



Senator

**Smart Network Operator Platform
enabling Shared, Integrated and
more Sustainable Urban Freight
Logistics**

[D4.5] Logistics planning report



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List of abbreviations

ABBREVIATION	DESCRIPTION
NTA	National Transport Authority
PIN	Prior Information Notice
RFI	Request for Information
SDD	Same day delivery
SME	Subject matter expert
UCC	Urban Consolidation Centre

1 Executive Summary

The purpose of deliverable 4.5 – “*Logistics Planning Report*” is to report on the analysis of the criteria needed to identify the number of endowment/intermediate logistics hubs required by a neighbourhood or suburb and logistic operations to run an Urban Consolidation Centre (UCC). The dissemination level of this deliverable is designated as “public”, it has been prepared by AN POST with the contribution of DCC and other partners, and is based on internal procedures and templates by ZABALA.

2 Introduction

2.1 Purpose

The main objective of D4.5 is to report the outcomes of Task 4.4 *Logistics Planning*. T.4.4 began with the analysis of local customers’ needs, with the goal of evaluating how urban infrastructure should be adapted to include freight demand trends provided by the SENATOR project, identifying how many endowment/intermediate logistics hubs are required by a neighbourhood or suburb. For example, the number of parcel lockers required, which delivery schedule results in the least amount of disturbance for citizens e.g. night delivery, traffic valley period, weekend period, backhauling. Through the task, the whole logistic plan including the integration of last mile logistics procedures (micro-logistics, night delivery, parcel lockers, cross-docking) was analysed.

The analysis was carried out by conducting the following:

1. Subject matter expert (SME) interviews
2. Citizen survey.

The results of both were reviewed and compared to existing research and literature.

2.2 Relation to other Deliverables

This deliverable may inform the work carried out as part of D5.6 Pilot Case 1 results and follow-up (Zaragoza) Report 2 and D5.8 Pilot Case 2 results and follow-up (Dublin) Report 2, both due for submission in month 43 (March 2024). In relation to T.4.4, main dependencies identified are T3.1, T3.2, T3.3, T3.4 and T4.1.

3 Subject matter expert interviews

3.1 SMEs in An Post and Correos

The SENATOR team in An Post conducted interviews with two SMEs within the organisation. A third SME could not attend an interview, in place of this they submitted answers to the interview questions in written format. The three SMEs in An Post have over 50 years combined experience in the area of logistics, they hold the positions of:

1. Head of Final Mile Operations
2. Head of Implementation
3. Head of Planning.

The SENATOR team in Correos conducted interviews with two SMEs within the organisation. The two SMEs in Correos have over 40 years combined experience in the area of logistics, they hold the positions of:

1. Head of the Territory Management Area of the Distribution Sub directorate
2. Communication North Area.

3.2 SME Interview Responses

The SME interview, questions are detailed in the [appendix](#), were conducted to evaluate how urban infrastructure should be adapted to include freight demand trends. Sections 3.2.1 to 3.2.5 below summarise the interview responses.

3.2.1 What are the biggest challenges associated with last mile deliveries?

One of the central challenges that emerged from the interviews is the challenge of creating sustainable solutions in a volatile market, aiming to achieve maximum efficiency at a reduced cost with minimal environmental and social impact. This on its own is a challenge but organisations must also deal with ecommerce volumes that fluctuate throughout the year, larger volumes during peak times such as Christmas need to be catered for whilst maintaining efficiencies.

Another key challenge that was highlighted is expectations from commercial customers who want to inject delivery items later and later but still require next day delivery. This coupled with the decline in letter volume and increase in parcels presents challenges due to the product and transport capacity limits.

Most of these challenges require innovative new ways of working, which can lead to employee relations issues.

The challenges presented by the interviewees are comparable to those highlighted by Mohammad, Nazih Diab and Elomri, (2023), they noted the increase in efforts by online retailers to provide next day delivery for their customers. Mohammad, Nazih Diab and Elomri, (2023) also highlighted the variance in volume, even week to week with Monday having peak volume compared to the rest of the week.

3.2.2 Delivery hubs and micro delivery units

Interviewees were asked how many delivery hubs are required by a suburb or neighbourhood, most agreed that this is a difficult question to answer because it is related to the demographic and profile of deliveries in a geographic area. By using a one size fits all approach there is a risk that deliveries could be more expensive or the effectiveness of deliveries may be reduced. Automation and changes to transport fleets is needed to create fit for purpose, effective, sustainable delivery hubs.

Another question related to this was the use of micro delivery units that are serviced by trikes/pedestrian routes for improving last mile logistics. Once again there was a degree of consensus that micro delivery units would be useful but primarily in high population density urban locations as vans are not suitable for all deliveries or areas. However, they would need to be easy to use and navigate and higher levels of automation would be required to ensure they worked efficiently.

Boysen, Fedtke, & Schwerdfeger (2021) highlighted that the fluctuation in delivery demand daily is one of the key challenges when determining locations for micro hubs. This is consistent with feedback from the interviewees, that micro hubs are best suited to population dense areas, in these areas demand is more consistent.

3.2.3 Organising last mile deliveries – optimum delivery schedules, night-time deliveries and pick-up points/parcel lockers

Interviewees suggested that staggered delivery shifts that avoid peak traffic congestion combined with the best technology to manage capacity, spikes, new challenges and daily demands with smart decision-making tools would enable selection of optimum delivery schedules.

All agreed that late afternoon and evening delivery would maximise the likelihood of first time delivery success. However, there would have to be a cut off time, 8pm was suggested, as after this time deliveries arriving at the door could prove a nuisance to customers.

One of the interviewees suggested that the customer should have more choice over where their delivery is sent, for example that the customer could choose a pick-up point or parcel locker at the online checkout. This would allow for later delivery as items being delivered to a pick-up point could be completed later than 8pm and not impact or disturb the customer.

Encouraging customers to get their items delivered to parcel lockers and pick-up points would create more optimum, efficient and sustainable delivery schedules, if there is a delivery to a pick-up point there could be items for 20/30/40 people instead of having to travel to 20/30/40 different addresses.

The points highlighted by the interviewees are consistent with research that suggests consolidation of deliveries through parcel lockers and pick-up points results in a reduction in emissions, congestion and demand for the curb side (Yuen, Wang, Wendy Ng, & Wong, 2018). For example, when a parcel locker or pick-up point is used by the customer carbon emissions can be reduced by up to 83% (Edwards, McKinnon, Cherrett, McLeod, & Song, 2010).

3.2.4 Cross-docking and backhauling

Interviewees were asked about cross-docking, the practice of unloading goods from inbound delivery vehicles and loading them directly onto outbound vehicles, and backhauling, eliminating or reducing empty miles by doing collections on delivery.

Once again all interviewees agreed that these methods could add value and efficiency to last mile delivery. They noted that a higher level of automation would be required to enable more granular sortation to allow for loading directly from inbound vehicles to outbound vehicles.

Backhauling has been shown to have both economic and environmental benefits (Awwad, Shekhar, & Sundaranarayanan Iyer, 2018). Interviewees agreed with this however, noted that it can produce an overload of the routes if it is not properly balanced, therefore analysis of the routes and vehicle capacity would have to be completed.

3.2.5 Additional considerations

The interviewees were given the opportunity to add any additional information or considerations at the end of the interview.

Same-day delivery was highlighted, it was noted that there is not a big demand for this yet but there will be demand in the near future. This is consistent with recent literature, as indicated by Ulmer & Streng (2019, p. 1) who stated that “same-day delivery (SDD) has become one of the hottest topics in e-commerce”. It was noted that most importantly same-day delivery is something that needs to be planned for in a sustainable manner.

Another factor that was highlighted is the need for city councils to bring new innovative transport modes such as eTrikes and scooters under an umbrella for traffic permissions and permits to encourage their use and uptake.

4 Citizen Survey

4.1 SENATOR Parcel Delivery Questionnaire

A survey to analyse customer needs, detailed in the [appendix](#), was developed and shared on the SENATOR social media channels:

- Website: [Have Your Say in the Future of Parcel Delivery in Europe \(senatorproject.eu\)](https://senatorproject.eu)
- Twitter: [SENATOR on Twitter: "📦🚚 Have you ever wished parcel delivery could be improved? 😊 Here's your chance to have a say! Join our #parceldelivery questionnaire and share your thoughts on more sustainable and convenient deliveries. Let's work towards a better future together 🤝 https://t.co/3KAPJY0uyB https://t.co/NH6jqtRsaN" / Twitter](https://twitter.com/senatorproject)
- LinkedIn: <https://www.linkedin.com/feed/update/urn:li:activity:7054770651600928769>

There were 54 responses, 57% of respondents were female, 39% were male and 4% did not specify. The respondents varied in age from 18 to 72, Figure 1 Age and Gender Distribution of Survey Respondents below illustrates the age and gender distribution. Four respondents stated they were currently living in Spain, two in Germany, one in the Netherlands and the rest in Ireland.

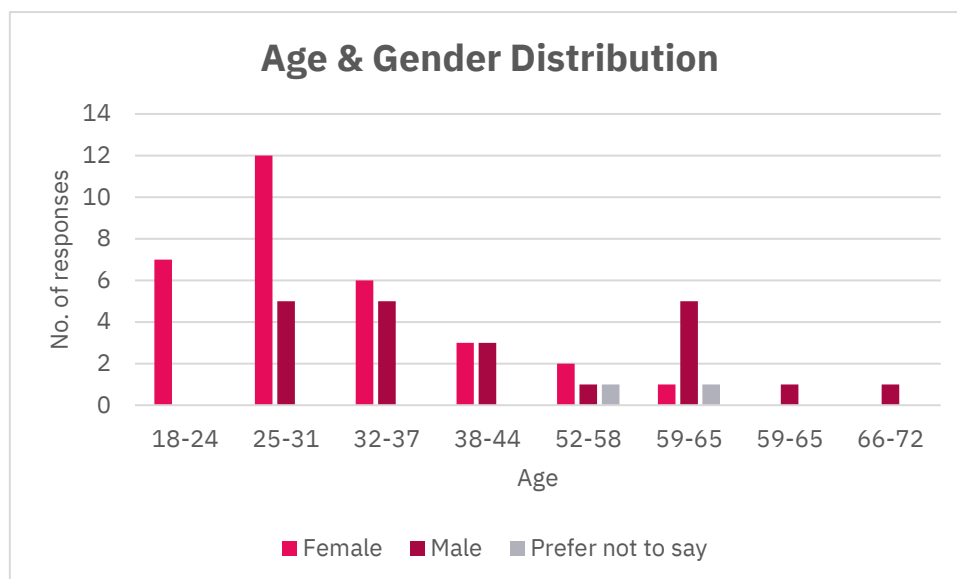


Figure 1 Age and Gender Distribution of Survey Respondents (no. of responses = 54)

24% of respondents stated that they order online once a month, only 4% stated they order online more than once a week and once per year, figure 2 below illustrates the respondent's frequency of online shopping.



Figure 2 Respondents frequency of online shopping (no. of responses = 54)

4.1.1 Seven-day and evening deliveries

When asked if they would like deliveries seven days per week 52% of respondents said no. Few operators are currently offering this service, this may reflect why respondents were not strongly in favour of it. As the parcel delivery market evolves this may be a feature that evolves with it.

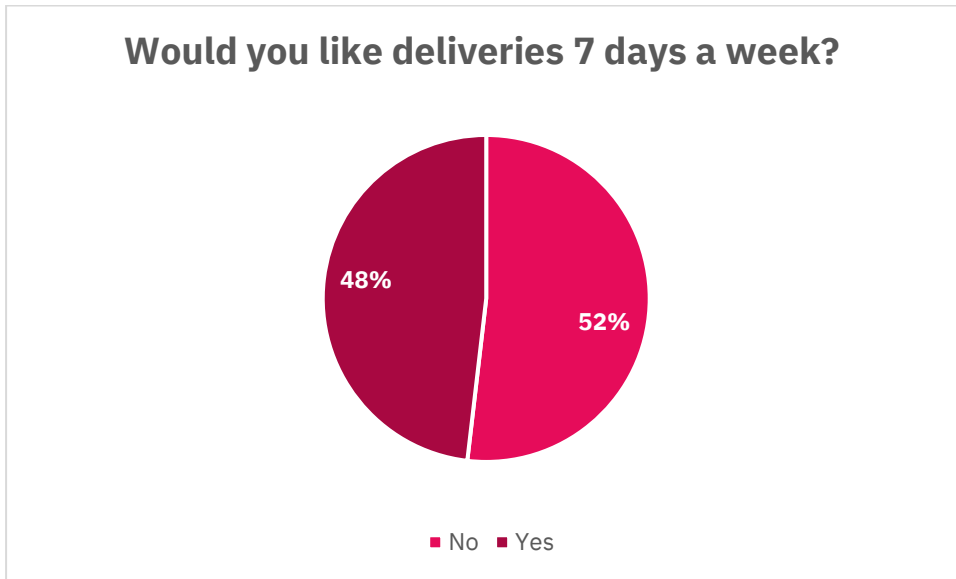


Figure 3 Preferences regarding 7 day delivery (no. of responses = 54)

Conversely, nearly 80% of respondents stated they would like evening deliveries between 6pm and 8pm.

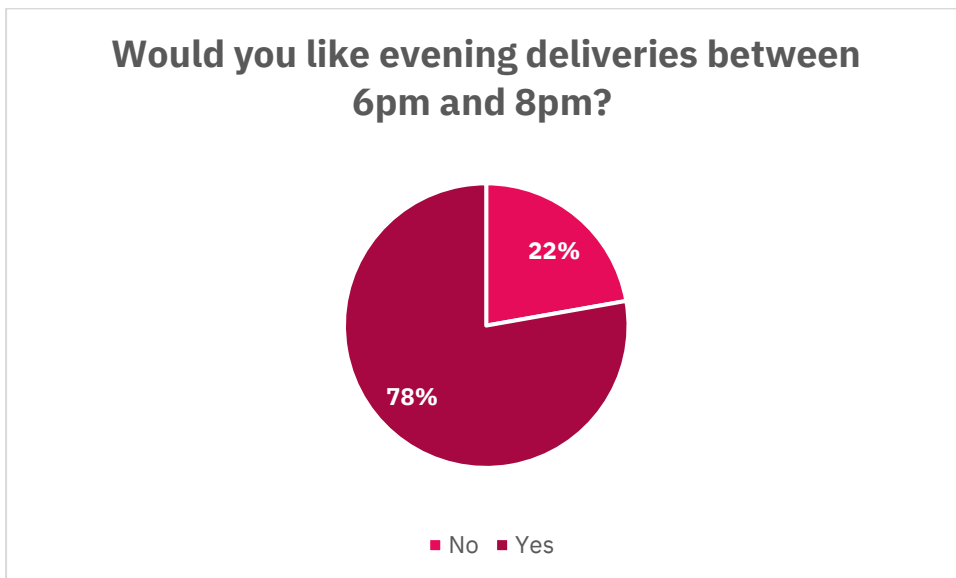


Figure 4 Preferences regarding evening delivery (no. of responses = 54)

4.1.2 Faster or more sustainable deliveries

Half of the respondents had a preference for sustainable deliveries rather than faster deliveries, the climate emergency and future sustainability of the planet were cited as reasons why. Additionally, some respondents stated that deliveries are already fast and if they required an item more urgently they would buy it in a shop rather than online. Nearly 60% of respondents stated that they would like to know the carbon footprint of their delivery.

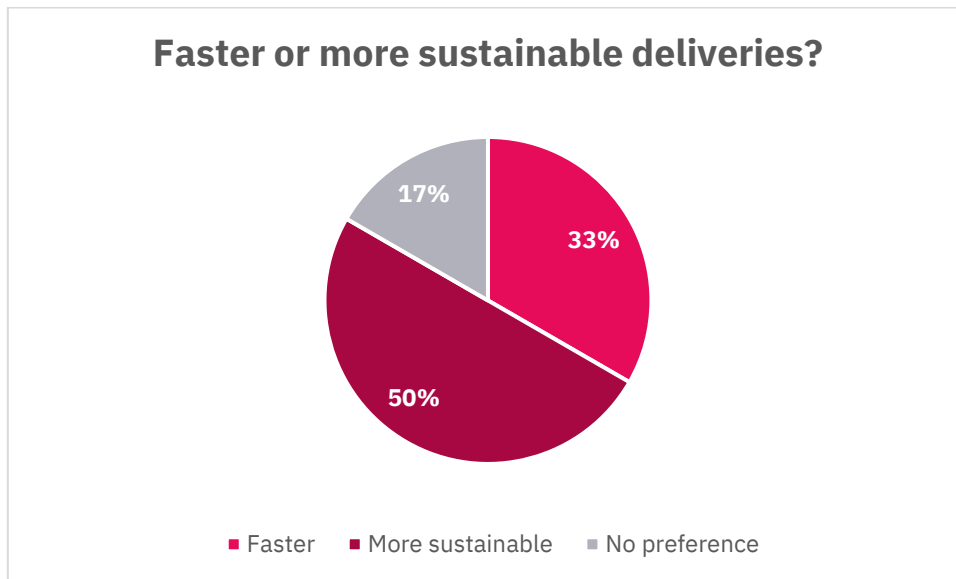


Figure 5 Preferences regarding fast and sustainable delivery (no. of responses = 54)

However, 44% of the respondents who said they would prefer sustainable deliveries were not willing to pay more for this service. Overall, only 37% of respondents were willing to pay more for sustainable deliveries. When asked how much they would be willing to pay for sustainable delivery responses varied and some choose not to provide an answer. Interestingly, one respondent suggested that non sustainable deliveries should be more expensive, Table 1: List of responses – How much would you pay for sustainable deliveries? below lists the responses received.

Table 1: List of responses – How much would you pay for sustainable deliveries?

How much would you pay for sustainable deliveries?
€1
Not sure. 10% extra?
one euro per delivery on a small box or parcel
A few € extra depending on the delivery
€2
5%
+10%
€5 more, depending on weight of the item
Up to 2.5 euro more
€3
It depends on a lot of factors, but up to 10%
I wouldn't know an exact figure, but I'd be happy to pay a little extra if it meant a little more sustainability.
10% of the product's price

I feel that this is too broad of a question. A number of factors have to be taken into account such as, what service I can choose, weight of item, what level of tracking is available.

a green delivery or a non-green 50% more.

It depends on what the price of the package is.

8.95

A small premium

4.1.3 How important is it for you to recognise your delivery carrier?

The survey asked how important is it for you to recognise your delivery carrier? This was to ascertain if citizens prefer a recognised branded delivery company rather than a generic delivery company without branding.

As highlighted in Figure 6 Preferences regarding delivery carrier responses were varied, 22% of respondents stated it was very important whilst almost equally, 24% stated it was not at all important.

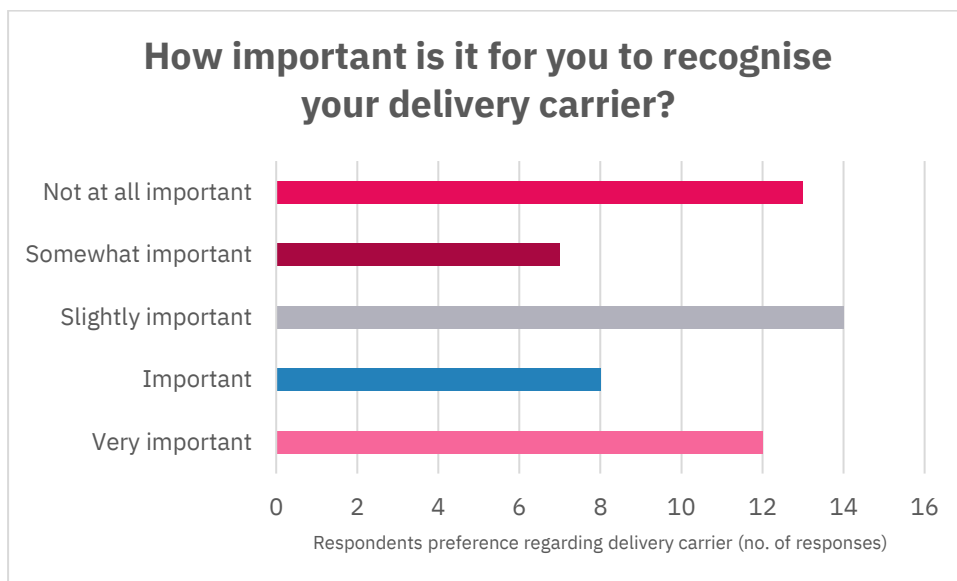


Figure 6 Preferences regarding delivery carrier (no. of responses = 54)

This is an important learning for SENATOR as it gives insights into customer expectations, particularly when it comes to consolidation of deliveries. It can be inferred from the responses that while it is slightly important for most citizens it is not something of major concern for them.

4.1.4 Parcel lockers & pick-up points

While 35% of respondents stated they would likely use a parcel locker, only 4% stated they were extremely likely to use one. Being home, or someone else always being home was started by many as the reason for selecting not likely to use a parcel locker, having never used a locker, not having a locker conveniently located to them and a preference for home delivery were other reasons cited.

Respondents were asked if they prefer to use a parcel locker or a pick-up point, a pick-up point was defined as a post office or retail store, and in this scenario both options are in a very convenient location. Pick-up point was selected by 56% of respondents, many stated that the presence of staff at these locations was the reason for their preference, they perceived this option to be more personable and there would be assistance in the form of a person if required. Accessibility 24/7, not having to queue and negotiate opening hours of a pick-up location were cited as the main reasons by those who selected parcel locker.

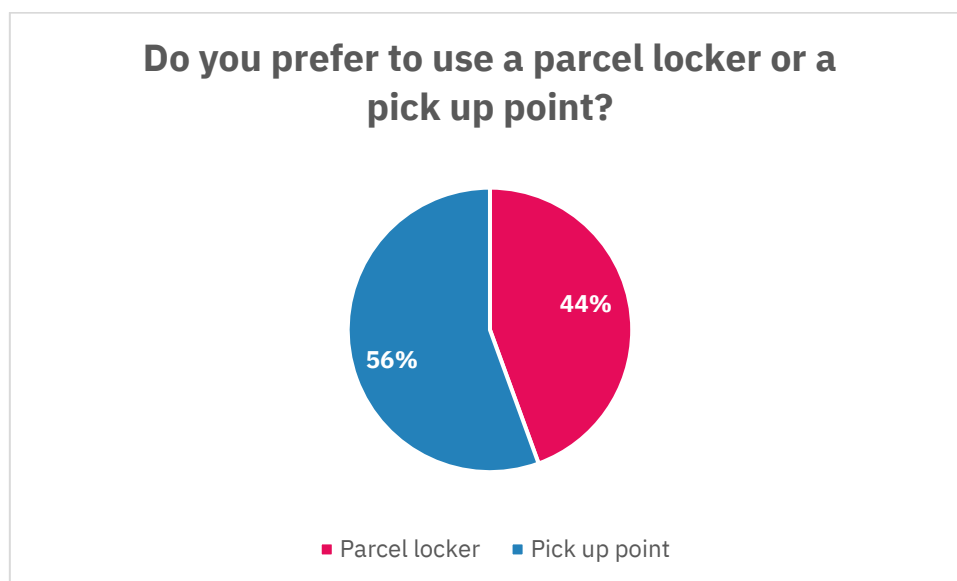


Figure 7 Preferences regarding parcel locker vs pick up point (no. of responses = 54)

Respondents were asked to rank the following factors, location, opening hours, convenience to my life, there is a person present and, security and safety, in order of priority when receiving a delivery to a pick-up point. Table 2: Most common ranking of features when receiving deliveries to a pick up point below illustrates to most common ranking.

Table 2: Most common ranking of features when receiving deliveries to a pick up point

Ranking of features when receiving deliveries to a pick up point	
1	Location
2	Opening hours
3	Security and safety

4 There is a person present

5 Convenience to my life

4.1.5 Most important factors for citizens when receiving deliveries

The final question in the survey offered the respondents a free text box to detail the most important factors for them when receiving deliveries. The list below highlights the most common responses.

- Tracking
- Speed of delivery
- Reliability
- Convenience
- No damage to the item
- Sustainability
- Easy returns
- To my home

5 Prior Information Notice for Sustainable Deliveries Eco Hubs operations in Dublin City Centre

The Dublin City Development Plan sets out policies and objectives to guide how and where development will take place in the city over the lifetime of the plan. Under the plan for 2022-2028, it is the policy of Dublin City Council to seek to achieve a significant reduction in the number of motorized delivery vehicles in the city through supporting and promoting the use of the 'last-mile' delivery through the development of sustainable deliveries eco hubs and distribution centres.

The National Transport Authority (NTA) have also prepared an updated Transport Strategy for the Greater Dublin area that sets out the framework for investment in transport infrastructure and services over the next two decades to 2042. It is the intention of the NTA, in collaboration with local authorities, to examine the feasibility of consolidation centres and break the bulk facilities, to facilitate smaller vehicle delivering to Dublin City Centre and other major town centres.

Aligning with the goals of Dublin City Development Plan and Transport Strategy for the Greater Dublin Area and overarching goal of Greener, Smarter Dublin, Dublin City Council published a PIN (Prior Information Notice) on 26 April 2023 to facilitate the sustainable

deliveries eco hubs and distribution centres in Dublin City. The call will close on the 9th of June. The questions from the PIN detailed in the [appendix](#).

Purpose of Market Consultation are as following,

- To identify entities interested in facilitating, operating, or utilizing a sustainable delivery eco hub in city centre area.
- To solicit feedback from respondents on needed attributes to make a sustainable delivery eco hub efficient, sustainable, and economically feasible, as well as methods for compliance, enforcement, and overall management of such facilities.
- To solicit feedback on methods to facilitate shared use of a sustainable delivery eco hub by multiple operators so that the sustainable deliveries eco hubs is not unreasonably occupied by any single commercial vehicle operator.
- To solicit feedback from respondents on what limiting factors to be addressed to successfully operate and utilize a sustainable delivery eco hub in Dublin City, including but not limited to land use and zoning restrictions, and city rules and regulations.

Responses for this RFI (Request for Information) Notice are sought from two distinct groups:

1. Delivery and Logistic companies: who are interested in current or potential micro distribution operations.
2. Infrastructure Providers: who could facilitate the micro distribution by providing space for the operations, for example, car parks, empty warehouses, off street parking etc.

As the deadline for the PIN is the 9th of June and after the submission of this deliverable, information on responses to the PIN have not been included. This information will be incorporated into future deliverables.

6 Conclusion

6.1.1 Summary of SME interviews

The purpose of the SME interviews was to evaluate how urban infrastructure should be adapted to include freight demand trends provided by the SENATOR project. The responses from the SME interviews indicate the biggest challenge associated with last mile deliveries is creating sustainable solutions in an ever changing and evolving market. All interviewees agreed that a one size fits all approach for determining the number delivery hubs and micro delivery units required by a neighbourhood is not suitable. They also agreed that the use of

micro delivery units is best suited to urban locations with high population density. Organising delivery shifts to avoid peak traffic congestion and inclusion late afternoon/evening deliveries were highlighted as the optimum delivery schedule for last mile logistics. Interviewees stated that higher level of automation would be required to efficiently incorporate cross-docking and analysis of routes and vehicle capacity is required to avoid overloading when employing backhauling. Interviewees highlighted that planning for same-day delivery in a sustainable manner will be a requirement in the near future. Finally, city councils have a role to play in encouraging the use of eTrikes and scooters for last mile delivery through clear traffic permissions and permits.

6.1.2 Summary of citizen survey responses

The purpose of the citizen survey was to analyse customer needs. The results obtained from the survey suggest that a higher percentage of customers would prefer evening deliveries rather than seven-day delivery. It can also be inferred from the responses that customers would like sustainable deliveries and a higher percentage of customers would choose sustainability over speed, however they are not likely to pay a premium for sustainable delivery. The survey suggests that customers do not have a strong preference for or against a recognised branded delivery company delivery their items. The survey responses indicate that customers prefer pick-up points to lockers and the most important factors when receiving deliveries to a pick-up point are location, opening hours and security and safety.

6.1.3 Task and deliverable findings

The main objective of D4.5 was to report the outcomes of Task 4.4 Logistics Planning. T.4.4 began with the analysis of local customers' needs, with the goal of evaluating how urban infrastructure should be adapted to include freight demand trends provided by the SENATOR project, identifying how many endowment/intermediate logistics hubs are required by a neighbourhood or suburb. For example, the number of parcel lockers required, which delivery schedule results in the least amount of disturbance for citizens e.g. night delivery, traffic valley period, weekend period, backhauling. Through the task, the whole logistic plan including the integration of last mile logistics procedures (micro-logistics, night delivery, parcel lockers, cross-docking) was analysed.

The findings from the SME interviews suggest that micro hubs could improve last mile logistics in population dense areas. They could also be used to overcome restrictions in cities such as congestion and pedestrianisation by enabling last mile deliveries on eTrikes and other alternative transport modes. In relation to the best location for a micro hub, Faugère, White III, & Montreuil (2020) indicated that micro hubs do not need to be located in the centre of the delivery zone, they can be profitable once they are within or close to the zone. However, identifying the demand zone is a challenge (Boysen, Fedtke, & Schwerdfeger, 2021).

Parcel lockers and pick-up points can increase efficiency and sustainability of last mile deliveries. A study conducted in the district of 'De Pijp' in the Netherlands found that by using parcel lockers delivery of 1770 parcels could be achieved in under 500 stops instead of 1475 stops. It's worth noting that in De Pijp parcel lockers are evenly distributed and walking distance is under five minutes on average (Van Duin, Wiegman, Van Arem, & Van Amstel, 2020). The findings from the T4.4 and D4.5 indicate that pick-up points are preferred to parcel lockers, with 56% of survey respondents choosing pick-up point. Determining the number of pick-up points or parcel lockers is challenging, particularly when trying to determine the number of fixed locations. This is due to variability in volume caused by seasonal demands and the difference between weekdays and weekends. As a solution modular lockers have been suggested, unlike fixed lockers the number of locker spaces in a modular locker are adjusted based on demand (Schnieder, Hinde, & West, 2021). However, Schnieder, Hinde and West (2021) indicate that their case study, using real delivery data, highlights that the financial benefit of using modular lockers does not compare with combining parcel lockers with pick-up points. Therefore, instead of focusing on parcel lockers or pick-up points cities could investigate the use of both.

Verlinde, et al (2010) conducted interviews with stakeholders in relation to night time delivery. They highlighted noise nuisance, liability issues and the need for someone to be present to receive deliveries as some of the drawbacks to night time deliveries. Their findings indicated little public support for night-time deliveries. The findings from T4.4 and D4.5 indicate that customers would be willing to receive deliveries between 6pm and 8pm but 8pm would have to be a cut off for home delivery and perhaps parcel lockers and pick-up point could be employed for later deliveries.

As mentioned above the findings from T4.4 and D4.5 indicate that a combination of pick-up points and parcel lockers should be employed and the use of these could be used to encourage later deliveries without having to disturb customers in their homes late in the evening. The findings also suggest that micro hubs can be useful and their location does not have to be in the centre of a delivery zone. Customers want their deliveries to be sustainable, but not at an additional cost, therefore this needs to be a consideration for planning. Finally, investment in automation is required for more granular sortation of delivery items, without this implementing micro hubs, backhauling and cross-docking amongst other things will not be as efficient.

In determining how urban infrastructure should be adapted to include freight demand trends City Councils and logistics providers need to evaluate local information and existing research, much of which has been referenced in this report, and adapt it to the needs of each unique urban location. Based on our findings in this report, there is not a fixed standardised approach to optimising urban infrastructure for freight due to differences in geography, population and demand, all factors which vary greatly throughout European cities.

7 References

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8 Appendix

8.1 Subject Matter Expert Interview Questions

Section 1:

Details about the respondent

1. Role:
2. How long have you been working in the area of logistics?

Section 2:

Interview questions

1. What are the biggest challenges associated with last mile deliveries?
2. How many delivery hubs are required by a neighbourhood or suburb?
3. What would be the most efficient way to organise last mile deliveries? (if you had unlimited resources and budget).
4. What do you think is the optimum schedule that would reduce disturbance to citizens? (night delivery, traffic valley period, weekend period, backhauling).
5. Do you think there is a place for night delivery in last mile logistics?
6. Do you think cross-docking would add value? (the practice of unloading goods from inbound delivery vehicles and loading them directly onto outbound vehicles).
7. Do you think backhauling would make last mile logistics more efficient? (eliminate or reduce empty miles, doing collections on delivery).
8. Do you think micro delivery units that are serviced by trikes/pedestrian routes would improve last mile logistics?
9. Do you think parcel lockers/collection points improve last mile logistics?
10. Is there anything else you would like to add?

8.2 Citizen Survey

SENATOR Parcel Delivery Questionnaire

SENATOR is an EU funded project researching deliveries in Europe. We need input from European citizens to understand what you look for when it comes to your parcel deliveries. By participating you can have your say and have the opportunity to shape the future of logistics in the EU. For more information on the SENATOR project please go to <https://www.senatorproject.eu/>

1. Age:

18-24, 25-31, 32-37, 38-44, 45-51, 52-58, 59-65, 66-72, 73-79, 80+

2. Gender:

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

3. Which country are you currently living in?

4. How often do you order online?

More than once a week

Once a week

Once a month

Multiple times a month

A few times per year

Once per year

Never

5. Would you like deliveries 7 days a week?

Yes

No

6. Would you prefer faster or more sustainable deliveries?

Faster

More sustainable

No preference

7. Please explain why?

8. Would you like to know the carbon footprint of your delivery?

9. Would you pay more for sustainable deliveries?

Yes

No

10. How much would you pay for sustainable deliveries?

11. Would you like evening deliveries between 6pm and 8pm?

Yes

No

12. How important is it for you to recognise your delivery carrier? i.e. the delivery carrier is a recognised branded delivery company rather than a generic delivery company without branding.

Not at all important

Slightly important

Important

Somewhat important

Very important

13. How likely are you to use a parcel locker? (a parcel locker is an automated postal box that allows for a self-service collection of parcels and oversized letters as well as the dispatch of parcels, in this scenario, there is one in a very convenient location).

Extremely unlikely

Unlikely

Neutral

Likely

Extremely likely

14. Please explain the reason for your selection.

15. Do you prefer to use a parcel locker or a pickup point? (a pickup point is a post office or retail store), in this scenario, both are in a very convenient location.

Parcel Locker

Pickup point

16. Please explain why.

17. If you are receiving a delivery to a pickup point which of these factors are most important? Please rank in order of priority.

Location

Opening hours

Security and safety

There is a person present

Convenience to my life

18. When receiving deliveries what are the most important factors for you?

8.3 PIN Questions for Sustainable Deliveries Eco Hubs operations in Dublin City Centre

If you are a delivery/logistics operator, please answer questions 1-8 below. If not, please jump to question-9. Images/diagrams could be attached as appendices.

1. What characteristics of a deliveries eco hub do you consider important for your operations? Please explain your choices.
2. What technology/security systems would be important for your use of deliveries eco hubs? Please explain your choices.
3. Describe what types of infrastructure or regulatory changes could improve your ability to conduct deliveries eco hubs in Dublin.
4. Describe any other types of support or incentives that could benefit your ability to conduct micro distribution (Eco Hubs) operations?
5. Describe any operational concerns that may limit your ability to share Eco Hub space or to coordinate operations with other operators or third-party last mile operators.
6. Explain any expected difference in your operational constraints if conducting micro distribution indoors vs. outdoors or within a public space vs. private space.
7. Please specify any anticipated operational efficiencies that you (time saving delivery dwell time cost savings emissions reduction) envisage with this operation.
8. Please specify the locations in the Dublin City area where you would prefer the Eco Hub Operations.

If you are an Infrastructure Provider, please answer the below questions.

9. Please describe the infrastructure (car parks etc) available for the use of the eco hubs including but not limited to:
 - Location and size of the available space and no. of vehicles that can be accommodated

- Any charging facility available or planned for the future use for electric vehicles
- Security features and Time constraints (if any)
- Operations Fees, please provide breakdown of the costs
- Available staff
- Any other constraints?