business	Better understanding of logistic flows to know where and how to intervene. Difficulties in carrying out other loading and unloading tasks such as reverse logistics. Removals have the same treatment as transportation and distribution (they cannot usually comply with schedules as they are parked the whole day). The construction sector is having problems (restricted hours + ecological vehicle); they have to leave at 5 p.m. when perhaps they would have finished in 2 hours and they are forced to return for another day.
Public Private Partnership	Logistics operators do not participate in decision making regarding the regulation of logistics activities. Lack of tolerance in logistics activities. Lack of understanding of their needs. The distribution generates inconvenience to citizens that must be taken into account (noise, deterioration of the pavement, congestion, reduction of space...).
Smart City	In the city there is very little tolerance for distribution and logistics work. Problems of coexistence with the mobility of citizens. Route apps generate doubts. Fear that the app measures have a supervisory objective.

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS RESULTS 2. MADRID USE CASE LOCAL AGENTS. CURRENT PROCESS, STOPPERS AND IMPROVEMENTS

RECOMMENDATIONS

Public Management & Legislation	<p>To regulate the use of the bus lane by agreement until 8:00 a.m. or the established time, To be very strict with schedules if issuing fines, To regulate the use of pedestrian zones by agreement, To define loading/unloading schedules based on the type of product (e.g. food) to coordinate the work and foresee priorities of use, according to the product, Do not use the average delivery as a regulation measure (segment), Regulate night delivery from 12:00 p.m. and 7:00 a.m. in areas that do not affect the neighborhood, To provide for stock warehouse spaces (the delivery person leaves the parcel, digital delivery note signed and picked up by the customer at another time), To regulate that the product is left at the door of the premises, without access to the basement or attic, difficult because the customer do not want it, but this would result in occupational risks reduction, and delivery times reduction, To regulate where heavy merchandise can be stored (at street level or warehouse next to it), it would make the delivery faster and safer, Flexible control, To prioritize schedules according to delivery typology; in the morning, from 7:00 to 12:30, food, pharmacy and press; half day, equipment, furniture, afternoon fashion, accessories. To unify municipal regulations to have a framework with certainty, knowing whether or not you comply with the regulations, Regulations according to neighborhood typology.</p>
Infrastructure	<p>To monitor where the vehicle is, in real time, Being able to book a loading/unloading space, flexible in time occupancy, To use parking lots for small vehicles (at certain hours), To use blue and green parking lots for loading/unloading, To enable parking areas in the perimeter of difficult-to-access neighborhoods, HUBS in perimeter areas and from there to deliver with electric vehicle through a shared platform.</p>
Sustainability	<p>OEM market evolution (vehicle prices reduction), To raise awareness on the environmental, LEZs protect the cities consolidation, To increase awareness about the logistics needs, To carry out complex analysis of what the improvement in CO₂ (reduction) implies; e.g. a heavy vehicle, even being diesel, if it is allowed to remain in the same loading/unloading space for the time it needs, reduces pollution because it travels almost no kilometers and does not generate traffic congestion, To create specific permits for access of unlabeled vehicles, Implementation of a network of shared platforms with clean vehicles for last mile delivery.</p>
Business	<p>Incentives for companies following good practices, Never forget local commerce, helping them to be involved, To provide deadlines and facilities to make changes in the type of vehicle and fleet renewal, Transporters within 5 years of retiring who do not have to change their vehicle (extensions), To strengthen common delivery areas (kiosks, small businesses...), To reduce home delivery, Commerce as a delivery point, Associations as delivery managers of the last mile delivery.</p>
Public Private Partnership	<p>To involve different city departments and also citizens and private sector, To promote dialogue to search for solutions, To include logistics companies in the search for solutions, Direct interlocution with city council directors, To be able to coordinate and to integrate with urban planners, To work with the municipal police to identify the location of loading/unloading areas, The delivery people want to collaborate to speed up the processes (but they do not want to be harmed, control / inspection), Registration, type of vehicle, and environmental certification are already share by logistics companies; other data of their own could be shared if the city council gives them data to improve their delivery route.</p>
Smart City	<p>Better communications to cover logistics needs, Metropolitan area must have a common regulation, integrating common urban plans, App to optimize routes, book a loading/unloading area (contrast with apps from cities that already have them in place).</p>

DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS MADRID USE CASE CURRENT PROCESS, VALUES AND RECOMMENDATIONS

Madrid use case agents / CURRENT PROCESS

MADRID USE CASE AGENTS / STOPPERS

MADRID USE CASE AGENTS / RECOMMENDATIONS AND IMPROVEMENTS

- 60 professionals participated in the Delphi technique (including both rounds). 15 of them have validated the diagnosis (2nd round participants).**
- The information identified during the diagnosis is shared by all participants (no user disagrees with the identified conclusions).**
- Only one validating user is identified who disagrees with a concrete aspect related to sustainability in Madrid use case.**

DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS MADRID USE CASE CURRENT PROCESS, VALUES AND RECOMMENDATIONS

Information to add (contributions from the 2nd round questionnaire):

- **Current process:** Need to include data related to distances the delivery trucks actually do.
- **Infrastructure:** Roads to access the delivery location and logistics hubs are critical infrastructures to organize the logistic processes. It has to be specified which infrastructure is not sufficient during high traffic volume times.
- **Sustainability:**
 - It would help a lot to indicate whether there are current implications of electric cargo vehicles. Also, if there are alternative transportation means (e.g. cargo bicycles, on-foot delivery, other micro-mobility means) used to deliver goods.
 - Need to identify the broader spectrum of logistic means and extended overview of Smart City factors. To cover in the field study/survey.
- **Recommendations:** It is not clear that booking parking lots in advance is a procedure that logistic companies can implement today.

Disagree reasons:

- **Sustainability:**
 - Not only need for less home deliveries but in general less deliveries; with the predicted increase of consumption and deliveries, there will be no sufficient solution.
 - Disagree on more mileage due to restrictions; it could be acceptable in the longer term, when a behavioural change could lead to adapted routing.

DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS CONCLUSIONS (i)

- Considering the amount of contributions, the results suggest the inadequate **Public Management&Legislation** and the lack of appropriate **Infrastructure** are the main UL *barriers* today.
- Following this rationale, the next level of barriers are **Public Private Partnership**, **Smart City** and **Business** related to data sharing. **Sustainability** seems to be a low level *barrier*.
- Regarding values, **Public Management&Legislation** is the most relevant strength of UL; the main barrier arises also as the main facilitator to change nowadays situation.
- **Infrastructure** and **Public Private Partnership** to generate **Business** related to data share in the context of the **Smart City** seem to be important assets for the UL.
- Regarding recommendations, **Public Management&Legislation** appears again as the main factor.
- These results suggest that public administration has the key to change a market, which main actors demand new infrastructures and digital resources to move towards a more sustainable scenario.

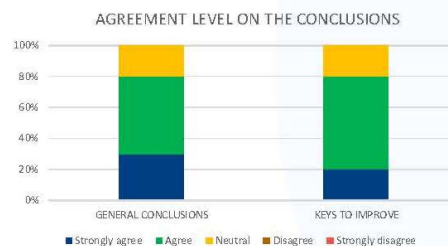
DELPHI 1ST ROUND: DIAGNOSIS OF URBAN LOGISTICS CONCLUSIONS (ii)

Specifically, some keys to improve these areas would be:

- **Public Management & Legislation:** To develop common regulations in the European area, dynamic (not rigid) and based on the type of product, schedule (regulation) and tonnage of the vehicle.
- **Infrastructure:** To increase the typologies of loading and unloading areas and to develop priority use policies for each type of zone, according to the product, delivery time (logistics process) and tonnage of vehicle used.
- **Sustainability:** To consider sustainability criteria adapted to the characteristics of the products and type of vehicle used, which defines the type of delivery, with compensatory criteria (pollutes more but makes fewer trips, ecological footprint vs. impact on traffic congestion).
- **Business:** To develop solutions that support the logistics operations (e.g., to send in advance information about requirements to be met for delivery in a given area, conditions to book a loading/unloading area, priorities related to the type of product/schedule), real-time information on traffic and route management.
- **Public Private Partnership:** To create logistics regulation and management processes agreed with companies.
- **Smart City:** To incorporate logistics activities into mobility policies, to improve coexistence with citizens.



DELPHI 2ND ROUND: DIAGNOSIS OF URBAN LOGISTICS. CONCLUSIONS



- 60 professionals participated in the Delphi technique (including both rounds). 15 of them have validated the diagnosis (2nd round participants).
- The information identified during the diagnosis is shared by all participants; no disagrees with the identified conclusions.
- European regulation may help but will not solve the challenge; cities have the competence in urban mobility and they are the key.
- Citizen and user engagement should be part of business sector; user's values are as important as operator considerations.
- Local businesses are frequently both providers and users.
- Regulating by typology (goods, tonnage of vehicle...) may create conflicts; it is required a deeper analysis.

ANNEX 6. Survey questionnaire



Template_UNCHAIN-Survey-English

Participant information sheet and consent form UNCHAIN

My name is Amparo López Vicente, I am a researcher of the UNCHAIN Project in IBV (Instituto de Biomecánica de Valencia). I would like to invite you to take part in an UNCHAIN Survey.

Please take time to read the following information carefully before you decide whether or not you wish to take part.

What is the aim of the research?

This research project aims to boost the cooperation between public authorities and logistics stakeholders moving towards climate-neutral and smart cities.

UNCHAIN project will implement a standardised and reliable data exchange ecosystem supported by a public-private collaborative framework that will allow the establishment of reliable data sharing agreements, break data silos and make the urban freight data more available and accessible. Driven by the unlocked data, an innovative set of 12 urban logistics services will be implemented to optimise the allocation of urban space, improve the policy-making capacity of local authorities and optimise network management and logistics operation.

Why have I been invited?

I have approached you because you are an eligible participant as a potential stakeholder involved in the urban logistic ecosystem. I would be very grateful if you would agree to take part in this research project.

What will I be asked to do if I take part?

If you are willing to participate in this research project, you will be asked to participate in a survey focused on investigating initiatives to improve city logistics, grouped in four categories: land use, environmental impact, traffic management, and service quality. It takes approximately 15 minutes to complete this survey, and all of your responses will be kept confidential and anonymous.

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. Your participation is voluntary.

What if I change my mind?

If you change your mind, you are free to withdraw at any time during your participation in this research project.

Will my data be identifiable?

After the survey, the research team conducting this research will have access to the ideas you share with us. We will keep all personal information about you (e.g., your name and other information about you that can identify you) confidential, that is we will not share it with others. We will remove any personal information from the written record of your contribution.

How will we use the information you have shared with us and what will happen to the results of the research project?

We will use the information you have shared with us only in the following ways:

We will use it for research purposes only. This will include (e.g., identify the public-private needs in the logistics ecosystem, research reports, articles documents, and/or journal publication).

How my data will be stored

Your data will be stored in encrypted files (that is no-one other than us, the research team will be able to access them) and on password-protected computers. The research team will store hard copies of any data securely in locked cabinets in our office.

What if I have a question or concern?

If you wish to make a complaint or raise concerns about any aspect, please contact me and/or our research team. However, if you wish to discuss with a person who is not directly involved in the research, you can contact Raquel Marzo . The contact information is as follows raquel.marzo@ibv.org.

Researchers:

Amparo López Vicente (amlovi@ibv.org)

Carol Soriano García (carol.soriano@ibv.org)

Juan F. Giménez Plá (jugimen@ibv.org)

Head of unit:

Raquel Marzo Roselló (raquel.marzo@ibv.org)

(Universitat Politècnica de Valencia, Camino de Vera s/n, Edificio 9C, 46022, Valencia, Spain, Tel: +34 96 111 11 70)

Thank you for considering your participation in this research project.

CONSENT FORM

(consent form follows).

By filling in the following form, I declare:

1. I confirm that I have read and understand the information sheet for the above research project. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time during my participation in this research project and within 2 weeks after I took part in the research project, without giving any reason. If I withdraw within 2 weeks of taking part in the research project my data will be removed.
3. I understand that any information given by me may be used in future reports, academic articles, publications or presentations by the researcher(s), but my personal information will not be included and all reasonable steps will be taken to protect the anonymity of the participants involved in this project.
4. I understand that the information I will provide is related to identify the public and private needs in the urban logistics ecosystem, and to assess initiatives related to urban logistics organized in four categories (land use, environmental impact, traffic management, and service quality) and its related information.
5. I understand that any information I give will remain strictly confidential and anonymous and will be used exclusively for this research project.
6. I understand that my name/my organisation's name will not appear in any reports, articles or presentation without my consent.
7. I understand that my answers will be recorded, but my personal data (name, surname, email-address, ...) will not be saved or linked to my answers, so my contribution is anonymous and that the data will be protected on encrypted devices and kept secure.
8. I understand that data will be kept according to the University of Lancaster guidelines for a minimum of 10 years after the end of the research project.
9. I agree to take part in the above research project.

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage:

www.lancaster.ac.uk/research/data-protection

* 1. Consent form: (required response to participate in the study)

- I have read the project information
- I accept the data protection policy
- I accept the participation in the study

Note: We recommend obtaining a printed version of the consent form by right-clicking in an empty area and selecting 'Print' from the menu.



Template_UNCHAIN-Survey-English

1. USER CHARACTERIZATION

* 2. Please indicate your country of residence

- | | | |
|--|-------------------------------|--------------------------------------|
| <input type="radio"/> Germany | <input type="radio"/> Spain | <input type="radio"/> Lithuania |
| <input type="radio"/> Austria | <input type="radio"/> Estonia | <input type="radio"/> Luxembourg |
| <input type="radio"/> Belgium | <input type="radio"/> Finland | <input type="radio"/> Malt |
| <input type="radio"/> Bulgaria | <input type="radio"/> France | <input type="radio"/> Netherlands. |
| <input type="radio"/> Cyprus | <input type="radio"/> Greece | <input type="radio"/> Poland |
| <input type="radio"/> Croatia | <input type="radio"/> Hungary | <input type="radio"/> Portugal |
| <input type="radio"/> Denmark | <input type="radio"/> Ireland | <input type="radio"/> Czech Republic |
| <input type="radio"/> Slovenia | <input type="radio"/> Italy | <input type="radio"/> Romania |
| <input type="radio"/> Slovakia | <input type="radio"/> Latvia | <input type="radio"/> Sweden |
| <input type="radio"/> Other (please specify) | | |

* 3. Please indicate your age:

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 65+
- Prefer not to say

* 4. Please state your gender, as you self-identify:

- Female
- Non-binary
- Male
- Prefer not to say

* 5. Please, indicate your main country and cities where you operate:

- | | | |
|--|-------------------------------|--------------------------------------|
| <input type="radio"/> Germany | <input type="radio"/> Spain | <input type="radio"/> Lithuania |
| <input type="radio"/> Austria | <input type="radio"/> Estonia | <input type="radio"/> Luxembourg |
| <input type="radio"/> Belgium | <input type="radio"/> Finland | <input type="radio"/> Malt |
| <input type="radio"/> Bulgaria | <input type="radio"/> France | <input type="radio"/> Netherlands. |
| <input type="radio"/> Cyprus | <input type="radio"/> Greece | <input type="radio"/> Poland |
| <input type="radio"/> Croatia | <input type="radio"/> Hungary | <input type="radio"/> Portugal |
| <input type="radio"/> Denmark | <input type="radio"/> Ireland | <input type="radio"/> Czech Republic |
| <input type="radio"/> Slovenia | <input type="radio"/> Italy | <input type="radio"/> Romania |
| <input type="radio"/> Slovakia | <input type="radio"/> Latvia | <input type="radio"/> Sweden |
| <input type="radio"/> Other (please specify) | | |

6. Cities:

1.	<input style="width: 150px; height: 20px;" type="text"/>
2.	<input style="width: 150px; height: 20px;" type="text"/>
3.	<input style="width: 150px; height: 20px;" type="text"/>
4.	<input style="width: 150px; height: 20px;" type="text"/>

* 7. Please, indicate your professional profile related to logistics:

- Public administration. Logistics regulator
- Logistics planner
- Logistics manager / Distribution manager
- Delivery person / dealer (delivery employee)
- Big retailer with distribution to private customer
- Small retailer with distribution to private customer
- Other (please specify)

Template_UNCHAIN-Survey-English

2. DELIVERY MODE CHARACTERIZATION (FOR LOGISTICS PROFESSIONALS)

* 8. What type of product do you mainly distribute during your journey? Matrix response by type and frequency. (You can choice more than one)

	Several times a day	Once a day	Twice - four a week	Twice - four a month	Occasionally	Urgent/on-demand deliveries	Never	Others
Metallurgy and construction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Machinery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Automotive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic devices and computing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Household items (furniture, accessories, removals...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Textile: Clothing, footwear and accessories (distribution to point of sale)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pharmacy, drugstore and cosmetics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Press, stationery and elements for advertising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food, drink, catering, cafeteria (distribution to point of sale)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-commerce deliveries. Purchases of household supplies, cleaning, food, takeaway food... (distribution to the consumer)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>							

* 9. Indicate the type of load you work, according to its weight: (you can choice more than one)

- Light loads: these are loads that do not exceed 5 kg.
- Medium loads: this type of merchandise has a minimum weight of 5 kg and a maximum of 25 per load unit.
- Heavy loads: in this case, the weight varies between 25 kg and one ton.
- Very heavy loads: greater than a ton.

* 10. Indicate the type of client with which you relate:

- Point of sale / professional customer
- Private customer (at home)
- Both

* 11. Please indicate the transport mode that you use: (you can choice more than one)

- Scooter
- Bike
- Cargo bike
- Motorcycle
- Car
- Small van (maximum load capacity of 800 kg)
- Van (up to 3,500 kg).
- N1 truck (up to 3,500 kg).
- N2 truck (between 3,500 kg and 12,000 kg).
- N3 truck (exceeds 12,000 kg).
- Other (please specify)

* 12. Indicate the type of energy used by your delivery vehicle:

- Manual vehicle
- Electric vehicle
- Hybrid vehicle
- Fuel vehicle
- Hydrogen or gas vehicle

13. Indicate the year of registration of the vehicle you use (or the years if there are several):

* 14. Indicate the time you need each time you park to complete the deliveries:

- A delivery in less than 5 minutes
- One or several deliveries between 5 and 15 minutes
- One or several deliveries between 16 and 25 minutes
- One or several deliveries between 26 and 45 minutes
- One or several deliveries between 46 minutes and 1 hour
- One or several deliveries between 1 hour and 1 hour and a half
- More than 1 hour and a half

* 15. If you make more than one delivery per parking lot, what average number of deliveries do you make each time you stop (for example, every time I park the vehicle I make 3-5 deliveries):

- 1-2
- 3-5
- 6-10
- 11-15
- 16-20
- More than 20



Template_UNCHAIN-Survey-English

3. LOGISTICS SERVICE QUALITY (IMPORTANCE AND SATISFACTION) (all the profiles)

* 16. From your point of view, which is the severity level of the following issues, related to logistics?

	Does not apply	Secondary incidence (small annoyance)	Main incidence (affects the functionality of the service)	Critical incidence (prevents the performance of the service)
Small areas for loading and unloading tasks, according to the size of the vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not enough loading and unloading areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loading and unloading areas very far from the delivery point (there is a long distance and the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

delivery time is increased)				
Occupation of loading and unloading areas by non-delivery vehicles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very limited time of use of the loading and unloading area (insufficient for the type of delivery)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fines for exceeding the established loading and unloading time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When releasing the area on time and the delivery is not completed, you have to look for a new parking lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased circulation and greater mileage are generated by having to change the loading/unloading zone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public road not suitable for delivery (access, asphalt, sidewalks, lack of bike lanes...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access restrictions to certain areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduction in the number of street lanes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to park in areas with bike lanes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Little tolerance from citizens due to noise, interference in activity with customers, different needs depending on the product...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Failed deliveries. You do not have an alternative place to leave the parcel in his absence or if he cannot deal with you does not attend to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Traffic congestion problems (traffic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

jams, delivery time delays...)				
Difficulty in making decisions to change routes that avoid congested areas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very restrictive delivery schedule (difficulties to complete the daily delivery)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Different regulations in each city and municipality (difficult to know if you meet the access requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very restrictive regulations (access, noise, vehicle tonnage, type, age...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of information to carry out efficient delivery routes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of electric vehicle charging infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient or poorly targeted aid (does not consider the characteristics of the sector)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Navigation apps and shared data aimed at monitoring the activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too much delivery points and vehicles operating due to home deliveries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other problems (please specify)	<input type="text"/>			

* 17. Please rate the importance of the following delivery and logistics requirements for you:

	Not applicable	No interest	Less important	Somewhat important	Important	Essential
Fastest and safest route to deliver a parcel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Efficiency of the route to reach the delivery point (the least km)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time in delivering the product (loading and unloading)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery of the product in good condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery of the product at the agreed time (punctuality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety process for the operator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local regulatory compliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery on the first try	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery without order confusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Process agility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring/traceability of the process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being able to make decisions during the process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce CO2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce noise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce conflict and improve coexistence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incidence management and solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication with the customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative delivery point when specific restrictions occur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

* 18. Please, indicate the level of satisfaction that do you have with the following requirements currently:

	Not applicable	Not satisfactory	Slightly satisfactory	Somewhat Satisfactory	Satisfactory	Very satisfactory
Fastest and safest route to deliver a parcel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Efficiency of the route to reach the delivery point (the least km)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time in delivering the product (loading and unloading)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery of the product in good condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery of the product at the agreed time (punctuality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety process safety for the operator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local regulatory compliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery on the first try	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delivery without order confusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Process agility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring/traceability of the process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being able to make decisions during the process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce CO2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce noise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce conflict and improve coexistence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incidence management and solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication with the customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative delivery point when specific restrictions occur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Template_UNCHAIN-Survey-English

4. POTENTIAL IMPROVEMENTS DURING THE ROUTE (TRAFFIC MANAGEMENT)

* 19. Four solutions to improve logistics related to traffic management are described below. Select the requirements in which the measures will generate a strong positive impact: (maximum three responses)

Linked solutions:

- **DATA STANDARDISATION** microservices. To provide a data exchange ecosystem with smart city data and logistics services.
- **PLANNING KIT** for facilities operators and urban planners. To monitor and forecast the freight demand and needs of UCCs for regulate and prioritize.
- **ACTIVE UVARs**. By using georeferencing to digitalise UVAR and temporary regulations and warn logistic drivers in advance.
- **ROUTE PLANNING**. To leverage and exploit the existing traffic data to develop advanced predictive models. Marks where the vehicle is and offer alternatives.

Requirements for each question:

	DATA STANDARDISATION	PLANNING KIT	ACTIVE UVARs	ROUTE PLANNING	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficiency of the route to reach the delivery point (the least km)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time in delivering the product (loading and unloading)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product at the agreed time (punctuality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety process for the operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Dynamic management of **PICKUP/ DROP-OFF POINTS**. Keys of the design and features of these solutions to accommodate the interests of different stakeholders and dynamically manage requests and priorities.
- **IT POP-UP DELIVERY POINTS** management tool. Allow authorities, parking and UDCs/UCCs managers setting up geofences and reallocating public/private non-logistics spaces as popup delivery areas on-demand.

Requirements for each question:

	EFFICIENT LAND USE	LOADING ZONES PLANNING TOOL	CURB SIDE MANAGEMENT	PICKUP/ DROP-OFF POINTS	IT POP-UP DELIVERY POINTS	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficiency of the route to reach the delivery point (the least km)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time in delivering the product (loading and unloading)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product at the agreed time (punctuality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety process for the operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery on the first try	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery without order confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process agility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring/traceability of the process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being able to make decisions during the process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce CO2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce conflict and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

improve coexistence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incidence management and solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication with the customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative delivery point when specific restrictions occur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Template_UNCHAIN-Survey-English

6. OTHER ASPECTS TO IMPROVE THE LOGISTICS (ENVIRONMENTAL IMPACT)

* 21. Four solutions to improve logistics related to environmental impact are described below. Select the requirements in which the measures will generate a strong positive impact: (maximum three responses)

Linked solutions:

- **SUMPs AND SULPs GUIDANCE** tool. To include the logistics in the decision-making process of sustainable urban mobility (different alternatives to CO2 reduction, to unify local regulations, to include metropolitan areas...)
- **KNOWLEDGE POWERHOUSE** for urban logistics guidance tool.
- Logistics operator **MONITORING system AND INCENTIVES**. Reward-based access policy through the definition of geographical and temporal rules monitoring the drivers' behaviour in daily operation against a "compliance index".
- Advanced Management IT Cockpit of **SHARED FACILITIES**. Space and cost-efficient sharing of resources at urban logistics hubs and consolidation centres.

Requirements for each question:

	SUMPs AND SULPs GUIDANCE	KNOWLEDGE POWERHOUSE	MONITORING system AND INCENTIVES	SHARED FACILITIES	NOT APPLICABLE / No solution generates a positive impact on this requirement
The fastest route to deliver a parcel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Efficiency of the route to reach the delivery point (the least km)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time in delivering the					

product (loading and unloading)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery of the product at the agreed time (punctuality)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety process for the operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery on the first try	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delivery without order confusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process agility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring/traceability of the process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being able to make decisions during the process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce CO2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduce conflict and improve coexistence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incidence management and solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication with the customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative delivery point when specific restrictions occur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. Finally, if the entity you represent wants to appear as a collaborator in this study, indicate the name of the entity:

ANNEX 7. Survey results



Overview

- 01 USER CHARACTERIZATION
- 02 DELIVERY MODE CHARACTERIZATION
- 03 LOGISTICS SERVICE QUALITY
- 04 POTENTIAL IMPROVEMENTS DURING THE ROUTE
- 05 POTENTIAL IMPROVEMENTS DURING PARK AND DELIVER
- 06 OTHER ASPECTS TO IMPROVE THE LOGISTICS
- 07 SIGNIFICANT DIFFERENCES
- 08 CONCLUSIONS



01

USER CHARACTERIZATION



Introduction and Description of the study sample

Introduction

With the aim of obtaining the relative weight of the most relevant aspects related to urban logistics improvements identified through the qualitative research, we performed a survey in seven different countries. These countries are those represented in the UPPER consortium by pilot sites, i.e. Berlin-Germany, Florence-Italy, Madrid-Spain, Funchal-Portugal, Mechelen-Belgium, Prague-Czech Republic, and Riga-Latvia.

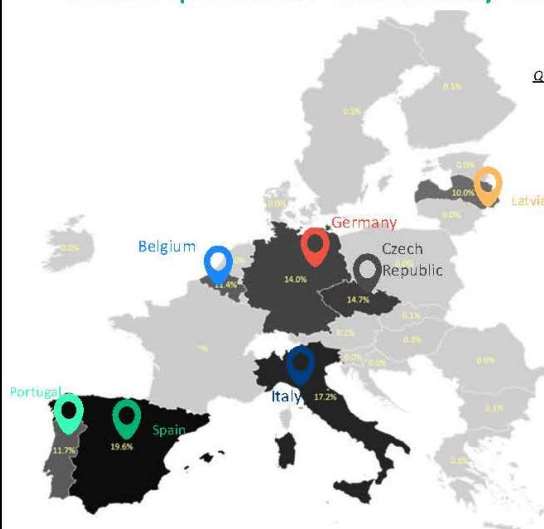
The answers were collected from November 8th 2023, to December 4th 2023.

Description of the study sample

- The overall sample consists of 654 users from various European countries participating in the UNCHAIN project, including **Belgium**, the **Czech Republic**, **Germany**, **Italy**, **Latvia**, **Portugal**, and **Spain**. The sample was not stratified, making it representative of the overall population. The gender distribution is **66% male** and **32% female**.
- Geographically, the sample is predominantly located in major cities such as **Madrid**, **Prague**, **Berlin**, **Riga**, **Florence**, **Lisbon**, **Funchal**, **Brussels**, **Loulé**, **Porto**, **Siena**, **Rome**, **Pisa**, **Livorno**, and others.



Description of the Study Sample



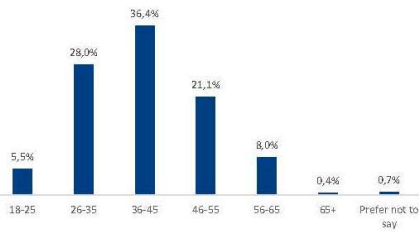
Question: Please indicate your country of residence

Countries in which the survey has been conducted:	FREQUENCY	%
Spain	127	19.4%
Portugal	70	10.7%
Italy	113	17.3%
Germany	105	16.1%
Belgium	78	11.9%
Czech Republic	93	14.2%
Latvia	68	10.4%
TOTAL SAMPLE	654	



Sociodemographic and Professional Profile

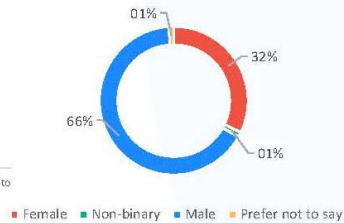
Question: Please indicate your age:



Age

Age distribution follows a normal curve, with the highest population density occurring between the ages of 26 and 55 (85.5%).

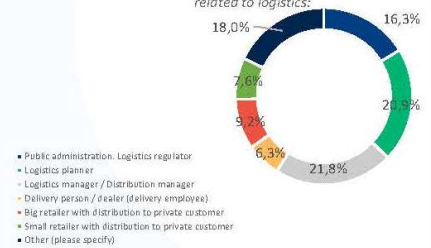
Question: Please state your gender, as you self-identify:



Gender

The gender distribution is 65.9% male, 32.0% female, 1.0% non-binary, and 1.0% prefer not to say.

Question: Please, indicate your professional profile related to logistics:



Professional profile

The most representative group is composed of "logistics managers/distribution managers", followed by "logistics planners" and individuals in public administration, specifically "logistics regulators".

Sociodemographic and Professional Profile

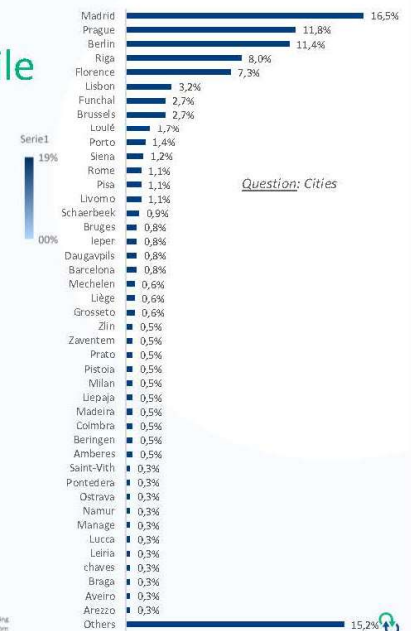
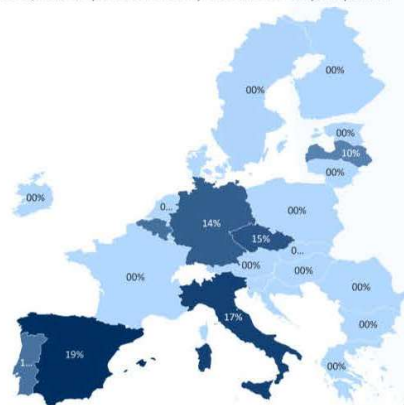
Question: Please, indicate your main country and cities where you operate:

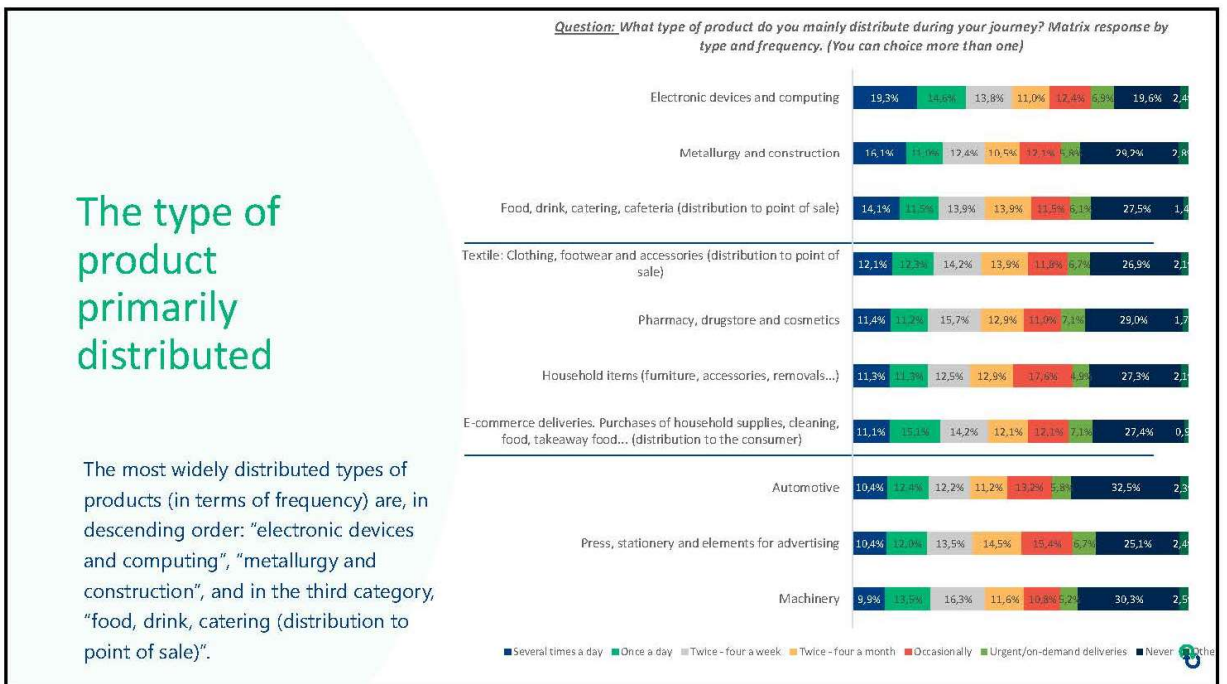
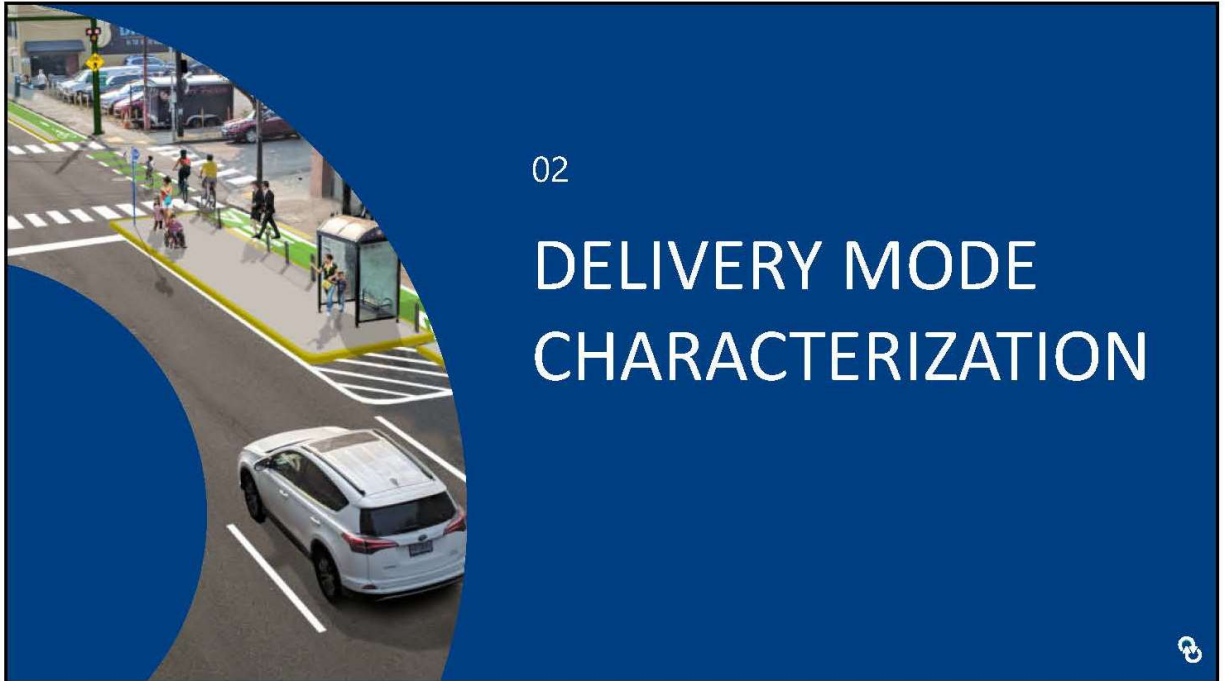
Countries and cities:

The countries with the highest number of responses are those involved in the project, although the sample has been expanded to include all of Europe

The cities with the largest sample size include :

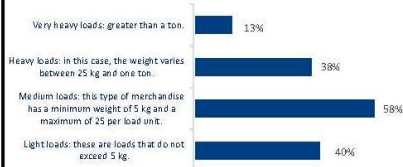
Madrid, Prague, Berlin, Riga, Florence, Lisbon, Funchal, Brussels, Loulé, Porto, Siena, Rome, Pisa, Livorno, etc.





Type of Load, Client and Transport mode

Question: Indicate the type of load you work, according to its weight: (you can choice more than one)



Type of Load

The predominant type of distributed cargo consists mainly of medium loads or light loads.

Question: Indicate the type of client with which you relate:



Type of client

The primary target clientele for distribution consists predominantly of "Point of Sale/Professional Customers" (43%)

Question: Please indicate the transport mode that you use: (you can choice more than one)

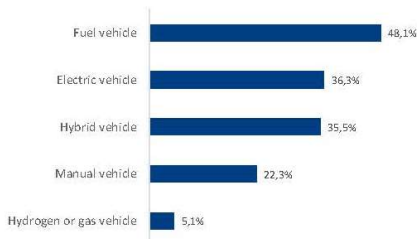


Tranport mode

The predominant types of vehicles used for distribution are as follows: cars (46.8%), vans (up to 800 kg) (35.3%), and small vans (30.9%)

Type of Energy used and Year of registration of the vehicle:

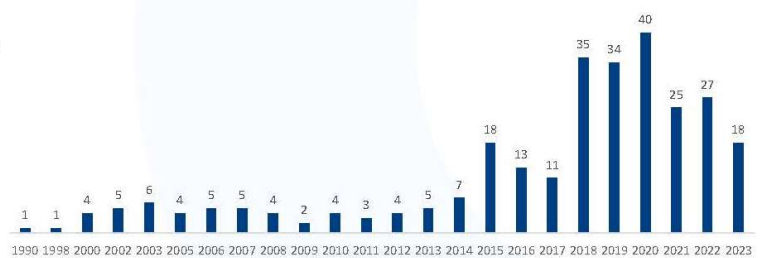
Question: Indicate the type of energy used by your delivery vehicle



Type of Energy used

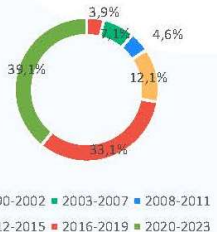
The primary source of energy used in vehicles is conventional fuel (48.1%), followed by electric vehicles (36.3%).

Question: Indicate the year of registration of the vehicle you use (or the years if there are several)



Year of registration of the vehicle

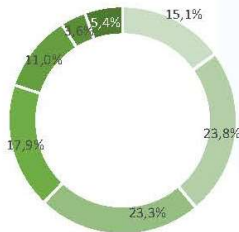
The majority of vehicles are registered within the range of the years 2016 to 2023 (72.2%)



Time and Number of deliveries per parking lot:

Question: Indicate the time you need each time you park to complete the deliveries:

- A delivery in less than 5 minutes
- One or several deliveries between 5 and 15 minutes
- One or several deliveries between 16 and 25 minutes
- One or several deliveries between 26 and 45 minutes
- One or several deliveries between 46 minutes and 1 hour
- One or several deliveries between 1 hour and 1 hour and a half
- More than 1 hour and a half

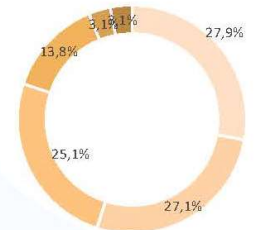


Time of park

The majority of deliveries are completed within a short timeframe, with a maximum of 25 minutes (62.3%).

Question: If you make more than one delivery per parking lot, what average number of deliveries do you make each time you stop (for example, every time I park the vehicle I make 3-5 deliveries):

- 1-2
- 3-5
- 6-10
- 11-15
- 16-20
- Más de 20



Number of deliveries

The maximum number of deliveries per stop is 10 deliveries (80.1%).

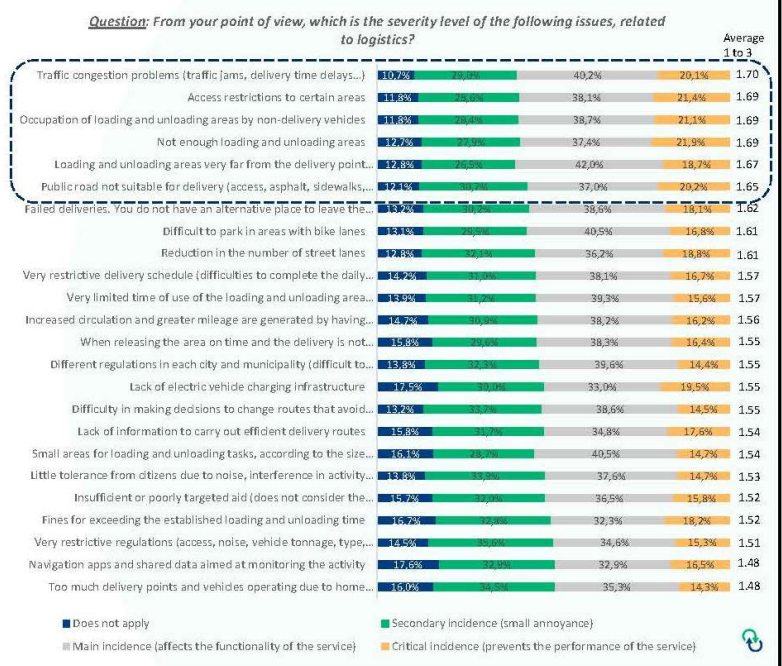


03

LOGISTICS SERVICE QUALITY

Logistics-Related Challenges

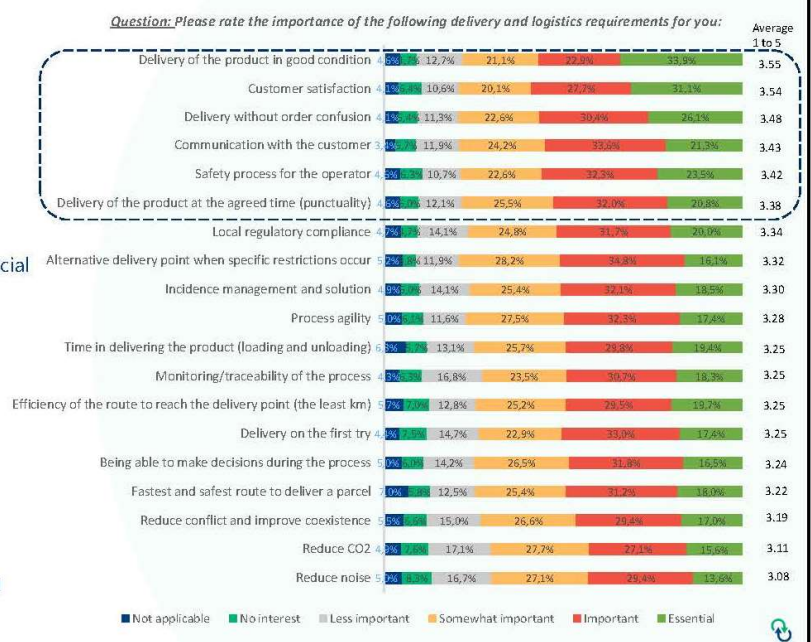
The key aspects to be improved in logistics are all related to traffic management and loading/unloading areas (size, occupancy, accessibility, quantity, etc.).



Importance of delivery and logistics requirements:

The requirements deemed most crucial are:

- Delivery of the product in good condition.
- Customer satisfaction
- Delivery without order confusion
- Communication with the customer
- Safety process for the operator
- Delivery of the product at the agreed time (punctuality)

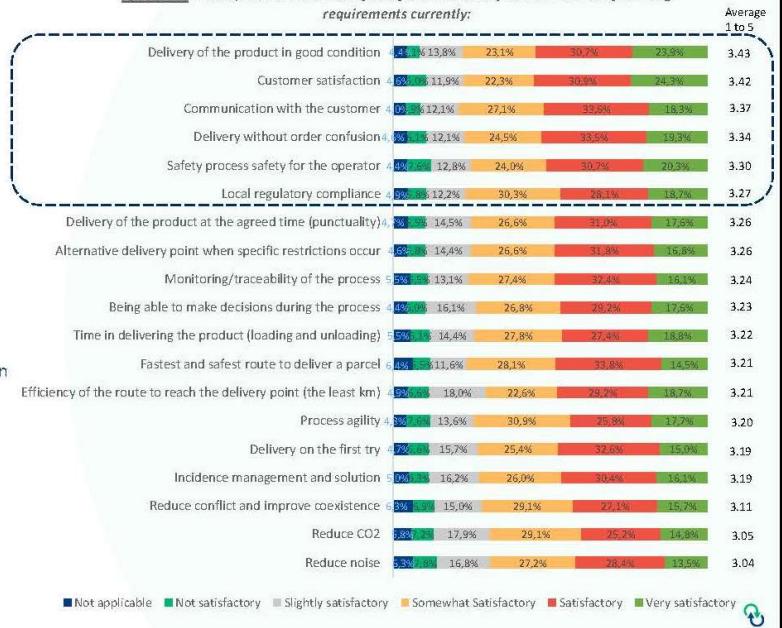


Satisfaction of delivery and logistics requirements:

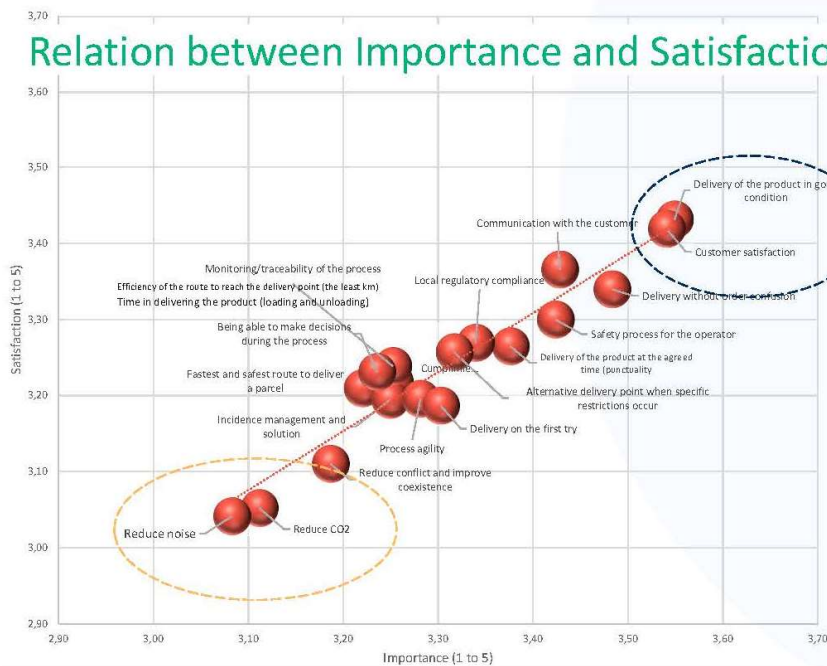
The requirements that are better addressed, with a higher level of satisfaction, include:

- Delivery of the product in good condition
- Customer satisfaction
- Communication with the customer
- Delivery without order confusion
- Safety process for the operator
- Local regulatory compliance

Question: Please, indicate the level of satisfaction that do you have with the following requirements currently:




Relation between Importance and Satisfaction



There is a high correlation between importance and satisfaction (0.96); the requirements considered more important are better resolved. Standouts as the most important and well-addressed aspects include the product arriving in good condition and customer satisfaction.

Conversely, what stands out as less important and less well-resolved includes noise and CO2 reduction.




04 – 05 - 06

POSITIVE IMPACT OF THE KEY EXPLOITABLE RESULTS (KERs)

- KER2_VMZ. **SUMPs and SULPs guidance tool**
- KER3_BV. **Freight Efficiency Land Use**
- KER4_VMZ. **UCC location and integrated planning KIT**
- KER5_ETRA. **On-street loading zones planning tool**
- KER6_MUNI. **Active UVARs and city regulations tools**
- KER7_EITUM. **Knowledge powerhouse for urban logistics**
- KER8_ETRA. **Dynamic curb side management**
- KER9_MUNI. **Dynamic management of pick-up/drop-off points**
- KER10_ETRA. **IT Pop-Up delivery points management tool**
- KER11_MUNI. **Logistics operator monitoring system and incentives tool**
- KER12_VMZ. **Congestion forecasting and safe route planning**
- KER13_ETRA. **Advanced Management IT Cockpit of Shared Facilities**

8



04

POTENTIAL IMPROVEMENTS DURING THE ROUTE

8

POTENTIAL IMPROVEMENTS DURING THE ROUTE (TRAFFIC MANAGEMENT):

The most relevant traffic management KERs (key exploitable results), for improve the delivery routes, are:

- Route planning
- Planning kit

All the traffic management KERs generate a positive impact on logistics requirements.

WHAT AND HOW MATRIX	KER1 DATA	KER4	KER6 ACTIVE	KER12	NOT APPLICABLE / No solution generates a positive impact on this requirement
	STANDARDISATION	PLANNING KIT	UVARs	ROUTE PLANNING	
Fastest and safest route to deliver a parcel	31.0%	30.0%	23.7%	40.1%	5.5%
Efficiency of the route to reach the delivery point (the last km)	25.9%	34.0%	25.9%	37.7%	5.7%
Time in delivering the product (loading and unloading)	27.4%	33.2%	26.4%	32.1%	7.1%
Delivery of the product in good condition	24.4%	33.8%	27.8%	25.9%	12.3%
Delivery of the product at the agreed time (punctuality)	25.2%	34.0%	27.0%	36.6%	7.7%
Safety process for the operator	25.3%	32.9%	28.0%	28.8%	11.0%
Customer satisfaction	25.9%	33.3%	27.4%	30.8%	9.4%
Local regulatory compliance	26.1%	30.5%	31.9%	25.8%	10.1%
Delivery on the first try	23.0%	32.9%	27.4%	35.2%	9.9%
Delivery without order confusion	25.5%	35.1%	24.4%	29.2%	10.7%
Process agility	24.5%	33.8%	30.5%	29.2%	9.4%
Monitoring/traceability of the process	28.5%	32.4%	28.1%	31.3%	8.8%
Being able to make decisions during the process	25.6%	36.0%	26.1%	27.4%	10.7%
Reduce CO2	20.9%	30.2%	28.6%	30.0%	11.5%
Reduce noise	19.2%	29.9%	30.2%	24.5%	14.8%
Reduce conflict and improve coexistence	23.6%	32.1%	33.3%	28.5%	12.9%
Incidence management and solution	23.9%	32.9%	28.6%	29.4%	11.6%
Communication with the customer	26.7%	29.9%	29.4%	25.8%	12.4%
Alternative delivery point when specific restrictions occur	22.6%	34.1%	29.1%	31.8%	10.1%
TOTAL	25.0%	32.7%	28.1%	30.4%	10.1%



05

POTENTIAL IMPROVEMENTS DURING PARK AND DELIVER



POTENTIAL IMPROVEMENTS DURING PARK AND DELIVER (LAND USE):

The most relevant land use KERs (key exploitable results), for improve the park and delivery activities, are:

- Loading zones planning tool
- Pick up / Drop off points

All the land use KERs generate a positive impact on logistics requirements.

WHAT AND HOW MATRIX	KER3 EFFICIENT LAND USE	KER5 LOADING ZONES PLANNING TOOL	KER8 CURB SIDE MANAGEMENT	KER9 PICKUP/DROP-OFF POINTS	KER10 IT POP-UP DELIVERY POINTS	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	32.4%	35.2%	24.3%	31.3%	13.8%	4.9%
Efficiency of the route to reach the delivery point (the last km)	28.0%	36.8%	27.0%	29.8%	13.8%	5.6%
Time in delivering the product (loading and unloading)	23.4%	35.8%	30.6%	32.6%	15.2%	5.1%
Delivery of the product in good condition	19.1%	32.7%	24.9%	30.8%	16.3%	10.5%
Delivery of the product at the agreed time (punctuality)	26.1%	42.0%	33.5%	39.3%	20.4%	7.4%
Safety process for the operator	20.0%	35.4%	31.7%	27.2%	14.7%	9.8%
Customer satisfaction	19.6%	28.7%	27.4%	34.2%	16.9%	10.3%
Local regulatory compliance	22.9%	35.4%	29.1%	28.0%	15.8%	9.0%
Delivery on the first try	19.9%	34.8%	26.8%	33.2%	16.7%	7.2%
Delivery without order confusion	20.1%	33.5%	23.6%	32.7%	13.7%	11.3%
Process agility	23.3%	36.9%	29.1%	28.4%	16.5%	8.2%
Monitoring/traceability of the process	18.9%	34.2%	27.1%	31.5%	16.9%	9.5%
Being able to make decisions during the process	18.6%	35.2%	27.0%	28.3%	14.1%	12.0%
Reduce CO2	21.0%	32.3%	26.3%	29.1%	14.9%	12.0%
Reduce noise	18.5%	30.7%	26.8%	28.6%	14.9%	12.7%
Reduce conflict and improve coexistence	21.2%	32.1%	28.9%	31.3%	12.5%	11.9%
Incidence management and solution	22.8%	31.3%	27.0%	27.6%	13.3%	13.3%
Communication with the customer	14.1%	31.1%	22.8%	29.7%	16.7%	13.5%
Alternative delivery point when specific restrictions occur	17.8%	33.1%	28.6%	35.8%	18.3%	8.3%
TOTAL	21.5%	34.1%	27.5%	31.0%	15.6%	9.6%



06

POTENTIAL ENVIRONMENTAL IMPACT IMPROVEMENTS

POTENTIAL ENVIRONMENTAL IMPACT IMPROVEMENTS:

The most relevant KERs (key exploitable results), for improve the environmental impact , are:

- Monitoring and incentives
- Knowledge powerhouse

All the KERs related to environmental impact generate a positive impact on logistics requirements.

WHAT AND HOW MATRIX	KER2 SUMP _s AND SULP _s GUIDANCE	KER7 KNOWLEDGE POWERHOUSE	KER11 MONITORING AND INCENTIVES	KER13 IT Cockpit of SHARED FACILITIES	NOT APPLICABLE / No solution generates a positive impact on this requirement
Fastest and safest route to deliver a parcel	32.1%	34.1%	36.2%	22.8%	6.7%
Efficiency of the route to reach the delivery point (the last km)	30.6%	39.1%	36.1%	21.2%	5.9%
Time in delivering the product (loading and unloading)	29.2%	31.4%	39.3%	26.3%	7.1%
Delivery of the product in good condition	20.8%	31.7%	37.3%	24.5%	12.3%
Delivery of the product at the agreed time (punctuality)	25.2%	34.9%	40.7%	25.5%	8.8%
Safety process for the operator	22.3%	34.8%	38.8%	25.6%	10.1%
Customer satisfaction	22.0%	30.6%	39.3%	26.1%	11.2%
Local regulatory compliance	26.8%	32.7%	41.5%	21.8%	8.7%
Delivery on the first try	21.5%	34.6%	39.1%	21.2%	9.8%
Delivery without order confusion	22.9%	35.7%	39.4%	22.1%	11.2%
Process agility	23.4%	37.0%	35.9%	24.8%	7.9%
Monitoring/traceability of the process	22.4%	34.8%	41.5%	22.8%	8.2%
Being able to make decisions during the process	23.6%	34.6%	36.5%	22.6%	11.4%
Reduce CO2	28.4%	30.1%	34.0%	21.6%	11.5%
Reduce noise	25.8%	28.8%	34.1%	21.2%	11.7%
Reduce conflict and improve coexistence	26.4%	33.8%	35.4%	24.2%	13.1%
Incidence management and solution	21.8%	36.2%	38.6%	21.5%	10.6%
Communication with the customer	18.4%	33.8%	38.8%	24.2%	12.5%
Alternative delivery point when specific restrictions occur	22.3%	32.5%	41.2%	26.3%	9.1%
TOTAL	24.5%	33.8%	38.1%	23.5%	9.9%



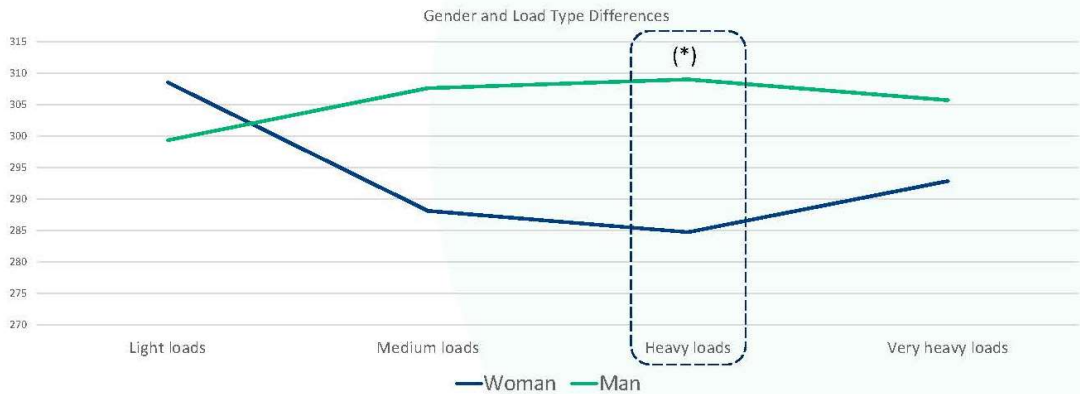
07

SIGNIFICANT DIFFERENCES



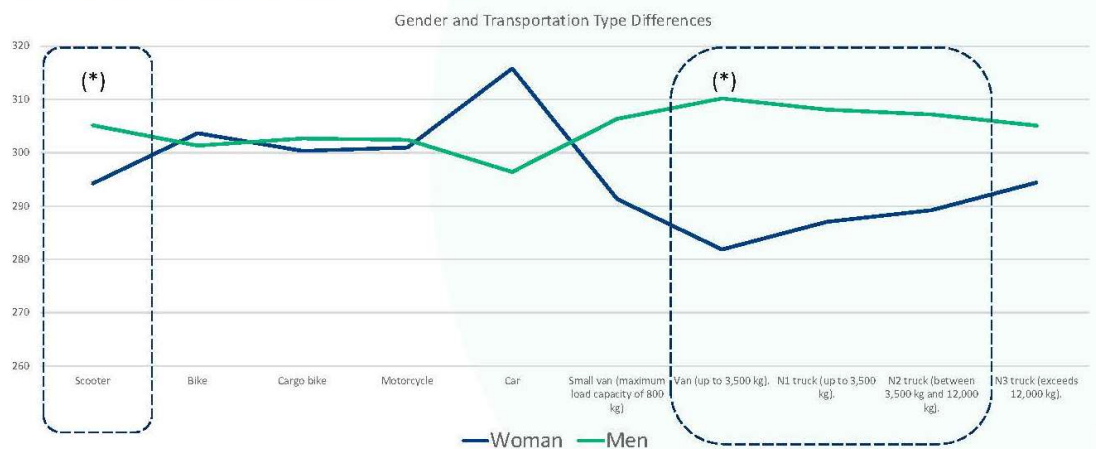
SIGNIFICANT GENDER DIFFERENCES (I):

The significant gender differences occur only in the **type of load**, with men being the ones who predominantly handle **heavy load** distribution. However, there are no significant differences in handling light, medium, and very heavy loads.



SIGNIFICANT GENDER DIFFERENCES (II):

There are also significant differences in the type of transportation used, with men significantly using more than women: scooters, large vans, and trucks N1 and N2.



OTHER SIGNIFICANT DIFFERENCES (III):

TYPE OF LOAD:

- When carrying light loads, they use more scooters, bikes, cars, and small vans. However, when dealing with very heavy loads, they rely more on heavy-duty transportation, as expected.

TYPE OF ENERGY:

- Emphasize that when they have to distribute very heavy loads, they either do not use manual energy or use less manual energy.

CRITICAL INCIDENCE:

- In **light loads**, the aspect related to **“Different regulations in each city and municipality (difficult to know if you meet the access requirements)”** becomes significantly more critical.
- Within the **medium loads**, aspects related to **“Little tolerance from citizens due to noise, interference in activity with customers, different needs depending on the product...”** and **“Insufficient or poorly targeted aid’ become significantly more critical”**.



OTHER SIGNIFICANT DIFFERENCES (IV):

CRITICAL INCIDENCE:

- In **heavy loads**, aspects related to are significantly more critical:
 - Increased circulation and greater mileage are generated by having to **change the loading/unloading zone**,
 - **Very restrictive regulations** (access, noise, vehicle tonnage, type, age...),
 - **Lack of electric vehicle charging infrastructure** and
 - **Navigation apps and shared data aimed at monitoring the activity.**
- In **very heavy loads**, the aspect related to **“Little tolerance from citizens due to noise, interference in activities with customers, and varying needs depending on the product”** becomes more critical.

IMPORTANCE AND SATISFACTION:

- In **light loads**, the level of satisfaction is highlighted in terms of **“Delivery of the product in good condition”** and **“Being able to make decisions during the process”**.
- In **medium loads**, highlighted the importance of **“Reduce noise”** and the satisfaction of: **“Fastest and safest route to deliver a parcel”**, **“Reduce conflict and improve coexistence”** and **“Incidence management and solution”**.



OTHER SIGNIFICANT DIFFERENCES (V):

IMPORTANCE AND SATISFACTION:

- In **heavy loads**, highlighted the importance of “**Delivery on the first try**”, “**Monitoring/traceability of the process**”, “**Being able to make decisions during the process**”y “**Reduce conflict and improve coexistence**”.
- Finally in **very heavy loads**, highlighted the importance of “**Alternative delivery point when specific restrictions occur**”.



08

CONCLUSIONS



IMPORTANCE AND SATISFACTION CRITERIA:

- There is a high correlation between importance and satisfaction (0.96); the requirements considered more important are better resolved, which are: *Delivery of the product in good condition, Customer satisfaction, Delivery without order confusion, Communication with the customer, Safety process for the operator, and Delivery of the product at the agreed time (punctuality).*
- The most widely distributed types of products are *electronic devices and computing, metallurgy and construction*, and in the third category, *food, drink, catering* (distribution to point of sale). Many of them use large vehicles (large vans and trucks) in their distribution.
- Heavy loads (men being the ones who predominantly handle heavy load distribution) have greater critical incidences in issues such as: *Very restrictive regulations due to their features (access, noise, vehicle tonnage, type, age...), Lack of electric vehicle charging infrastructure, Navigation apps and shared data aimed at monitoring the activity, Little tolerance from citizens due to noise, interference in activities with customers and Increased circulation and greater mileage are generated by having to change the loading/unloading zone.*
- Finally, *Delivery on the first try, Monitoring/traceability of the process, Being able to make decisions during the process and Alternative delivery point when specific restrictions occur*, are interesting aspects to improve to a better satisfaction due their relevance for a heavy goods.



POTENTIAL IMPROVEMENTS:

All the identified requirements are linked with one or more than one UNCHAIN KER (key exploitable result).

The most strength relationships are established with the next requirements: The fastest route to deliver a parcel; Time in delivering the product (loading and unloading); Delivery of the product at the agreed time (punctuality).

The most valued KER are: Monitoring and incentives; Loading zones planning tool; Knowledge powerhouse; Planning kit;

The requirements that are perceived to be outside the scope of the KEYS, are: Safety process for the operator; Process Agility; To make decisions during the process; Reduce CO2; Reduce noise; Reduce conflict and improve coexistence; Incidence management and solution; and Communication with the customer.

The fastest route to deliver a parcel

Time in delivering the product (loading and unloading)

Delivery of the product at the agreed time (punctuality)

Efficiency of the route to reach the delivery point (the least km)
 Delivery of the product in good condition
 Customer satisfaction
 Local regulatory compliance
 Delivery on the first try
 Delivery without order confusion
 Monitoring/traceability of the process
 Alternative delivery point when specific restrictions occur
 Safety process for the operator
 Process agility
 Being able to make decisions during the process
 Reduce CO2
 Reduce noise
 Reduce conflict and improve coexistence
 Incidence management and solution
 Communication with the customer



ANNEX 8. Data summary

DATA	Format	Responsible	Storage (where)	Storage (for how long)	Integrity	Compatibility with other activities	Confidentiality
Delphi 1 st round	pptx	J.Giménez	IBV	5 years from project conclusion	ISO 27001		
Delphi 2 nd round (questionnaire)	xlsx	A.López	IBV	5 years from project conclusion	ISO 27001		
<i>Netnography</i>	xlsx	C.Soriano	IBV	5 years from project conclusion	ISO 27001		
Survey	xlsx	C.Soriano	IBV	5 years from project conclusion	ISO 27001		