



**“Enhanced data management techniques for real time logistics planning and scheduling”**

**Deliverable D7.3: Global engagement plan for user engagement – Release 2**

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## Executive Summary

This is the second report on engaging users in the LOGISTAR project and describes the progress made since the first report deliverable 7.2.

A timetable in the first deliverable set out the objectives to achieve which included

- ▶ Campaign to recruit users/interested parties
- ▶ Workshop - Living lab 1: FMCG interested users (IGD/ECR UK)
- ▶ Workshop - Living lab 2: Synchromodal interested users
- ▶ Workshop - Living lab 3: Chemical companies interested users (CLICCS meeting)
- ▶ User/advisory group meetings/telcos
- ▶ Information sessions for users for preparing and starting the Living Labs
- ▶ Continuing communications with interested users (newsletter, web site, emails, activities, etc.)
- ▶ WP1.3 support for user engagement - obtain data from interested users
- ▶ Involvement in initial testing & outcomes - trialling LOGISTAR in living labs
- ▶ Evaluation of results from living labs and feedback to users

Most of these activities have been achieved, but the Covid-19 issue has held back some of them, so a revised timetable has been produced.

From the actions taken so far there has been a level of success in that 21 companies have been interviewed and one of these companies, CHEP, has been recruited to take part in living lab 3, plus two user group workshops so far have been very successful, with a third due in December 2020 attracting a lot of interest with a good number registered, particularly from potential users on this occasion. This could be due to the agenda including presentations from stakeholder partners on their living labs testing. There has also been significant promotion of the project through various workshops, conferences and media. However, it is clear that a lot of effort is required to make horizontal collaboration work, which can explain why it has been so problematic to recruit users of the LOGISTAR system.

## 1. Introduction

The main aim of the LOGISTAR project is to allow effective planning and optimising of transport operations in the supply chain by taking advantage of vertical and horizontal collaboration among different sectors and companies and using increasingly real time data gathered from the interconnected environment such as Internet of things (IoT) devices, smartphones, on-board units and open data. To achieve this, a real-time decision and visualization tool of freight transport will be developed using advanced algorithms, big data analytics and artificial intelligence which will deliver key information and services to the various agents involved in the supply chain such as freight transport operators and their clients.

This aim will be achieved by:

- ▶ Identifying logistics related open data sources and harmonize this data together with the other closed sources (i.e. IoT devices and company data)
- ▶ Increasing the accuracy planning of logistics operations by applying artificial intelligence techniques for timing predictions and learning preferences of logistics chain participants
- ▶ Ensuring a seamless flow of the operations in the supply chain making use of machine learning techniques for identifying potential disrupting events and taking relevant actions to modify any required reconfigurations
- ▶ Making the best use of the available resources and provide the best possibilities for horizontal collaboration among logistics agents applying optimization techniques to route planning and scheduling in freight transport networks
- ▶ Allowing negotiation among different agents involved in the supply chain taking into account any constraints arising in real-time, making use of distributed constraint satisfaction techniques

This report is a follow up to deliverable 7.2 which outlined a number of approaches as to how to engage users in the LOGISTAR project. A plan was proposed, and this report discusses the outcomes since deliverable 7.2 was submitted. The initial plan to engage users covered a number of areas as follows:

- Sharing the vision by
  - Presentations at seminars, workshops and conferences, and newsletters, to make users aware
  - Being part of a user's board
  - Incorporating user feedback
  - Identifying the training required
- Preparation by
  - Undertaking a network overview to find opportunities for efficiency improvements within their own networks
  - Applying objective data analysis and synergy calculations
  - Identifying and quantifying opportunities for collaboration
- Acceptance testing by
  - Undertaking a virtual test of the entire system using historic data
  - Testing real-life scenarios
  - Ensuring that processes and procedures are in place

- Including assurances about the security of the data

Throughout the project there have been numerous presentations at conferences and workshops, newsletters have been produced plus Facebook and Twitter posts to interested parties. In addition, contact has been made and interviews held with many companies and there have been user/advisory group meetings. All these have been done to promote the project and obtain interest from relevant parties.

The suggested timeline produced in the first report has met with a number of obstacles, not least the latest Covid-19 problems, and these will be discussed in section 3. The next section provides an overview of the living labs in the context of user engagement.

## 2. Overview of Living Labs in LOGISTAR

There are three living labs in this project. The first covers backhauling and co-loading in the FMCG sector, the second covers synchronomodality, and the third was originally planned to be in the chemicals sector but has now changed into two areas, the first to become a virtual living lab and the second will be to improve travel and turnaround times.

Living lab 1 – Two stakeholders are collaborating to enable greater opportunities for backhauling and co-loading. Two LOGISTAR partners, Nestle & Pladis are submitting a constant stream of order data to the LOGISTAR system so that any cost-effective backhauling or co-loading opportunities can be identified. Nestle & Pladis will each have to agree to any collaborative routes, and these will be monitored in real time to measure the effectiveness of the journeys using KPI's, and to highlight any potential delays.

Living lab 2 – This living lab involves a stakeholder partner, Codognotto, a third-party logistics company, and Zailog who support the operations of the Verona rail freight terminal. It requires LOGISTAR to look at the movement of individual Codognotto FTL's and find the optimal routing from an origin (pick up location), to a destination (delivery location) by comparing options such as all road, or multi modal involving road, rail and water. The Verona rail freight terminal may be chosen but other terminals in the area would be considered. LOGISTAR will ensure the timings for multi modal options flow seamlessly together ensuring synchronomodality. When this planned routing is accepted, LOGISTAR will then monitor the load via on board IoT devices to enable the load to be tracked and traced, and to alert various operators in the event of a disruption that causes a significant delay. The aim is to ensure that waiting time is kept to a minimum, and success will be measured by improvements in various KPI's.

Living lab 3 – This is now a twofold living lab with data from a number of chemical companies being used to test the LOGISTAR system in a virtual environment, and a live testing to try and improve the travel turnaround times at customers of Chep. The virtual environment is an invaluable method to ensure the system can cope with high volumes of order data and can produce satisfactory results within a reasonable period of time. It will test out the technical functions of the LOGISTAR system and components using virtual daily order flows from two chemical companies to assess backhauling and co-loading opportunities, and it may also be possible to simulate disruptive events such as road or rail blockages and congestion. The second part of LL3 now has a new stakeholder in Chep which can be considered as a successful recruit for user engagement. Chep is a unique company in that it has taken part in many EU research projects over the years and is one of the leading partners encouraging collaboration with a dedicated department providing added value to their customers. There is a significant problem with waiting times at various loading and unloading premises with up to 40% of shift time wasted. This living lab will use live vehicle tracking with a reliable prediction of the estimated time of arrival to manage and allocate slots dynamically.



### 3. Process to obtain users engagement

#### 3.1. One to one interviews

Initial contact with potential users of the system was made at the beginning of the project. This had three goals. Firstly, to inform the companies about the project, secondly to elicit data from them to use in the strategic analysis and thirdly to understand their supply chain operations, and map their IT landscape to manage this, so as to develop the functional specification. Individuals from 21 companies were interviewed from various industry sectors as shown in the table below. These companies have all previously expressed interest in collaboration and attended talks on the subject at various meetings.

<u>FMCG</u>	<u>Chemicals</u>	<u>LSP</u>	<u>Other</u>
Nestle	Huntsman	Ahlers	Zailog
Pladis	Celanese	Codognotto	Chep
Kelloggs	Vynova	NFT	Toyota
Mars	Du Pont	Turners of Soham	
Kimberly Clark	Corbion		
Asda	BP Chemicals		
Procter & Gamble			
Tesco			

The companies highlighted in yellow are stakeholder partners in LOGISTAR consortium. After the interviews these companies were periodically informed of progress through newsletters, personal contact, and they were also invited to become part of the user’s advisory board. It can be considered a success that 21 significant shippers were interviewed, informed of LOGISTAR and encouraged to become users.

However, there are issues. According to Infosys 73% of shippers use logistics service providers (LSPs) (Langley, 2020), who optimise their flows themselves and are essentially bundling goods from multiple companies for their own benefit. LSPs therefore believe that collaboration will have a negative impact on their business. Indeed, a number of shippers have said that any lanes taken from their LSPs for collaboration are likely to incur higher overall cost from the LSP operation.

A second set of interviews with LSP’s, who operate the assets required by shippers, were meant to be held in conjunction with LOGISTAR partner MDST who were trying to understand the various business models that companies operate. However, arranging interviews has proved problematic prior to the submission of this deliverable, so only one interview has taken place. It was hoped this would provide a second opportunity to elicit further user engagement in the project. Problems such as this is all too common and is explained in section 3.5.

#### 3.2. Conferences and workshops

Since the start of the project there have been 16 presentations of LOGISTAR to audiences consisting of industry representatives, the scientific community of academics and researchers, policy makers and the wider public. There have also been five exhibitions at which LOGISTAR has been publicised. These have taken place at various venues across Europe and have been aimed at disseminating information about the project. The audiences have ranged from 20 people to over 200. Post

presentation discussions have provided opportunities to encourage user engagement and have also been useful to clarify and inform the development of the project.

### 3.3. Publicity

There have been press releases and newsletters sent to a large number of interested parties. The web site provides a lot of information about the project with all the dissemination activities, and there are regular updates and improvements. Social media has provided an opportunity to publicise the project with over 1,200 followers on Twitter and over 170 on LinkedIn. A video will soon be released to supplement this publicising of the LOGISTAR project. The ALICE intranet knowledge platform also has information about the project, also with a number of followers.

### 3.4. Strategic analysis

The purpose of a strategic analysis is to assess the opportunities for collaboration by analysing data provided by companies. This also encourages involvement in the LOGISTAR project, particularly if they can see the benefits that might occur in a virtual environment. It is a risk-free analysis in that only a small amount of their time is required. When a company provides commercially sensitive data under a non-disclosure agreement, it shows a commitment by that company and a belief that the analysis being performed on their data may elicit some useful results that would be beneficial to them. In fact, data is a valuable company asset due to improved data mining techniques and companies are typically less inclined to share them.

Fifteen companies have shown this commitment by providing detailed transport flow data for the strategic analysis which has used modelling tools to look at a range of strategies that could not only make their individual supply chain operations more efficient, but also identify other compatible companies with whom they could collaborate. A number of strategies have shown benefits and the next step will be to organize meetings with executives of the various companies to discuss the outcomes and, having shown virtual benefits, to try and convince them once again to become users of the LOGISTAR system and achieve real benefits.

### 3.5. User/advisory group meetings

The first of these meetings was held at the 5<sup>th</sup> International Physical Internet Conference in London in July 2019. Invites were sent out to over 40 interested parties with the focus on those that would attend the conference and therefore more likely to attend the user group meeting. On the day about 20 people attended from a wide variety of backgrounds and organisations/companies, but very few were from companies that ship goods, and therefore with the potential to become a user. One of these companies was a consortium partner, and another subsequently turned out to be a potential user for the third living lab.

The outcomes from the interviews and an overview of the LOGISTAR system were presented as were a description of the living labs. A wide range of questions were asked but the overall impression was positive about the intent of the project mainly because LOGISTAR has use cases in different sectors and because of the use of a wide range of innovative technologies.

The second user/advisory group meeting was held online in March 2020. Again, a larger number of invites were sent out to interested parties, followed by reminders, and 34 people registered to attend. As in the first meeting, this group came from a wide range of companies and organisations covering sectors as shown in the table below.

Company/organisation	No of people invited
FMCG	8
Other industry sectors	8
Other research projects	7
Chemicals	5
Academia	4
Terminal/Port	2
LSP	1

These people are experts in their field who could advise on the approach and development of the project, and had a keen interest in logistics collaboration. A number of representatives of other Horizon 2020 research projects joined as did the Secretary General of ALICE.

Once again, although many potential users were invited, disappointingly, only two were from FMCG companies. These companies were already fully aware of the LOGISTAR project having participated in the interviews for the functional specification and had also supplied data for the strategic analysis. Clearly these two companies are engaged in the project but turning them into users of the system is more problematic. Both companies use LSPs and one is a competitor to a shipping company in the consortium. This stakeholder has expressed concern about inviting them to become a LOGISTAR user. The two companies wish to be connected with the project for various reasons, including keeping up to date with innovative developments. Their aim is to sit on the sidelines and check the outcomes to see if the system would benefit them. Consequently, it is a wait and see situation. This applies to many other companies with whom the project has been discussed. In Rogers (Rogers, 2003) terminology these companies could be classified as early adopters rather than innovators.

### 3.6. The issues

The question is, therefore, although there is great interest in collaboration and the LOGISTAR project is positively received and we currently have a high number of contacts that are kept informed, why don't more users want to participate in the project through workshops, join the users advisory board meetings, and subsequently wish to become users of the LOGISTAR system? The answer is complex and covers a wide range of possibilities. The main reasons could be:

- ▶ Collaboration is a minor part of the supply chain operation and is likely to save only a small amount of cost so doesn't warrant the effort required to make it work
- ▶ Concern about any company with whom they would be collaborating. Competition is still the norm, and collaboration requires trust and transparency among the collaborating companies.
- ▶ There are a large number of barriers to overcome as stated in the first release of this report. Collaboration has been sporadic over many years and these barriers have been quoted as the main reasons for not collaborating. For completeness the table is repeated below.

BARRIERS	VALUES
Own organisation culture/internal politics	4.1
Lack of trust	4.0
Hard to find partners	3.6
Managerial inertia	3.4
Costly in terms of time and effort	3.3

Technical incompatibility	3.3
Poor knowledge of internal flows	3.2
Fear of losing competitive advantage	3.2
Increased complexity of operation	3.2
Lack of cross network visibility	3.1
Peoples capability and skills	3.0
Fear of the unknown	2.7
Free-riding	2.6
Service expectations	2.4
Competition law	2.3
Gain sharing	2.3
Dependency on external support	1.8
Difficult to distinguish own company in group	1.6

- ▶ Many shippers use LSPs and fear that any lanes taken from their operation for collaboration may incur a net higher cost from the LSPs. A number of shippers interviewed indicated that their LSPs could be contacted on their behalf but the LSPs showed a great deal of unwillingness to participate, obviously fearing that their business would be negatively affected.
- ▶ Even to obtain interviews with companies has been a challenge. They are so focussed and consumed with the day to day operation that they have little time for research type projects that they believe may not benefit them. Innovations are often initially viewed with suspicion until they have been proven. This is the classic situation presented by Rogers (Rogers, 2003), who stated that there are five levels of innovation adoption starting with the innovators (2.5%), the early adopters (13.5%), the early majority (34%), the late majority (34%) and the laggards (16%). It therefore depends on a company’s attitude to risk. Some companies are prepared to take the risk with unproven technologies, others will sit outside and wait. This latter group of companies are in the majority of those interviewed but wish to keep up to date with any developments that might impact their business in any way.

## 4. Timeline

Because of Covid-19, these dates have slipped by four months, so a revised timeline is shown in the Gantt chart below.

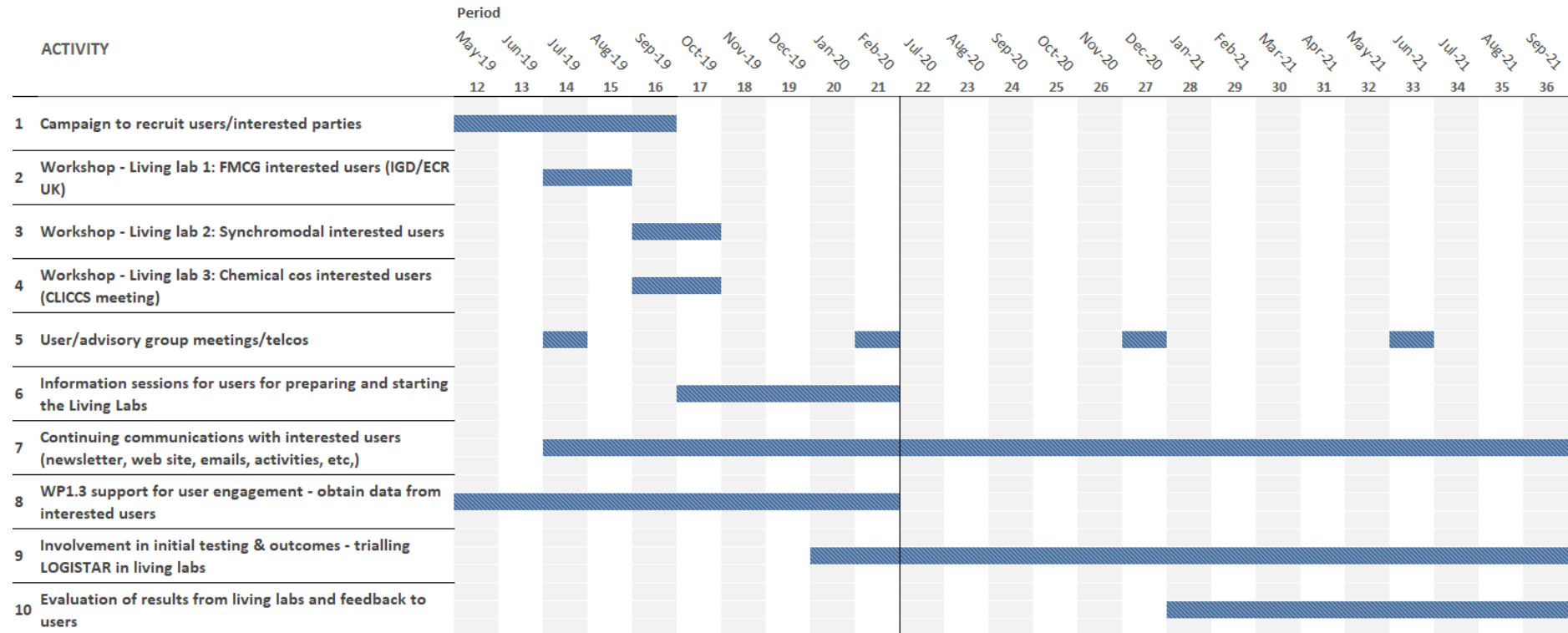


Figure 1 Revised engagement plan timeline

The following section describes how these activities have developed.

## **1. Campaign to recruit users/interested parties**

A large number of known shipper companies and contacts from a range of sectors were identified in the first instance. These companies were made aware of the LOGISTAR project with a view to encouraging them to take part. 21 of these companies were subsequently interviewed to understand their transport operations and where LOGISTAR could support a more efficient operation. These interviews served three purposes. Firstly, to help develop the functional specification for the LOGISTAR system, secondly to obtain data from them for the strategic analysis was used to establish collaborative opportunities in their operation, and thirdly to explain to them how LOGISTAR could help their supply chain. This campaign to recruit users has met with some resistance as explained in the previous section, but although shown in the timeline as finishing in month 19, where possible, is still an ongoing activity.

### **2.3.4. Workshops Living Labs 1, 2 and 3**

The three workshops have not taken place due to a lack of willingness of contacts to leave their day to day in house activities, not least because in the FMCG sector this period before Christmas was their busiest time. The meeting of individuals as described in 1. has been a much better approach, particularly as group discussions within the same sector are less likely to produce any positive outcomes due to, among other things, competition laws.

## **5. Users & Advisory board meetings and workshops**

Two very successful user group meetings have been held June 2019 and February 2020 as described in section 3.5. A third user group meeting is planned for December 2020 in which progress reports on the LOGISTAR system and strategic analysis will be presented, together with presentations on the living labs from the five stakeholder partners. There are encouraging signs that this webinar will be well attended with over 15 people registered within 2 days of being informed.

## **6. Information sessions for users for preparing and starting the Living Labs**

Apart from the stakeholder partners, only one company has become a participant, and subsequent project partner. CHEP has taken on the role of using LOGISTAR for living lab 3 as described in section 2. Information sessions in the form of internal deliverables have been written. A schedule of testing each of the living labs was set out in July 2020 with three iterations of activities up to November 2020. This testing involving all the technical partners would consider data consistency, questionnaires to assess the solutions, and feedback from transport planners in the stakeholder companies. Initial testing has been completed for living lab 1 but testing for the other living labs still needs to take place. Additional information sessions will also have to occur before the testing of the whole system. Some compromises will be inevitable due to the Covid-19 situation that prevents technical partners visiting the test sites.

## **7. Continuous communication with interested users**

The dissemination activities of WP8 has included distribution of press releases and newsletters, plus 1,170 Twitter followers and 172 LinkedIn followers. The ALICE intranet has also just added LOGISTAR to its Knowledge Platform and it currently has 5 enrolled followers. The LOGISTAR web site is also active with a video soon to be released.

### **8.Strategic analysis task (T3.1) as a support for users' engagement**

A strategic analysis has been undertaken with data received from 15 companies and 6 intermodal terminals considered. This has been described in section 3.3.

### **9.Involvement in initial testing & outcomes**

Covid-19 has obviously interfered with this process but all contacts who have expressed interest will be kept informed of the outcomes from the testing process as and when they occur.

### **10.Evaluation of results from living labs and feedback**

There will be an evaluation of the living labs results. This will be based on a comparison of before and after LOGISTAR, taking into account operational and KPI changes to ensure the following aims have been achieved:

- ▶ Increasing by 10% the load factors of freight vehicles: optimization techniques
- ▶ Shortening by 10% the delivery routes by relying on synchromodality
- ▶ Increasing the reliability and efficiency of services: predicting events and incidents.
- ▶ Facilitating the management of logistic operations: providing dashboards and showing alerts or recommendations.
- ▶ Increasing the visibility of the delivery derived from the use of sensors to monitor the goods shipped and boosting data sharing



## 5. Conclusions

This report has been an update to deliverable 7.3. It has discussed the various approaches to user engagement and explained the issues faced when trying to convince companies to take part.

A key question that needs answering is who should be users of the LOGISTAR system. There has been a lot of debate in the policy area over the question as to whether LSPs or shippers are best placed to start and lead a collaboration. Shipper collaboration makes sense because in the end the shippers are the cargo owners and they pay the bill for the transport. Furthermore, transport is not their core activity, so it is easier for them to make changes without competitive risks. On the other hand, LSPs are the actors that have most knowledge about the actual process of transport and are therefore better able to judge what is possible and what not. For some parts of the living labs, the ambitious goals of the LOGISTAR project requires active involvement of both the buyers and the sellers of transport. The former pays the bill and will therefore always have the final say, and the latter is the specialist who knows what is possible and what is not. In any collaboration, eventually both the LSPs and shippers need to be involved to some extent.

From past experience in both EU research projects and practical trials by collaborating companies, there are many hidden layers of complexity which are insufficiently known or understood. This organizational complexity goes far beyond ICT and systems engineering aspects, and it does not even fall under the exclusive mandate or authority of the logistics and supply chain leadership teams in companies considering collaboration. The successful set-up of operational and real-time horizontal collaboration requires explicit sign-off and active cooperation and coordination among logistic and supply chain, financial, legal, ICT and procurement management of the involved shippers. This effectively makes real-time horizontal collaboration more of a strategic board topic rather than an operational supply chain decision.

This engagement plan has been partially successful so far in that 21 companies have been interviewed and one of these companies, CHEP, has been recruited to take part in living lab 3, plus 34 people registered to join the second user group workshop. There has also been significant promotion of the project through many different sources. However, it is clear that a lot of effort is required to make horizontal collaboration work, which can explain why it has been so problematic to recruit users of the LOGISTAR system.



## **List of abbreviations and acronyms**

FMCG	Fast Moving Consumer Goods
ECR	Efficient Consumer Response
EU	European Union
FTL	Full Truck Load
ICT	Information and Communication Technologies
IGR	Institute of Grocery Distribution
KPI	Key Performance Indicator
LL	Living Lab
LSP	Logistics Service Provider
UK	United Kingdom
WP	Work Package

## References

- Langley, C. J. (2020). *2020 Third party logistics study - The state of logistics outsourcing*. Infosys Consulting.
- Rogers, E. (2003). *Diffusion of Innovations, 5th Edition* (Vols. ISBN 978-0-7432-5823-4). Simon and Schuster.