

SoCool@EU

Sustainable Organisation Between Clusters of Optimised Logistics @ Europe



Deliverable n° D4.1: Overall Implementation Plan Implementation Cooperation Area Description

Version	Date	Release	Approval
04	08-07-2014	DIALOG	Consortium

Document Log

Version	Date	Comments	Name and Organisation
01	12-02-2014	First draft	ULUND
02	30-03-2014	Revised based on the comments of consortium partners	ULUND
03	24-06-2014	Revised based on the comments of consortium partners	ULUND
04	30-06-2014	Revision and final editing	Dr. Meng Lu, Dinalog Bart Cremers, Dinalog

List of Partners

Beneficiary nº	Partner	Country
1 (Coordinator)	Dutch Institute for Advanced Logistics (DINALOG)	The Netherlands
2	House of Logistics and Mobility (HOLM)	Germany
3	Asociación Logística Innovadora de Aragón (ALIA)	Spain
4	Lund University (ULUND)	Sweden
5	Mersin Chamber of Commerce and Industry (MTSO)	Turkey

0 Executive Summary

The SoCool@EU (Sustainable Organisation between Clusters Of Optimised Logistics @ Europe) project aims to create an open European platform of excellence in the area of supply chain management and logistics in connection with hubs and gateways. Its purpose is to enable research-driven regional clusters throughout Europe to collaborate and exchange experiences for increasing sustainability and competitiveness of logistical services and (intermodal) transport operations

Participation in a spin-off cooperation area of SoCool@EU has a number of potential benefits. A participating actor will be able to enlarge and strengthen his European network of contacts. Furthermore, especially actors from industry will have direct contact and access to knowledge from leading universities and R&D institutions. Participants will also have the opportunity to make use of funding opportunities for collaborative research cooperation areas. In terms of corporate image, the participation in a European research cooperation area may be used as a branding for innovation.

The Business Plan invites actors in the regional clusters to participate in the cooperation areas, and further develop the ideas towards realisation. Implicitly, the descriptions set out in the present document are subject to the development of the interests of the participating actors. Additional input will lead to specifically detailed cooperation area outlines as part of Work Package 4 and this report, the Overall Implementation Plan (OIP).

Additional cooperation areas might turn out to be of relevance for the clusters in the course of time. The initial eleven cooperation areas are thus a motivation to derive further cooperation area ideas. As additional input/cooperation areas may derive from actors of both the consortium clusters and other regions in Europe, the SoCool@EU project will hold the promise of its vision: to be an open European platform of excellence enabling research-driven clusters in logistics throughout Europe to collaborate and mutually learn from each other.

The Overall Implementation Plan outlines the eleven cooperation areas. It brings cross cluster collaboration between the areas with a final result of several funding applications. The learning from the clusters activities is that the members must be in non-competition status regarding funding and the development of the clusters must be flexible. The clusters need input from temporary members to continue to grow. The core member team must be picked strategically to gain a strong focus on future development.

0	Executive Summary	3
1	Background and Objectives.....	10
1.1	Cluster Partners	10
1.2	Triple Helix Cooperation	11
1.3	Overall Project Plan for the Consortium.....	12
1.4	Operable Project Planning, WP4 Deliverables	12
1.5	Purpose of the Project SoCool@EU	13
1.6	Objectives of the Project SoCool@EU	13
1.6.1	Strategic Objectives	13
1.6.2	Operational Objectives	13
2	Theoretical Concept – Clusters Develop Regional Growth	15
2.1	Clusters	15
2.2	Clusters Effect On Regional Wealth.....	16
2.3	Clusters Performance	18
2.4	Clusters Development	18
3	Methodology	19
3.1	Methodological Approach	19
3.2	Online Questionnaire	21
3.3	Statistical Analysis	21
3.4	Meta Analysis	21
3.5	Open Expert Groups	22
3.6	Regional Workshops.....	22
3.7	Data Collection	22
3.8	Terminology.....	22
4	The Logistics Gateways in the European Context	24
	24
5	Analysis of presented proposals and their implementation plan.....	25
5.1	Smart Humanitarian Logistics.....	26
5.1.1	Background.....	26
5.1.2	Existing Projects, Networks and Experts	26
5.1.3	Objectives	26
5.1.4	Activities	26

5.1.5	Impact.....	26
5.1.6	Potential partners.....	26
5.1.7	Implementation Plan	27
5.1.8	Contact Details.....	27
5.2	Clusters Orchestration of Horizontal Collaboration	28
5.2.1	Background.....	28
5.2.2	Existing Projects, Networks and Experts	28
5.2.3	Objectives	28
5.2.4	Activities	29
5.2.5	Impact.....	30
5.2.6	Potential partners.....	30
5.2.7	Implementation Plan	31
5.2.8	Contact person	31
5.3	Synchromodal Supply Chain Management	32
5.3.1	Background.....	32
5.3.2	Existing Projects, Networks and Experts	32
5.3.3	Objectives	32
5.3.4	Activities	33
5.3.5	Impact.....	33
5.3.6	Potential partners.....	33
5.3.7	Implementation Plan	34
5.3.8	Contact person	34
5.4	International Expert Groups in Logistics and Mobility	35
5.4.1	Background.....	35
5.4.2	Existing Projects, Networks and Experts	35
5.4.3	Objectives	35
5.4.4	Activities	35
5.4.5	Impact.....	36
5.4.6	Potential partners.....	36
5.4.7	Implementation Plan	37
5.4.8	Contact person	37
5.5	Empowering Industrial Internationalization through Inter-Cluster Collaboration.....	38
5.5.1	Background.....	38
5.5.2	Existing Projects, Networks and Experts	38
5.5.3	Objectives	39

5.5.4	Activities	39
5.5.5	Impact.....	40
5.5.6	Potential partners.....	40
5.5.7	Implementation Plan	41
5.5.8	Contact person	41
5.6	Green Supply Chain	42
5.6.1	Background.....	42
5.6.2	Existing Projects, Networks and Experts	42
5.6.3	Objectives	43
5.6.4	Activities	43
5.6.5	Impact.....	43
5.6.6	Potential partners.....	43
5.6.7	Implementation Plan	44
5.6.8	Contact person	44
5.7	The Impact of E-commerce Service Models on SC Cost & Emission Efficiency.....	45
5.7.1	Background.....	45
5.7.2	Existing Projects, Networks and Experts	45
5.7.3	Objectives	45
5.7.4	Activities	46
5.7.5	Impact.....	46
5.7.6	Potential partners.....	47
5.7.7	Implementation Plan	47
5.7.8	Contact person	47
5.8	Innovative Models in the Rail Freight Transportation System	48
5.8.1	Background.....	48
5.8.2	Existing Projects, Networks & Experts.....	48
5.8.3	Objectives	49
5.8.4	Activities	50
5.8.5	Impact.....	50
5.8.6	Potential partners.....	51
5.8.7	Implementation Plan	51
5.8.8	Contact person	51
5.9	Increasing Efficiency of Inbound Cargo Into Hubs Through ICT Solutions	52
5.9.1	Background.....	52
5.9.2	Existing Projects, Networks and Experts	52

5.9.3	Objectives	52
5.9.4	Activities	52
5.9.5	Impact.....	52
5.9.6	Potential partners.....	53
5.9.7	Implementation Plan	53
5.9.8	Contact person	53
5.10	Logistics Education, Training and Valorisation	54
5.10.1	Background.....	54
5.10.2	Existing Projects, Networks and Experts	54
5.10.3	Objectives	55
5.10.4	Activities	55
5.10.5	Impact.....	55
5.10.6	Potential partners.....	55
5.10.7	Implementation Plan	56
5.10.8	Contact person	56
5.11	Coordinated European Development of Pilot Solutions For Urban Logistics.....	57
5.11.1	Background.....	57
5.11.2	Existing Projects, Networks and Experts	57
5.11.3	Objectives	59
5.11.4	Activities	60
5.11.5	Impact.....	61
5.11.6	Potential partners.....	62
5.11.7	Implementation Plan	62
5.11.8	Contact person	62
6	Conclusion of the Analysis and Future Guidelines For How To Develop Efficient Regional Clusters	64
6.1	Analysis	64
6.2	Future Guidelines	64
6.2.1	European Platform	64
6.2.2	Fostering Trans-National Cooperation	65
6.2.3	Developing and Implementing Joint Action Plans	65
6.2.4	Internationalization of the Regional Research Driven Clusters.....	65
6.2.5	Mentoring Regions With A Less Developed Research Profile	67
7	References.....	68
8	Appendix	69
8.1	GANTT CA 1: Smart Humanitarian Logistics	70

8.2	GANTT CA 2: Cluster's Orchestration of Horizontal Collaboration	71
8.3	GANTT CA 3: Syncromodal Supply Chain Management	72
8.4	GANTT CA 4: International Expert Groups in Logistics and Mobility.....	73
8.5	GANTT CA 5: Empowering Industrial Internationalization Through Inter-Cluster Collaboration ...	74
8.6	GANTT CA 6: Green Supply Chain.....	75
8.7	GANTT CA 7: The Impact of E-commerce Service Models on SC Cost & Emission Efficiency	76
8.8	GANTT CA 8: Innovative Models in the Rail Freight Transportation System.....	77
8.9	GANTT CA 9: Increasing Efficiency of Inbound Cargo into Hubs through ICT Solutions	78
8.10	GANTT CA 10: Logistics Education, Training and Valorisation.....	79
8.11	GANTT CA 11: Coordinated European Development of Pilot Solutions for Urban Logistics.....	80

List of Figures

Figure 1: Logistic Gateways in Europe – Partners of SoCool@EU Consortium

Figure 2: Clusters as Drivers of Regional Wealth

Figure 3: Determinants of the Regional Business Environment (Porter Diamond Model)

Figure 4: The Cluster Initiative Performance Model (CIPM)

Figure 5: The Life Cycle of a Cluster

Figure 6: Methodological Approach to Identify European Cooperation Areas

Figure 7: Methodological Approach of the Project SoCool@EU

Figure 8: Joint Action Plan for European Logistics on the SoCool@EU Platform

Figure 9: Cluster Initiatives That Produces Outcomes

Figure 10: Short-, Medium- and Long-Term Objectives for the SoCool@EU Platform

List of Tables

Table 1: Project Plan of SoCool@EU

Table 2: Project Development WP4

Table 3: Chosen Method for Development of the Cooperation Areas on the SoCool@EU Platform

Table 4: Cooperation Area Development Y2014-Y2018

1 Background and Objectives

1.1 Cluster Partners

Europe has a central and leading position in the worldwide flows of transport, logistics and supply chains. Transport is an essential component of the European economy, with the industry accounting for about 5% of the EU GDP and the sector directly employing about 10.6 million people as around 5% of total EU employment. Total goods transport activities in the EU-27 are estimated to amount to around 3.8 billion ton-kilometres yearly. With this figure, Europe is among the five leading economies of the world, together with USA, Japan, China and Russia. Considering the values of exports and imports of goods, which cumulatively sum up to approximately 2,800 billion Euro in 2010, the EU-27 are leading worldwide and this also with regards to both imports and exports separately (European Commission, 2011).

This successful chain of production and trade cannot operate without regional logistics hubs throughout Europe, as they are vital to a well-functioning economy with competitive transport and logistics flows. The future prosperity of Europe will depend on the ability of these regions to remain fully and competitively integrated in the world economy. This will lead, among other things, to a single European transport area, an enhanced technology research and innovation, modern infrastructure development and the linkage of transport beyond EU borders (EU White Paper on Transport, 2011). Logistics gateways as global nodes are a competitive edge to capitalize on. Many world regions are launching huge, ambitious transport modernisation and infrastructure investment programmes. The competition between regions in developing the quality of their business environment to attract investment and policy action has become more and more evident in the economic and political agenda. It is crucial that European transport continues to develop and invest to maintain its competitive position. The success lies in the support and development of strong and specialized logistics regions in Europe and effective action requires strong international cooperation.

This is exactly why in the context of the 7th Framework Programme of the European Union, five regional logistics hubs are cooperating in the project "Sustainable Organization between Clusters of Optimised Logistics @ Europe (SoCool@EU)" to develop their clusters and collaborate:

- Dutch Institute for Advanced Logistics (DINALOG), Netherlands South West & Flanders Cluster - The Netherlands / Belgium
- House of Logistics and Mobility (HOLM), Rhein-Main Region - Germany
- Asociación Logística Innovadora de Aragón (ALIA), Region of Aragón - Spain
- University of Lund-Øresund (ULUND), Øresund Region - Sweden / Denmark
- Mersin Chamber of Commerce and Industry (MTSO), Mersin Logistics Cluster - Turkey

These five clusters represent essential areas of logistics (deep-sea hubs, airports, land-hubs and short-sea hubs) and build the network of logistics gateways in Europe. The following map shows the project partner regions and their cluster institutions.

SoCool@EU is based on the ambition to create an open European platform for EU excellence with specific joint cooperation areas in sustainable and competitive supply chains and logistics connected with hubs and gateways. This European platform will enable research-driven regional clusters throughout Europe to collaborate and mutually learn to achieve more sustainable and competitive freight gateways and hubs with associated logistical services and transport operations. After its establishment, the platform will be open for participation by other regional clusters with a logistics profile from Europe and beyond. The SoCool@EU consortium will actively promote this participation by other regional clusters.

The Mersin Logistics Cluster is integrated in the project as a mentoring region – the other cluster regions will share knowledge and provide access to a network of clusters beyond the project to support the capacity building and logistics cluster development in Mersin.

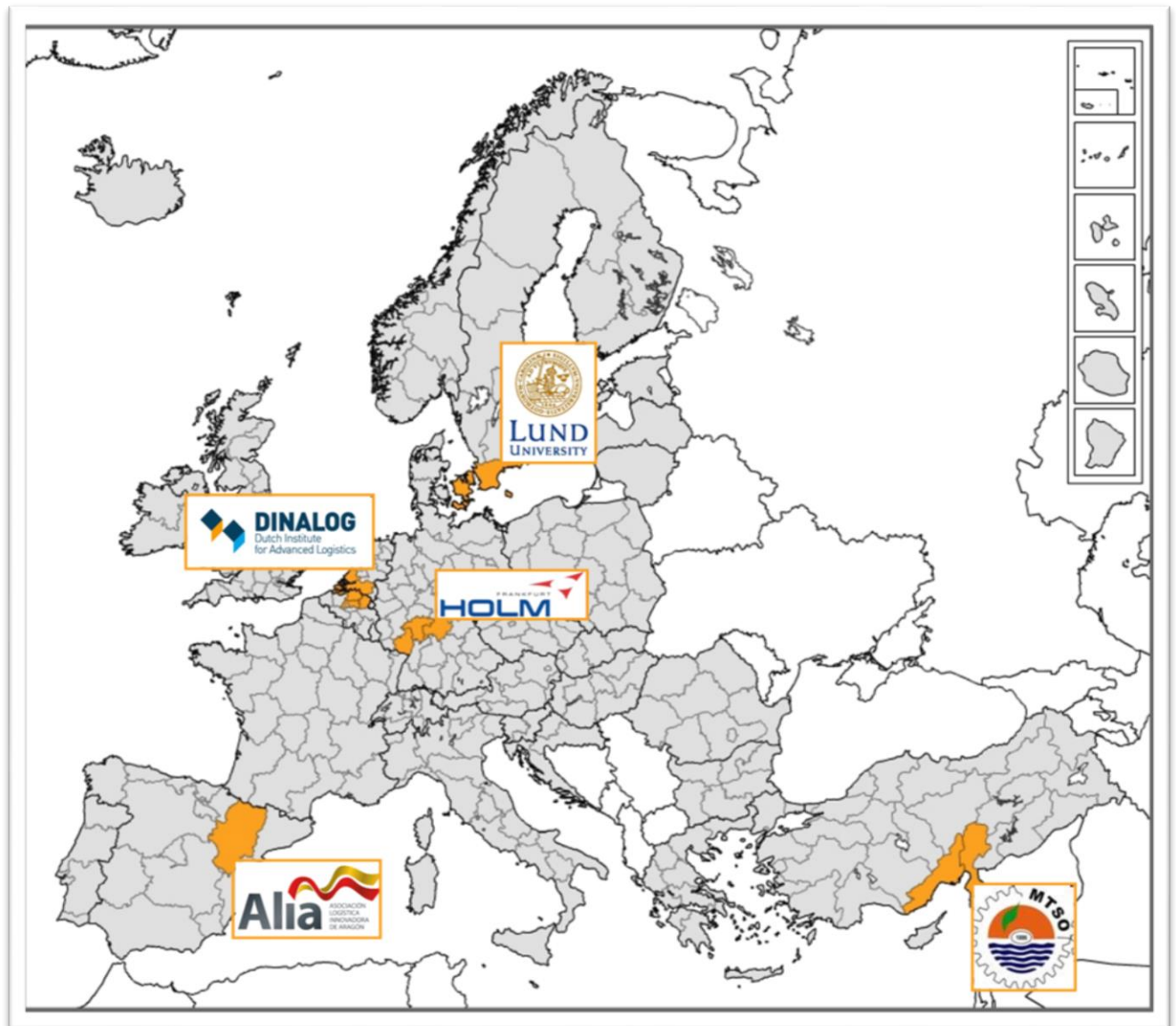


Figure 1: Logistic Gateways in Europe – Partners of SoCool@EU Consortium

Source: Own illustration, 2012.

1.2 Triple Helix Cooperation

The basis for this platform is the existing strong triple helix collaboration between regional authorities, knowledge institutes and business entities within the participating regions. SoCool@EU will further develop, strengthen and expand the collaboration both within the clusters, and more importantly between the clusters, on a European level. A Joint Action Plan, as the input for the European platform, will be developed. The cluster report at hand functions as the analytical basis of such a Joint Action Plan: It will give an insight into the regional profile, the strengths and weaknesses of the clusters and will develop recommendations for action as well as uncover joint cooperation areas.

1.3 Overall Project Plan for the Consortium

The European Commission has agreed to a project plan by the official Description of Work (DoW). The project plan describes the project objectives and how to create a European platform for cooperation and mentoring between research-driven regional logistic clusters.

Year 1 – 2012	Year 2 – 2013	Year 3 – 2014
◆ Quality Assurance Plan (03/2012)	WP 1 – PROJECT MANAGEMENT	
WP2 - ANALYSIS	◆ Cluster Report & Workshops (09/2012)	
	WP3 - JOINT ACTION PLAN (JAP)	◆ JAP & Business Plan; EU Cluster Conference (06/2013)
		WP4 - IMPLEMENTATION
		European Platform with specific joint projects (12/2014) ◆
Needs/SWOT Analysis (12/2012) ◆	WP5 - MENTORING	
		JAP mentoring region (12/2014) ◆
Dissemination Plan (03/2012) ◆	◆ Website (06/2012)	WP6 - DISSEMINATION
		Final conference & Dissemination Reports (12/2014) ◆

Table 1: Project Plan of SoCool@EU

Source: Own illustration, 2012.

These objectives are achieved along different work packages (WPs), each resulting in clear outcomes and deliverables. The consecutive modules WP2 Analysis, WP3 Joint Action Plan, and WP4 Implementation represent the core content modules in sequences of the project whereas WP1 Project Management, WP5 Mentoring and WP6 Dissemination proceed in parallel over the whole project period.

WP2 analyses the clusters in the project for their competitive profiles in logistics and transport and derives needs for common action between the clusters. This analytical basis will be developed into a cluster report (present document), with workshops in the cluster regions verifying the results. WP3 is based on the analysis and will translate the common needs for action into specific joint cooperation area ideas and activities in order to implement them in WP4. WP4 will provide detailed implementation plans for the cooperation areas but also an overall basis. One of the deliveries in WP4 is this Overall Implementation Plan and to develop best practices.

Aside from these consecutive content modules, the project management in WP1 builds the continuous frame to organize and structure the project. WP5 regarding mentoring stretches in time over the whole project and focuses on the region Mersin and how to build triple helix cluster collaboration. WP6 is about constantly communication of the project results to experts and interested public in Europe.

1.4 Operable Project Planning, WP4 Deliverables

The cooperation areas developed in WP3 and the Business Plan (BP) will be implemented in WP4. The Joint Action Plan (JAP) and Business Plan will be broken down into an operable cooperation area planning system with the definition of cooperation area goals, deliverables, implementation schedules and activities. The implementation phase will also clarify the engagement of stakeholder in the clusters, identify funding sources and drive the integration of cooperation areas with other projects, programmes and initiatives.

The cooperation areas and their related activities will be further developed and implemented in WP4. Cooperation areas will involve partners from industry, research, and government where applicable. The planned minimum work agenda for each cooperation area includes:

- a specific mapping of possible funding sources.
- a compilation of existing cooperation areas and contact persons in all SoCool@EU clusters.
- interviews with two companies and one research institution and public authority each.
- a European workshop at the driving cluster where relevant stakeholders from all over Europe will give input to the cooperation area.
- an implementation plan including cooperation area outline/idea, concrete partners, and funding proposals, which is outlined in this Overall Implementation Plan document.

WP4 started in July 1, 2013 and will be finalized in December 31, 2014 with the establishment of a platform concept for Europe-wide cluster cooperation. The results of the implementation for the cooperation areas are expected to have relevance and influence long after the SoCool@EU project has been finalized.

Task		2013						2014										Partner		
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		35	36
4.1.1	Mapping possible sources of funding																			Lund University + Driver of project
4.1.2	Regional cluster workshop																			All cluster
4.1.3	List of existing projects and experts																			Driver of project
4.1.4	Interviews with experts																			Driver of project + Co-driver
4.1.5	European Workshop per selected project																			Driver of project
4.1.6	Final implementation plan per project																			Lund University + Driver of project
4.1.7	Overall Implementation Plan of JAP (D4.1)																			Lund University
4.1.8	Platform Concept (D4.2)																			Lund University

Activity on-going

Milestone

Delivery

Activity on-going
Milestone
Delivery



Table 2: Project Development WP4

Source: Own illustration, 2014.

1.5 Purpose of the Project SoCool@EU

The purpose of the project is to:

- foster trans-national cooperation between research-driven clusters as well as mutual learning between regional actors
- develop and implement joint action plans at the European level to increase regional economic growth and competitiveness
- support the internationalization of the regional research-driven clusters
- mentor regions with a less developed research profile

1.6 Objectives of the Project SoCool@EU

1.6.1 Strategic Objectives

Indicator: European platform (two years after SoCool@EU has finished, the platform will still exist with active participation of its members).

1.6.2 Operational Objectives

- ✓ *Fostering trans-national cooperation between research driven clusters as well as mutual learning*

between regional actors

Indicator: at least two joint cooperation areas are submitted for additional funding by the end of the project period of SoCool@EU.

- ✓ *Developing and implementing joint action plans at the European level to increase regional economic competitiveness*

Indicator: All partners in the SoCool@EU have developed a Joint Action Plan and started the implementation by the end of the project period of SoCool@EU.

- ✓ *Supporting the internationalization of the regional research-driven clusters*

Indicator: The SoCool@EU consortium has established links with at least two additional European clusters and two clusters outside of Europe by the end of the project period of SoCool@EU. These links will be established with world-class clusters in logistics and transport as well as with clusters with less developed profiles.

- ✓ *Mentoring regions with a less developed research profile*

Indicator: A mature regional research driven cluster is established in Mersin by the end of the project period of SoCool@EU.

2 Theoretical Concept – Clusters Develop Regional Growth

The present analysis is based on the idea that regions achieve competitive advantage and prosperity through the presence of so called “clusters” and the quality of the regional business environment these clusters provide.

2.1 Clusters

The first international conference on the theme networks where held in Lisbon in 1993. At that time, the expectations on clusters were more modest as “an excellent way to simultaneously promote the competitiveness of companies and cohesion of regions.”¹ Advocates believed that clusters and networks could lead to economic growth and sustained competitiveness in less populated areas, with focus on rural economic recovery. They were targeted at economic and social problems.

The interest in cluster approaches came by their reliance on collaborative and cooperative activities, which became fundamental to the success of clusters. Clusters reinforced the progressive growth of the economic system and balanced competition with cooperation. It also developed a system view of the economy with clusters as regional production systems that include many actors and organizing economic data.²

Clusters were initially viewed through a single lens, focusing on economic outcomes, growth in jobs, development of enterprises and competitiveness. Later the so called triple bottom-line (People Planet Profit) has become a major part in public awareness, and so more lenses were added to support this. A second lens started focussing on the most disenfranchised people and places to generate employment and entrepreneurial opportunities. And finally a third lens now focuses on environmental sustainability. In recent times, cluster strategies became more oriented towards competitiveness and innovation and brought clusters to more metropolitan regions and industries.

According to Professor Michael Porter from the Institute for Strategy and Competitiveness of the Harvard Business School, who has also driven the topic with European experts from his worldwide Microeconomics of Competitiveness Network, clusters are...

“...geographically close groups of interconnected companies and associated institutions in a particular field, linked by common technologies and skills. Clusters take varying forms depending on their depth and sophistication, but most include end product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries. Clusters also often include firms in downstream industries, producers of complimentary products; specialized infrastructure providers; government and other institutions providing specialized training education, information, research, and technical support.”³

Geographic concentration of directly or indirectly interlinked enterprises and institutions, acting within a certain field, with their individual activities, form a regional value system. Strong and competitive clusters are a critical component of a strong economic development.

¹ Portugal Ministry of Industry and Energy, Cooperation and Competitiveness: Inter-firm cooperation-a means toward SME competitiveness, Proceedings of an International Conference, Lisbon, Portugal, October 6-8, 1993.

² Porter, M. E. (1998). “*Clusters and Competition: New Agendas for Companies, Governments, and Institutions*” in *On Competition*, Cambridge, Massachusetts: Harvard Business Review Books.

³ Porter, M. E. (2001). *Clusters of innovation initiative*. Council on Competitiveness. Atlanta-Columbus.

As the understanding of clusters has grown, clusters have become a prevalent component on economic development plans. The reasons for cluster formation and the benefits of clusters for productivity and innovation are becoming better known⁴.

2.2 Clusters Effect On Regional Wealth

The presence of clusters has an effect on the wealth or prosperity of a region by influencing the level of productivity, innovation and new business formation in a region. Geographic proximity pools specialized input, such as labour, and quick accessibility to these production factors. Innovation can be generated through close collaboration of actors and quickly spread through short communication channels in the region. The rapidly diffusing knowledge about regional market developments give an early insight into new business ideas and lead to business renewal and new business creation.

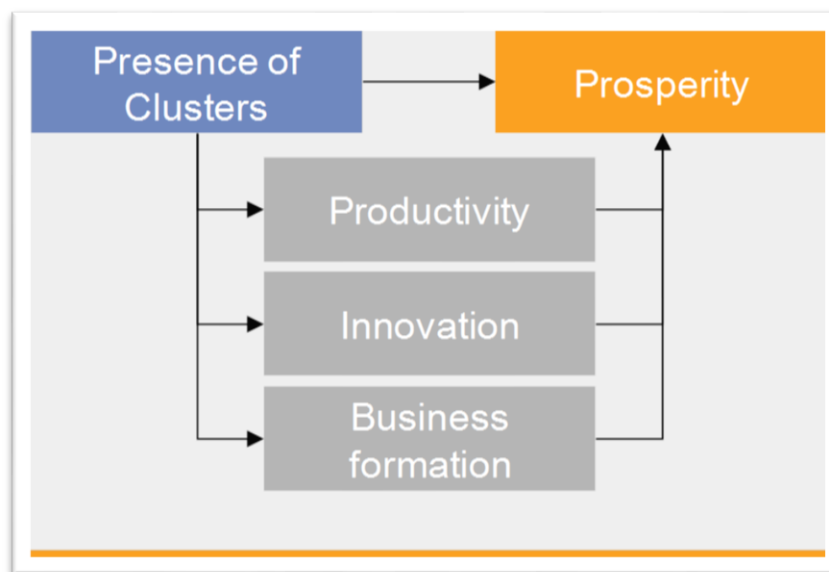


Figure 2: Clusters as Drivers of Regional Wealth

Source: Raschke, 2009.⁵

A critical driver of innovation output is the quality of the regional or cluster business environment in which firms operate. This environment is embodied in four broad areas, the so-called Porter Diamond Model, that affect the productivity that can be achieved as well as the rate of innovation of companies. These four areas have been set as the basis of the analysis. Queried survey items in the online-questionnaire, which will be mentioned in the methodology chapter, were based on the four dimensions. It was important to have an overall view of the business environment, which is captured by the Porter Diamond Model.⁶

⁴ Porter, M. E. (2008). *On Competition*. Boston: Harvard Business Press.

⁵ Raschke, F. W. (2009). *Regionale Wettbewerbsvorteile*. (C. Jahns, Ed.) Einkauf, Logistik und Supply Chain Management. Wiesbaden: Gabler.

⁶ Porter, M. E. (2008). *On Competition*. Boston: Harvard Business Press.

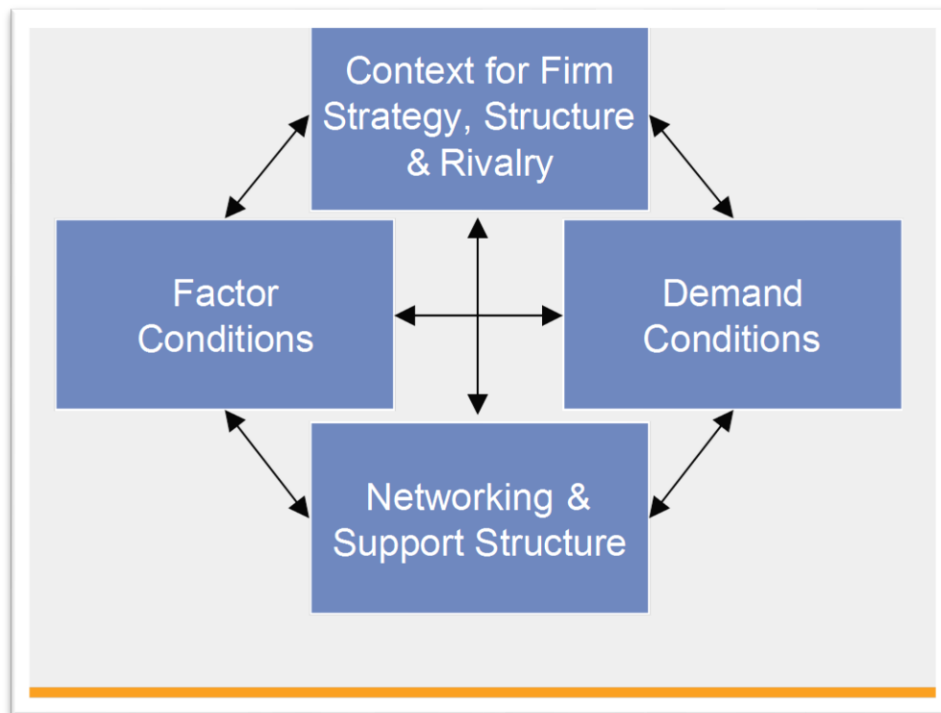


Figure 3: Determinants of the Regional Business Environment (Porter Diamond Model)

Source: Adapted from Porter, 2008.

Factor conditions refer to the presence of high quality and specialized pools of human resources, physical and scientific/technological infrastructures, sources of capital and other input factors that are tailored to the needs of particular industries.

Demand conditions address the quality of demand as the driver for creating and improving products and services. Sophisticated customers in the region or cluster press firms to improve and offer insights into existing and future customer needs. A globalized market demand in the cluster prepares companies for international trade.

The context for firm strategy, structure and rivalry refers to the local conditions that encourage investment and sustained upgrading of productivity and innovation, and thus, regional competitiveness. Examples are the intensity and openness of competition between cluster firms, the overall business conduct or the orientation of companies towards competitive strategies.

The networking and support structure takes up the idea that firms need support activities for their operations and networking, such as the public support with the creation of sector-specific initiatives and networks or with the knowledge and technology transfer. This dimension has been renamed from the original “relating and supporting industries”. The reason is that, compared to the US, public support services next to related and supporting companies constitute an important driver for competitiveness in European clusters. Instead of leaving “government” outside the determining factors of the regional business environment, as in the original Diamond Model, the public support structure has been included in the analysis here. Similar thoughts can be found in latest cluster research⁷.

⁷ Ketels, C. H. M. (2006, July 5). *Strategie entscheidet: Erfolgreiches Clustermanagement*. Frankfurt am Main

2.3 Clusters Performance

Cluster initiatives are a central part of industrial, regional and innovation policy-making across the developed world. A cluster will not achieve regional economic development just by being organized in a network, and the degree of institutionalisation and the objectives of the initiative will never be constant. The clusters have to take initiatives by structured efforts in a triple helix constellation to increase growth and competitiveness. By constant cluster initiatives, the effort wheel will continue to create growth. A model called The Cluster Initiative Performance Model (CIPM) describes how four components affect the performance. The model has three drivers; the setting, the objectives and the process; which affects the performance of each cluster initiative. Networking and facilitators are factors to a successful cluster performance. Cluster initiatives are organized in different ways and stand at different stages in their development. The success of the cluster initiative depends on how it manages the specific challenges in different phases.⁸

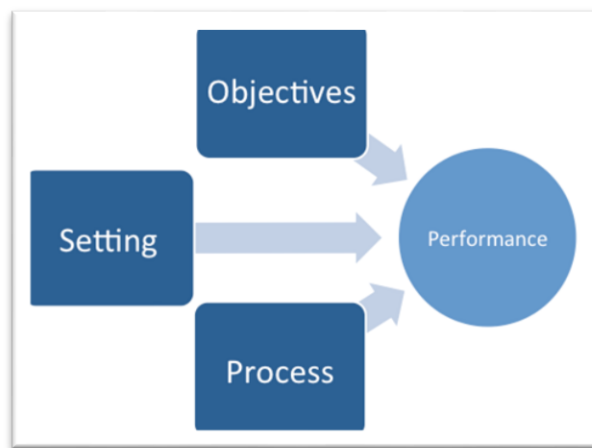


Figure 4: The Cluster Initiative Performance Model (CIPM)
Source: Adapted from The Cluster Initiative Greenbok, 2003.

The performance of a cluster is never constant. The development of a cluster is not constant either.

2.4 Clusters Development

Clusters involve different actors such as companies, governmental institutions, universities and other relevant stakeholders. The activity results in generating new knowledge as well as innovations in processed, organizations or markets. Clusters do not have to be limited to geographic factors, but it will consist of a geographical centre dependent of the actors. Modern ways of communicating (i.e. the Internet, Skype) has improved the exchange, but nevertheless, the actors have to meet face-to face eventually to interact to boost commitment and improve collaborations. Physical meetings are especially important when a problem needs to be solved before continuing to develop the implementation of the project. Personal interaction contributes to build trust between the actors and partners. This is the mandatory resource for successful projects. Geographical proximity makes physical meetings more practically available, and thus giving collaborations a better chance to succeed. But the ability of a cluster to create linkages to the rest of the world in order to access more knowledge and resources, will also be of a successful factor. In order to avoid

⁸ Sölvell, Ö. et. al.. (2003). The Cluster Initiative Greenbook. Stockholm: Bromma tryck AB.

“regional lock-in” effects, a cluster must strive to achieve supra-regional collaborations on both national and international levels.⁹

Dependent on the strength and dynamism of a cluster, three different groups of clusters will be identified.

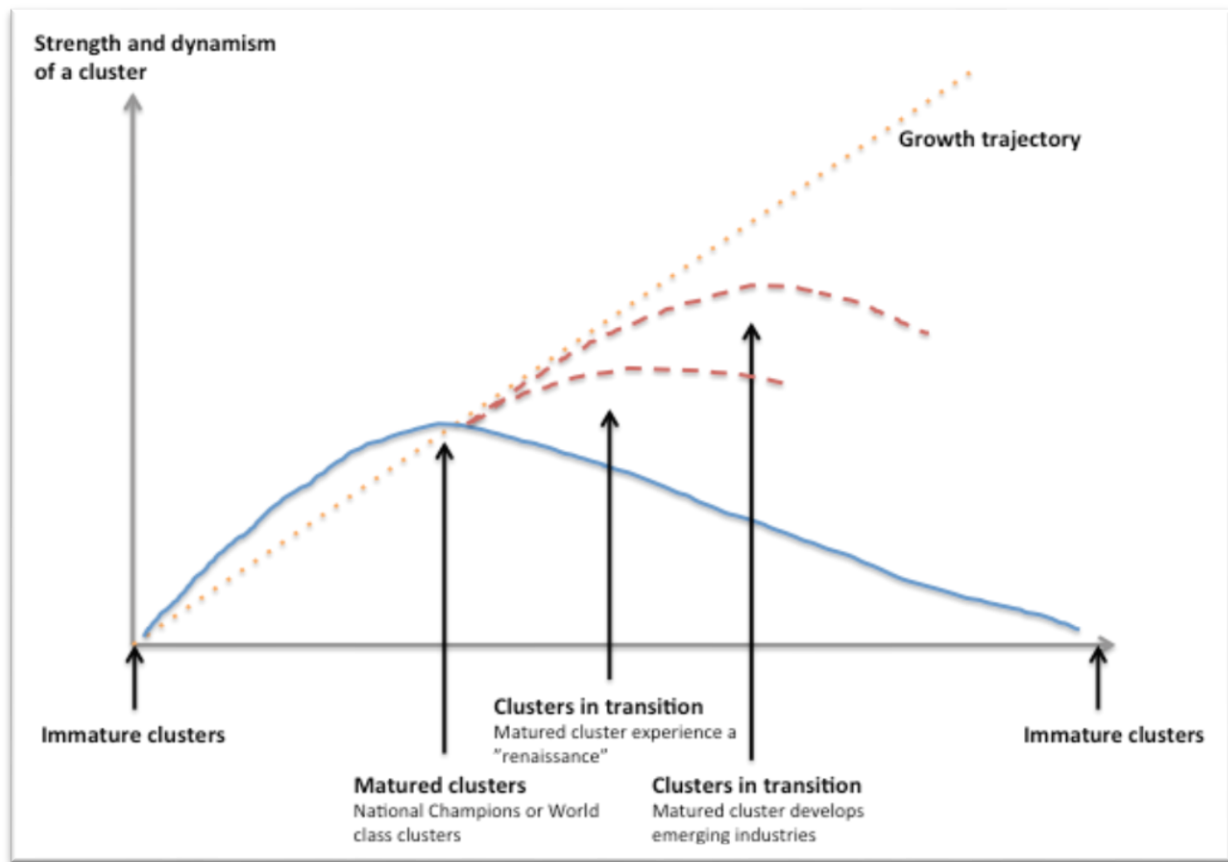


Figure 5: The Life Cycle of a Cluster

Source: Adapted from Sölvell, 2009.

The groups are immature clusters, matured clusters and clusters in transition.

Growing clusters will enter a process of competition in for example capital split. The more successful clusters are built on a combination of internal dynamics and attraction of external resources. Not all clusters “die” as demonstrated in the graphics. Many of the clusters will be further developed by added input, change of constellation or transition activities. Methodology

3 Methodology

3.1 Methodological Approach

The process of defining the cooperative areas for the Joint Action Plan, and future implementation in the SoCool@EU regions, was initiated in WP2. A detailed analysis was performed of the participating clusters to define their competitive profiles within the fields of logistics and transport. The results from the regional cluster analysis yielded a catalogue of current and future themes in logistics and transportation for each region. Regional workshops were carried out with local experts and stakeholders from a Triple Helix

⁹ Sölvell, Ö. (2009). Clusters - Balancing Evolutionary and Constructive Forces. Ödeshög, Danagårds Grafiska.

perspective. This was followed by an analysis to identify possible cooperation areas. These were validated and then recommended as actions for the clusters in WP3. The expert groups gave input to relevant action activities in relation to regional and European business.

The business plan specified objectives, activities, benefits, risks and outlined preliminary actors and funding. The actual participants and funding sources for each cooperation area will be specified in this report, in WP4.

WP5 will develop in parallel to WP2, WP3 and WP4. The exchange of results and development will add input to the final guidelines of a platform concept.

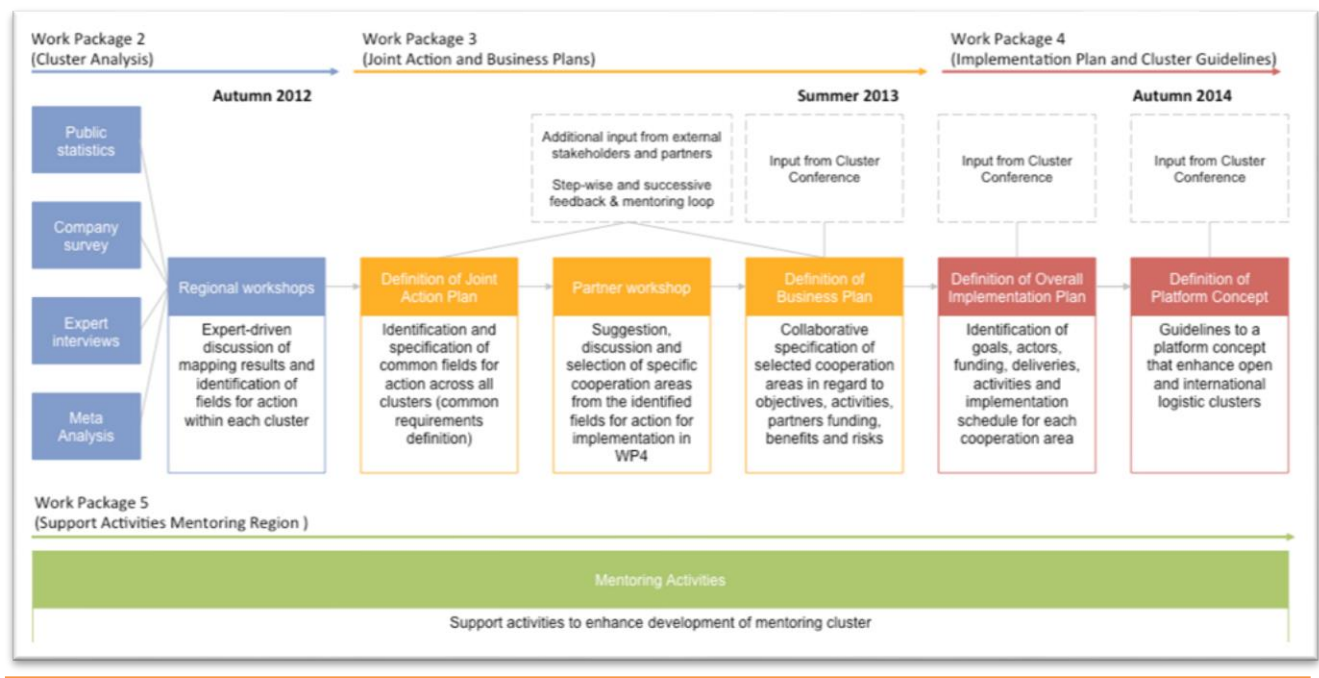


Figure 6: Methodological Approach to Identify European Cooperation Areas

Source: Own illustration, 2014.

The methodological approach used to analyse the clusters is a multi-method design based on both qualitative and quantitative elements. Different research methods provide various insights and perspectives to the complexity of the clusters, and create an overall understanding. It will also enable to identify interconnections between different parts of the analysis¹⁰. A comparable proceeding has been used to examine 15 clusters in the United States by the Clusters of Innovation Initiative Group under the direction of Professor Michael Porter¹¹.

Starting from the defined project clusters, the qualitative part of the analysis comprised open expert interviews with the clusters to find out relevant cooperation area trends in logistics and transport. The aim was also to establish international cooperation between the clusters. The meta-analysis included a literature research, which complemented the primary analysis with secondary data. An online-questionnaire further analysed the general competitiveness of logistics and transport in the cluster regions.

¹⁰ Morse, J. M. (2003). Principles of Mixed Methods and Multimethod Research Design. *Handbook of Mixed Methods in Social & Behavioural Research* (pp. 189–208).

¹¹ Porter, M. E. (2002). *Research Triangle: clusters of innovation initiative*. Washington, D.C.: Council on Competitiveness. Retrieved from http://www.compete.org/images/uploads/File/PDF%20Files/CoC_research_tri_cluster.pdf

Public statistics gave an insight into the approximate economical and innovative performance of the clusters along with selected quantitative indicators.

The final delivery of SoCool@EU is a platform concept of how to build and develop international clusters.



Figure 7: Methodological Approach of the Project SoCool@EU

Source: Own illustration, 2014.

3.2 Online Questionnaire

One main pillar of the data collection was an online-questionnaire based on the Porter Diamond Model (Figure 3). The questionnaire focused on the quality of the regional business environment for logistics and transport in the clusters. Each consortium partner distributed the online-questionnaire to contacts from their own database, addressing higher-level representatives from regional logistics and logistics-related companies.

The first part of the questionnaire addressed the main business purpose of the responding company. The participant had to map their business to the sectors from the cluster definition of the Porter Diamond Model. The rest of the questionnaire was designed with in-depth questions of the regional business environment according to Porter's approach of regional wealth.

3.3 Statistical Analysis

Public statistics data was analysed for all clusters involved in the project. This input led to the definition of the following indicators to be part of the analysis:

- Gross domestic product per head
- Transport volumes and shares according to the four transport modes (modal split)
- Employment totals in the transportation and storage sector (NACE category H/cluster core)
- Employment concentration in the transportation and storage sector
- Wages and salaries in the transportation and storage sector
- Number of local (business) units in the transportation and storage sector

3.4 Meta Analysis

The meta-analysis is desk and literature research to complement the primary with secondary data and to provide additional facts and figures as well as new perspectives. This allows further interpretation and evaluation of the primary data and can be an inspiration for the analysis. All regional partners collected

sources on their regional logistics clusters, such as papers, analyses, policy documents, studies or facts and figures from databases. Each partner drew important and relevant facts from these sources and categorized the information according to thirteen factors or codes that are related to the Porter Diamond Model of the regional business environment within the cluster.

- Future trends and challenges in logistics
- Demand conditions in the market (i.e. customer demand for products or services and the growth and evolution of the demand)
- Support structure for companies (e.g. business networks, public funding)
- Industry network/Cooperation (i.e. the type of networking and cooperation with different partners and the design of this cooperation).
- Industry structure (i.e. features and characteristics of the industry structure in the cluster)
- Competition
- Capital market structure
- Education
- Infrastructure
- Research/Innovation
- Soft location factors (statements concerning the quality of life or the engagement and embeddedness of the companies in the region)
- Business Sophistication/Competitiveness (sophistication of firms' operations and strategy)
- Projects (running and future projects dealing with logistics in the cluster)

3.5 Open Expert Groups

The open expert interviews gave more insight to potentials of clusters, challenges and risks within the possibly cooperation areas. The interviews were held with professionals from science, business and regional institutions to understand trends in logistic and transport from a triple-helix perspective. Each partner conducted about 10-20 interviews, equally shared between companies, research/education institutes and political administrative organizations. The partners selected the interviewees. Field manuals with pre-fixed questions gave a structure to the interviews.

3.6 Regional Workshops

The regional workshops served to discuss and verify the data from the previous analysis. The workshops also identified the cooperation areas for the clusters and recommendations to act on a regional and European level. They also helped to establish and strengthen the regional network cooperation, which facilitate the implementation of the joint actions.

All consortium partners organized regional workshops with experts from the triple-helix perspective. As a standardized procedure in the beginning of the session, a representative of HOLM presented the results of the analysis for the cluster. The participants were asked to share their impressions of the results and comment on the findings. After the discussion, the respective consortium partners chaired the debate about relevant cooperation areas as well as recommendations of action for the cluster.

3.7 Data Collection

The results are presented and discussed in the Cluster Analysis Report, D2.1.

3.8 Terminology

As an additional note to this methodology chapter, the words "cluster" and "cluster region" are used as synonyms in the following analysis. This owes to the different official names of the project clusters which sometimes refer to "region" as part of their official name (i.e. Region of Aragón, Øresund Region, Rhein-

Main Region) and in other cases to “cluster” (i.e. Netherlands South West & Flanders Cluster, Mersin Logistics Cluster). “Region”, however, should not be confused with the statistical unit of a NUTS region for example. For this reason, the specific term of “cluster region” was coined to be unequivocal for the reader.

4 The Logistics Gateways in the European Context

The project SoCool@EU has through a careful analysis identified eleven cooperation areas for implementation within these themes.

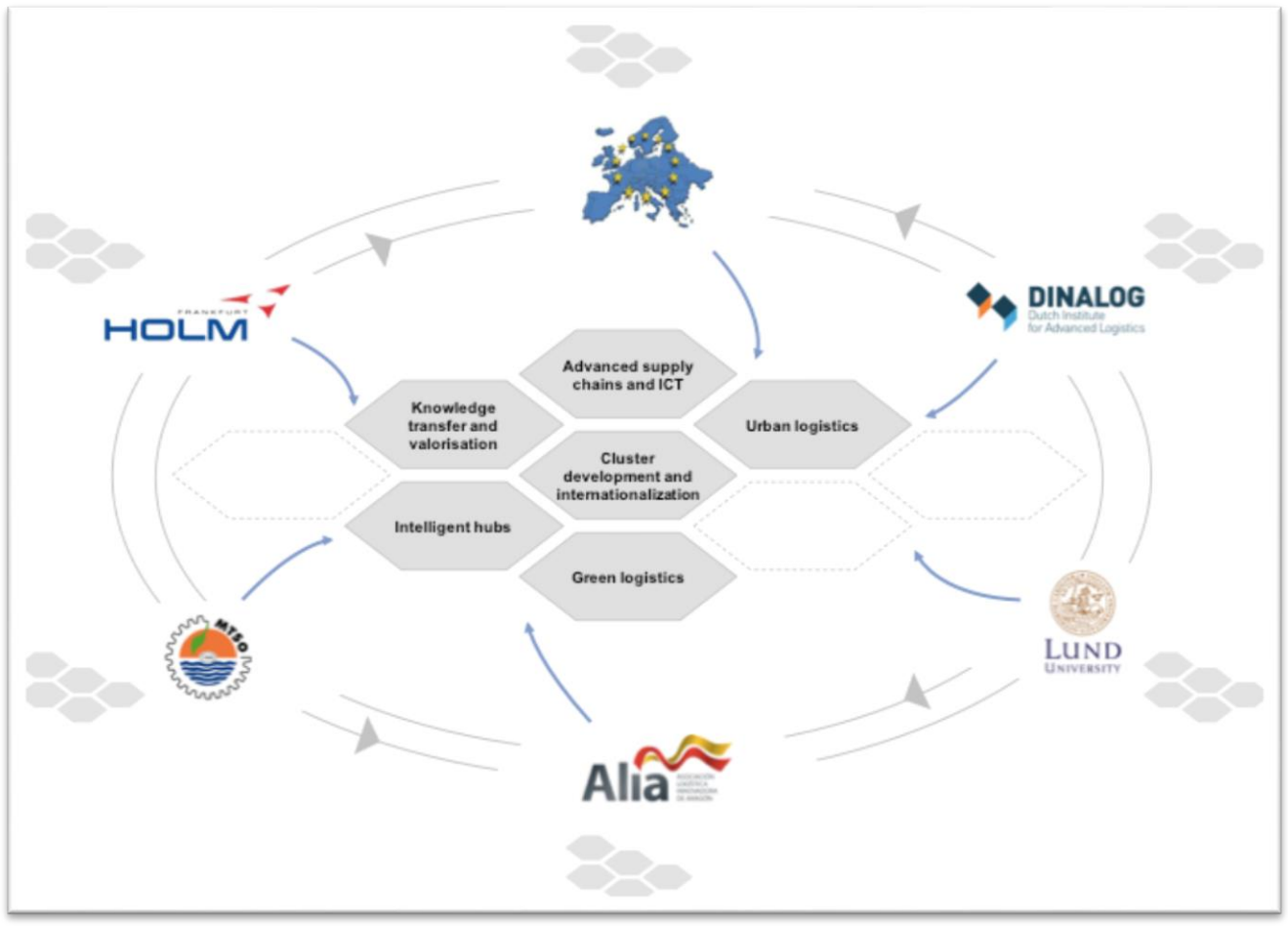


Figure 8: Joint Action Plan for European Logistics on the SoCool@EU Platform

Source: Own illustration, 2014.

Every cooperation area has been developed to an implementation plan in the following chapter.

Above developing new knowledge for each cooperation area, the learning process of cooperating in a newly established cluster will be analysed and used as input for future cluster collaboration.

5 Analysis of presented proposals and their implementation plan.

The objective of the Joint Action Plan is to describe how the partners will work with the implementation of the identified cooperation areas. This is developed into implementation plans. As a common denominator, these cooperation areas have a potential on an European level. The partners of SoCool@EU will stay in close connection to support the development of all cooperation areas. All clusters will follow activities and provide results as input to the SoCool@EU platform. This will create synergies among involved stakeholders.

The clusters are open to future topics and added actors, which is one of the objectives of the project. All logistic regions in Europe are invited to join the development of cooperation areas.

The identified cooperation areas have different methods to achieve development during the implementation. Some cooperation areas will be developed by using expert groups or network platforms as progressive methods. Others will use traditional project models to further develop the area within the cluster. A few of the cooperation areas use multiple methods. Table 3 provides an overview for each cooperation area.

	Expert Group	Network Platform	Project Process
Smart Humanitarian Logistics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clusters Orchestr. Horizontal Collaboration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Syncromodal Supply Chain Management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Int. Expert Groups in Logistics & Mobility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empowering Inter-Cluster Collaboration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Green Supply Chain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Impact of E-commerce Service Models	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Innovative Models Rail Freight Transp.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Incr. Efficiency Inbound Through ICT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Logistics Education, Training & Valorisation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
European Pilot Solutions for Urban Logistics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Table 3: Chosen Method for Development of the Cooperation Areas on the SoCool@EU Platform

Source: Own illustration, 2014.

The following sub-chapter outlines the problem background of each cooperation area, conceivable solutions, methods as well as identified actors and fundings.

5.1 Smart Humanitarian Logistics

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.1.1 Background

Humanitarian logistics takes up the idea of the preparedness for fast and slow onset disasters (including, e.g. the development of competence, supplier relationships, and prepositioning of stocks), response (during a disaster), and recovery (getting back to normal state, e.g. rebuilding). Furthermore, there are also logistic activities related to long-term development such as education and fighting diseases. Humanitarian logistics often involves coordinating a large number of independent actors, unpredictable demands and information levels, conflicts and political instability, as well as varying levels of infrastructure. Logistics accounts for up to 80% of the total costs of relief operations. In disaster-relief logistics operations, it is estimated that every year between 2.5 and 7 billion USD are lost due to inefficiencies. At the same time, more than 25 million people in need do not receive support due to insufficient funding. The potential benefits from improvements in efficiency of logistics are immense.

5.1.2 Existing Projects, Networks and Experts

n/a

5.1.3 Objectives

The objective of this cooperation area is to identify and develop best practices and innovations within humanitarian logistics in order to improve overall efficiency in operations. One question in this context pertains to what humanitarian logistics can learn from the vast knowledge accumulated in commercial logistics as well as from other humanitarian and emergency management areas.

5.1.4 Activities

- Establishment of Expert Group within humanitarian logistics at a European level.
- Development of education and training modules with humanitarian logistics for students and professionals
- Development of a project idea within Crises and Disaster resilience in EU, within critical infrastructure, logistics as well as supply of essential goods such as medicine, food and water.

5.1.5 Impact

To establish a European expert group or network of experts within humanitarian logistics where humanitarian organization, companies and research institutions exchange knowledge and develop new services and products. The cooperation area will also lead to the development of new triple-helix project ideas. These could focus on improved training and education within humanitarian logistics and Supply Chain Management for professionals as well as to the development of a project idea for Crises and Disaster Resilience within logistics and supply chain management.

5.1.6 Potential partners

Companies

Potential companies are Kuehne + Nagel, DHL, Scan Global Logistics, DAMCO, DB Schenker, North Star and Øresundsbron A/S.

Research and knowledge institutions

Lund University, University of Applied Sciences in Fulda, Kuehne Logistics University, Erasmus University Rotterdam and University of Mersin.

Authorities

The Danish and Swedish National States, the Capital Region of Denmark and the Region of Skåne. Furthermore the UN organisations in Copenhagen.

5.1.7 Implementation Plan

A range of European workshops and expert meetings are being held in 2014 in order to share knowledge and develop ideas for cooperation.

The activities are developed in a GANTT chart, Appendix 8.1.

Funding

Possible funding is Horizon2020: DRS-07-2014: "Crisis Management topic 7: Crisis and disaster resilience - operationalizing resilience concepts". Deadline August 2014. Other funding calls or sources might also be valid.

5.1.8 Contact Details**Mr. Jan Boyesen**

Business Development Manager

Danish Transport Innovation Network & Maritime Development Center of Europe

E-mail: boyesen@maritimecenter.dk

Mobile: +45 2875 4081

Website: <http://www.tinv.dk> and <http://www.maritimecenter.dk>

5.2 Clusters Orchestration of Horizontal Collaboration

Fields of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.2.1 Background

It has been common practice for individual shippers to optimise their respective distribution systems in such a way that their own customers are best served. For less-than-full-truck-load shipments, the fact that shippers' warehouses are geographically dispersed has to be compensated by the logistics service providers' consolidation network. This is especially relevant for perishable goods supply chains, where often small and medium-sized companies with limited capacity have to fulfil sophisticated logistics requirements of retailers. Recent research and pioneering pilot cases have revealed that extensive consolidation efforts and the related surplus kilometres and emissions could be avoided through an improved efficiency in the system obtained through horizontal collaboration of manufacturers. An exemplary practice resulting from horizontal collaboration regards the co-location of stocks of companies delivering to the same customers or customer regions. If these collaborating shippers are granted only a limited degree of flexibility from their (joined) customers in terms of delivery quantities and/or timings, possibilities for synchronisation and bundling of transport flows open up, leading to an optimisation of activities in a way that is not achievable for individual companies acting on their own. Efforts made towards horizontal collaboration may also contribute significantly to achieving the European Commission's ambition of reducing greenhouse gas emissions by 60% in 2050¹².

5.2.2 Existing Projects, Networks and Experts

- CO3 legal framework, gain-sharing mechanisms and pilots. The CO3 project has provided a comprehensive, freely available overview of the topic of horizontal collaboration and demonstrated its benefits and viability through various industrial cases. The project has developed tools to help facing typical adaptation barriers referred to in practice (e.g., anti-competitiveness, possible exit strategies, gain sharing), agreement templates and business models based on a transparent and neutral trustee role.
- Modulushka: open standards for load units, real time identification and routing through open facilities.
- Collaborative Logistics – how to reduce the costs and CO2 in transport and logistics (Lead by DTU transport in Denmark).

5.2.3 Objectives

The main objective of the project is to develop and implement real cases of horizontal collaboration between partner companies in every region in order to increase efficiency in transport and warehousing through collaborative bundling and synchronisation of activities. Possibilities for additional value generation should be investigated in regard to actors from different logistics clusters collaborating in sharing information about transportation flows and realising the related potential synergies. Logistics clusters - as hubs of activity, knowledge, and experience - can assume a central role in the promotion and diffusion of horizontal collaboration as a practice for industry.

¹² COM (2011) 112 final. "A Roadmap for moving to a competitive low carbon economy in 2050". European Commission, Brussels, 8.3.2011.

5.2.4 Activities

- Review of insights from recent implementations, related EU-funded projects such as CO3, and results from recent cases on horizontal collaboration in general and particularly in cases where logistics clusters were involved.
- Identification of business models of horizontal collaboration through clusters and associations, as well as the different stakeholders involved. E.g. logistics clusters as online and offline orchestrators and neutral coordinating entity, collaboration between, e.g. clusters, clusters from other sectors, shippers and logistics service providers (LSPs). Business models should integrate organisational and operational issues both from intra-cluster and inter-cluster points of view.
- Development and deployment of the necessary operational tools and multi-party agreements (e.g. on gain- and value-sharing, entry-exit rules, contracts).
- Pilot applications in specific industries. Two different test cases are being proposed through ZLC:
 - “Horizontal collaboration in the automotive sector”: This business case would leverage new synergies in the common horizontal logistics flows in the automotive sector to obtain supply chain integration and obtain a reduction in the number of delivery vehicles (including empty running vehicles) and CO2 emissions while obtaining logistics cost savings. To implement these collaborative practices, professional associations (and institutions) in the automotive industry have a key role in order to guarantee neutrality as well as fairness. This business case includes two collaboration scenarios:
 - 1: Collaboration between the manufacturers (OEMs). Long haul. The Odette association will promote the standards and establish a neutral trustee that can promote and develop the horizontal collaboration of the OEMs.
 - 2: Collaboration between the manufacturers. Last mile. The B scenario will include, if desired, the aspect of e-commerce. Car repair shops purchase online the necessary spare parts from the OEMs and these are delivered to the repair shops located in urban areas. The delivery of this type of packages could run through urban consolidation centres and thereby the last mile deliveries could be cross sectorial (urban deliveries of spare parts together with other type of packages).
 - “Developing synergies in Iberian supply chains, combining corridor and urban freight transport. Barcelona, Zaragoza, Lisbon”: This pilot case will be focused on the development of Supply Chain Synergies practices at different levels, considering different roles to identify and exploit these Synergies. Stakeholders such as shippers associations, like the Spanish technology platform on logistics, Logistop (Spain), ports, or corridors managers, will play a key role to detect synergies in logistics flows (off-line trustee/neutral orchestrator). Next to this they have to implement collaborative practices, as well as disseminate the best practices and standard practices between the shippers and between logistics service providers in a particular region (Iberia for this case). Ports could also expand their services as an on-line trustee, making use of the Ports Community System and playing a role in flows orchestration. These kinds of stakeholders have already built trust among their members, and shippers will be more comfortable sharing information. Moreover, they will guarantee neutrality as well as fairness in value sharing, the key aspects for sustainable collaborative practices in the long term as demonstrated by CO3 project. Moreover, these stakeholders can have and orchestration role and conglomerate flows shifting from road to co-modal solution. At this level, the case will explore and demonstrate the specific business case for these initiators of the horizontal collaboration: Shippers Associations, Ports and Corridors Managers. One of the mayor benefits of this concept will be the impact of the roll-out and spill-over of this practice among other associations, port community systems and corridor managers. There will be B2C supply chains in the demonstrator, namely e-commerce distribution in the areas of Lisbon and Zaragoza.

- Urban Collaborative Last Mile Logistics“: Urban Collaborative Last Mile Logistics is the idea of an urban consolidation centre for multichannel retailers. It allows retailers and shippers to bundle their good flows on the last mile. The collaborative is able to carry out deliveries to retail outlets (B2B) and to end consumers (B2C) as well as reverse logistics for return consignments.
- “Sustainable E-commerce parcel delivery by including consumer behaviour”: Customized booking slots for last mile delivery in which consumers supply their availability information to (collaborating) LSPs to improve success rate of first delivery attempt. Multiple e-commerce channels can be jointly bundled.
- Applications have to explicitly address the perspectives of shippers; logistics service providers and the society in order to achieve a collaboration that is beneficial for all stakeholders.
- Dissemination and transfer of best practices in horizontal collaboration as well as experiences and lessons learned from pilot applications to other regions and/or industries.

5.2.5 Impact

Actions in this area will be a supporting step towards the establishment of horizontal collaboration as a standard in the logistics sector. It is expected that widespread horizontal collaboration could reduce energy consumption and thus CO² emissions of the supply chains in focus by at least 30%. Furthermore, the pilot collaborations, which the cooperation area will initiate, could serve as an inspirational example for future collaborating shippers. To implement these collaborative practices, professional associations in the different sectors and industries will have a key role in order to develop feasible and efficient business models in the sector to guarantee long-term sustainable and fair horizontal logistics flows' practices. With the inclusion of sectorial associations, this cooperation area will incorporate a neutral role that develop, validate and implement the standards in the sector, as well as guarantee the further dissemination of best practices.

5.2.6 Potential partners

Companies

- DHL Supply Chain (NL/DE)
- Carreras Grupo Logistico (ES)
- Argusl BV (NL)
- DPD (Netherlands) B.V (NL)
- RFS Holding/Wehkamp (NL)
- Binnenstadservice (NL)
- Tata Steel (NL)
- Logata Gmbh (DE)
- MAN Turbo & Diesel
- Jyden Workwear A/S
- App2trade
- RAACO A/S
- H. P. Therkelsen
- Hempel A/S

Research and knowledge institutions

- Zaragoza Logistics Center (ZLC) (ES)
- Dinalog (NL)
- Fraunhofer Institute für Materialfluss und Logistik (IML) (DE)
- Nederlandse organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO (NL)

- Technical University of Denmark
- Danish technological Institute

Other Stakeholders

The Spanish Technology Platform in Logistics, Logistop, will be included under Zaragoza Logistics Center as well as international associations such as Odette International.

Danish Transport Innovation Network.

5.2.7 Implementation Plan

A first-stage European proposal that will cover both project idea number 2 “Clusters' Orchestration of Horizontal Collaboration” and project idea number 7 “The Impact of E-Commerce Service Models on Supply Chain Cost and Emission Efficiencies” has been prepared and presented to the European Commission on the 18th of March 2014 in collaboration with SoCool@EU partners as well as external stakeholders for the topic indicated below. If approved by the European Commission the second stage proposal will be handed in on the 28th of August 2014.

The activities are developed in a GANTT chart, Appendix 8.2.

Funding

Horizon 2020. Call H2020-MG-2014_TwoStages. Topic MG-6.1-2014: Fostering synergies alongside the supply chain (including e-commerce).

5.2.8 Contact person**Ms. Jeanett Bolder**

External Funding and Knowledge Transfer Office Manager/Project Manager

Zaragoza Logistics Center

E-mail: jbolther@zlc.edu.es

Mobile: +34 976 077 603

Website: <http://www.zlc.edu.es>

5.3 Synchromodal Supply Chain Management

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.3.1 Background

From a shipper's perspective, synchromodal transport means that a shipper agrees with a Logistics Service Provider (LSP) on the delivery of products at specified costs, quality, and sustainability, but gives the LSP the freedom to decide on how to deliver according to these specifications. This freedom gives the LSP the possibility to deploy different modes of transportation flexibly. The decision to switch to different modes of transportation may depend on actual circumstances such as traffic information, instant availability of assets or infrastructure and all other factors that might change requirements. Therefore, actual transport of goods can easily and seamlessly be shifted between different modalities.

Synchromodal transport enables shippers to operate more sustainably, at lower costs and at higher quality. This requires information systems, infrastructures, smart coordination mechanisms, policies, and legal possibilities to be able to use different transportation modes flexibly to deliver maximum value to the shipper or end customer.

5.3.2 Existing Projects, Networks and Experts

Existing Projects

- Ultimate: Efficient Multimodal (Dinalog)
- Design of LNG Networks (Dinalog)
- Cargo Hitching (Dinalog)
- Cargo Driven Intermodal Transportation (Dinalog)
- Synchromodal IT (Dinalog)
- Modal Shift in Total Logistics (Dinalog)

Related cooperation areas are for example Ultimate Efficient Multimodal, Synchromodal IT, Cargo Driven Intermodal Transportation, Design of LNG Networks, DAIPEX and IPSI (Improved Port/Ship Interface). Dinalog has very good contacts with the partners and the associations that are involved in Dinalog and EU funded cooperation areas.

Networks

- Dutch logistics cluster (Dinalog)
- SoCool@EU clusters

Experts

- TNO
- ECT (European Container Terminals)
- Other experts from SoCool@EU

5.3.3 Objectives

The objective of the cooperation area is to explore how to use the existing transport infrastructure and resources more efficiently by developing sophisticated synchromodal transit chains through improved information availability, exchange, better and more flexible operations planning as well as scheduling. This requires information systems, infrastructures, smart coordination mechanisms, policies, and legal

possibilities to be able to use different transportation modes flexibly to deliver maximum value to the shipper or end customer while using the infrastructure and vehicles more efficiently. In addition, it implies a holistic analysis and step forward to the application of the synchromodal concept, including the investigation of the societal costs and benefits of a synchromodal view on (freight) transport, the identification of the most important barriers for implementation and transition, and the development of solutions to overcome the indicated barriers.

The development of a National Logistics Information Platform and a well-defined core network of hinterland connections are important conditions.

5.3.4 Activities

The following activities could be carried out:

1. Development of strategies for a synchromodal transport system with associated new logistics/service concepts, ICT systems, infrastructures (terminals) and possible vehicle concepts.
2. Deployment, assessment, and evaluation of a synchromodal transport system to optimise logistics and supply chains.
3. Linkage of companies from different clusters to develop efficient "back-hauls" for synchromodal shipments. Clusters could identify possible products for "back-haul" to avoid empty shipments.
4. Development of a national logistics information platform and a well-defined core network of hinterland connections.
5. Review of supply chain agility concepts in the context of synchromodal transport as the ability to deal with risks inherent in all logistics operations (e.g. continuation after disruption or disorder).
6. Identification of appropriate business models for the synchromodal concept.

5.3.5 Impact

1. More efficient, safer and securer port and terminal operations.
2. Improvement of the utilisation of existing infrastructures and vehicles in order to meet increased demand.
3. Development of a wider e-freight community, including the involvement of SMEs, and business models.
4. Enhancement of flexibility of (inter- and intra-) connectivity's for sustainable (e.g. cost-effective, efficient, safe, secure, environmental-friendly) freight transport within and between hubs.

5.3.6 Potential partners

Companies

- Terminal operators
- Inland terminals
- Logistics service providers (LSP)
- IT companies.
- European Container Terminals (ECT)
- Brabant Intermodal
- PORTBASE
- KEYRAIL
- Modality Software Solutions B.V.
- SAICA (ES)
- Transportes Carreras (ES)
- Grupo Jorge (ES)
- Operinter (ES)

Research and knowledge institutions

- TNO
- Dutch Institute of Advanced Logistics
- Technical University of Eindhoven
- Erasmus University Rotterdam

Authorities

- Port of Amsterdam
- Port of Rotterdam
- Shippers

5.3.7 Implementation Plan

The activities are developed in a GANTT chart, Appendix 8.3.

Funding

This is especially related to the following topics of Horizon2020:

- MG.4.4-2014. Advancing innovation in the Inland Waterways Transport (IWT) sector

5.3.8 Contact person**Dr. Mrs. Meng Lu**

Program Manager International

Dutch Institute for Advanced Logistics

E-mail: lu@dinalog.nl

Mobile: +31 6 4505 4735

Website: <http://www.dinalog.nl>

5.4 International Expert Groups in Logistics and Mobility

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.4.1 Background

The cooperation area enables researchers in logistics and transport across Europe to engage in a dialogue in thematic workshops. There is a broad scope of topics in logistics and transport, which as future trends require the joint identification of solutions to challenges in Europe. Oftentimes, knowledge is regional, and there are different approaches to tackling common problems. These regional silos of knowledge needs to be broken up and synergies across regions to be found. One cluster taps into the knowledge of another cluster, and thematic interfaces between the clusters are identified and help avoiding duplicating efforts in the same area.

5.4.2 Existing Projects, Networks and Experts

Has to be examined further in the expert groups. Experts in the above expert groups are already nominated and known to HOLM.

5.4.3 Objectives

The objectives are to setup series of thematic workshops for Europe-wide experts to convene and exchange ideas and knowledge on topics in logistics. These expert groups serve to define common cooperation areas between the clusters and beyond as for example funding cooperation areas, cooperation areas with private investment or joint events. The implicit goal of setting up European expert groups is to support the internationalization and integration of the participating clusters by providing possibilities for its members to establish contacts with smart-specialized actors from other logistics clusters. This objective is to contribute to the goal of a Single European Transport Area.

5.4.4 Activities

Definition of thematic expert groups among the clusters. HOLM has defined the first three open expert groups that will be able to add actors of other European logistics clusters during the process. The next step is to send out invitations to the other SoCool@EU clusters. The definition of the topic might be revised during or after the cooperation area by suggestion of the SoCool@EU clusters.

1. Digital Supply Chain.

The expert group is establishing a neutral platform that promotes cross-industry exchange between IT professionals around the theme of information and document logistics. The workshop series is focused on a permanent exchange of participants on the topics that are based on the digital supply chain, that is, on the value chain from information input to processing and archiving to the information output. The expert group has the following general objective setting:

- Anticipation and assessment of emerging technology trends and the discussion of future challenges and solutions in the control and use of information over supply chain borders.
- Implementation of innovative solutions in exemplary pilot cooperation areas.

2. Practice-driven Advance of Studies and Exchange between European and Non-European Universities.

This expert group has the following agenda:

- Development and integration of application-oriented courses of study for further qualifications of students in selected courses on the topics of transport and logistics, distributed systems and Smart Cities with their new IT technologies.
- Initiation of a scholarship pool with individual support for students by companies and establishments in Europe and beyond.
- Development of dialogue models between universities and companies.
- Definition of indicators for measuring quality of the measures introduced.

3. Urban commercial traffic (related to cooperation area no. 11, esp. point 1).

The main activities address the discussion of solutions in the following areas:

- Data base and modeling
- Construction traffic
- Feasible cooperation models on the last mile

The expert group offers opportunities to present results and discuss the existing challenges in common between the SoCool@EU partners and according exemplary national and international solutions. The cooperation at European level with existing projects in the City logistics area is envisioned.

5.4.5 Impact

The expected impact is to establish a European network of experts within selected topics in logistics and transport, and exchange knowledge for the development of new cooperation areas among European logistics regions. A further impact is to develop and provide a better understanding of the profile and competencies of the different European logistics clusters and to learn from each other.

5.4.6 Potential partners

Companies

Digital Supply Chain: Lufthansa, REWE Systems, Grontmij, T-Systems, IBM, SAAB A/B, DSV A/S and companies from SoCool@EU clusters.

Studies and Exchange: DIALOGistik Duisburg, Internationales Zentrum für Hochschulforschung Kassel, PTV Group, SimulationsDienstleistungsZentrum GmbH, ThyssenKrupp Steel Europe, Kuehne + Nagel, Microsoft and international companies from SoCool@EU clusters.

Urban commercial traffic: DHL Global Forwarding, Deutsche Lufthansa, DB Projektbau, Citylogistik KBH Aps, WUXUS Aps and companies from SoCool@EU clusters.

Research and knowledge institutions

Digital Supply Chain: University of Applied Sciences Frankfurt, RWTH Aachen, Fraunhofer IML, Bremer Institut für Produktion und Logistik (BIBA) and institutions from SoCool@EU clusters.

Studies and Exchange: University of Duisburg-Essen, Chile University and international institutions from SoCool@EU clusters.

Urban commercial traffic: University of Applied Sciences Frankfurt am Main, Technical University of Darmstadt, Zaragoza Logistics Center, University of Zaragoza, Copenhagen Business School, Technical University of Denmark, Danish Transport Innovation Network and further institutions from SoCool@EU clusters.

Authorities

Digital Supply Chain: IATA, BITKOM and authorities from SoCool@EU clusters.

Studies and Exchange: n/a

Urban commercial traffic: Business promotion agency Frankfurt am Main; City of Frankfurt, Road Traffic Office, Department for Mobility and Transport Planning and authorities from SoCool@EU.

5.4.7 Implementation Plan

- Invitation of actors from all SoCool@EU clusters to the expert groups by HOLM.
- Nomination and setup of further expert groups by all SoCool@EU clusters (concept, agenda, location, e.g. topic around synchromodality as initiated by Dinalog).

The activities are developed in a GANTT chart, Appendix 8.4.

Funding

- Private funding through the institutions/organizations of the experts (business, research, public authorities) - travel and personnel cost.
- Funding under European Cooperation in Science and Technology (COST), to be evaluated on an individual thematic basis.

5.4.8 Contact person

Mr. Pascal Huther

Senior Project Manager

House of Logistics & Mobility GmbH

E-mail: pascal.huther@frankfurt-holm.de

Mobile: +49 69 247 52 17-12

Website: <http://www.frankfurt-holm.de>

5.5 Empowering Industrial Internationalization through Inter-Cluster Collaboration

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.5.1 Background

The clustering of different competences along a value chain in a region is an important element of competitive advantages. Successful participation in international value chains is a condition for economic success. To maintain or improve their competitive market position, companies have, since the 1980's, seen themselves forced to adapt their economic strategy to confront the continuously changing technological, political, and economic framework conditions. In this aspect companies need to implement a successful export strategy and carry out wide internationalisation efforts to establish cross-border contacts. This calls for new forms of international cooperation that are often difficult for individual SME companies due to their limited resources. The results of two EU commissioned studies on internationalisation of SMEs seem to portray substantially different pictures on the degree of internationalisation of European SMEs. A recent survey of DG Enterprise and Industry of the European Commission underlines that only 13% of European SMEs are active beyond the EU and stresses the need for more effective cooperation between the parties involved in industrial support to help EU enterprises do business outside Europe more successfully. Clusters in this aspect can help companies, and in particular SMEs, to find partners for international cooperation. Clusters can act as facilitators for companies to help them access international value chains and develop long-term strategic partnerships that can raise their overall competitiveness and innovation capacity.

DG Enterprise and Industry of the European Commission underlines the importance of clusters in helping firms and in particular SMEs to cooperate with strategic partners and become more internationally oriented both within and outside Europe. Several studies confirm that international cooperation between companies could be facilitated if they were affiliated to a cluster. This is motivated by several factors such as the reduction of the costs related to for example the analysis of the intended future field of action for internationalisation and the joint use of resources such as marketing possibilities. There are numerous examples that prove that clusters have been able to realise significant added value as regards to internationalisation of their members (e.g. Minalogic, BioValley, IVAM, NANOMAT, Logistik-Initiative Hamburg or MediconValley) and a network management specialised in this matter has enabled affiliated companies to reach their foreign target markets more easily and successfully than without the assistance of the network.

5.5.2 Existing Projects, Networks and Experts

- European Cluster Excellence Initiative (ECEI)
- European Cluster Collaboration Platform
- ECG - European Cluster Group
- Cluster-Excellence.eu - Excellence for Cluster Management
- PRO INNO Europe
- Europe INNOVA
- Enterprise Europe Network

Other related projects are:

- **SEENECO** (South-East European Network-of-Excellence of Cluster Organisations). The main project objective of the South-East European Network-of-Excellence of Cluster Organisations 'SEENECO' project

is to promote cluster management professionalism in SEE by applying advanced training and benchmarking tools developed under the European Cluster Excellence Initiative (ECEI).

- **CDMC** (Capacity Development for Cluster Managers Project). The overall objective of Capacity Development for Cluster Managers Project (CDCM) is to contribute to the improvement of cluster management in Europe by promoting and developing world-class clusters in Europe which is one of the major tools for increasing the competitiveness, innovation and internationalization.
- **ATC4E** (Atlantic Clusters for Excellence Project). The aim of the ATC4E Project is to upgrade cluster management skills within the participating partner regions of the Atlantic Area of Europe; South West Regional Authority (SWRA) in Ireland; Instituto Galego de Promoción Económica (IGAPE), Sociedad Para el Desarrollo de Cantabria (SODERCAN) and Instituto de Desarrollo Economico del Principado de Asturias (IDEPA) in Spain; and Agência de Desenvolvimento Regional do Vale do Ave (ADRAVE) in Portugal. The Project will employ cluster training and benchmarking materials developed by ECEI, which will later be used across other CIP and European countries, to improve European cluster management skills and encourage the development of world class clusters that will promote competitiveness and economic growth across Europe.
- **CENTRAMO** (Cluster Excellence Network for TRaining And MObility). The overall objective of the CENTRAMO project is to raise the level of excellence of cluster and network management in the member countries and region of the eastern European consortium, namely in Poland, Slovakia, the Czech Republic, Hungary, Croatia and the Izmir region in Turkey by exploiting the results of the ECE Initiative. The end users of the CENTRAMO project will be clearly the cluster organizations with better skills and increased experience to drive the clusters they manage to success.

5.5.3 Objectives

The overall objective of this action will be to provide business support services for international B2B networking and cooperation through the SoCool@EU clusters, which will allow their SME's industrial members to grow and innovate through collaboration and strategic business cooperation.

The strategic objectives to be reached out under this action are:

1. Foster international cooperation amongst companies using clusters and Strategic Cluster Partnerships as tools.
2. Identify and arrange inter-cluster cooperation activities, offering matchmaking opportunities for European cluster organisations and their industrial member with international partners within and outside Europe.

5.5.4 Activities

Development of an internationalisation strategy for business support services

An internationalisation strategy that should include specific activities and services for European cluster organisations and their industrial member with partners inside and outside Europe will be established. This strategy could include for example:

- support/drive legislative measure to remove trade barriers;
- organize networking events such as international study visits and partnering or "matchmaking" missions;
- organise educational events for SMEs on benefits of clusters and internationalisation strategies.

The corresponding implementation of the strategy, the liaison with related stakeholders, and the necessary communication and reporting/follow-up, will also form part of the activities.

Establishment of strategic collaborations

A database of specific related European networks and clusters in the area of logistics and transport will be created and used to establish international contacts. Also, collaborations with several complementary European initiatives should be established to ensure the chances of success. Examples are the Enterprise Europe Network that helps small business make the most of the European marketplace and the European Cluster Cooperation Platform (ECCP) - an online tool for European and international cluster cooperation for the benefit of SMEs that would be convenient for the networking support for the cluster members.

Furthermore, to ensure access to the future European funding that should be offered for cluster collaborations and as an collaboration with the European Cluster Excellence Initiative, the SoCool@EU clusters and possible new cluster collaborators will initiate the process to set up a European Strategic Cluster Partnership that will aim at encouraging the participating clusters to move from networking to developing and implementing joint strategies in new areas.

5.5.5 Impact

Industry members of the SoCool@EU clusters through an internationalisation strategy that will support their cross-border collaborations to penetrate new markets establish contacts for joint transnational R&D activities and cooperation and/or maintain market shares.

SoCool@EU regions as it would boost their economic competitiveness.

5.5.6 Potential partners**Companies**

- Industry partners within and outside the clusters.
- Deloitte (ES)
- SAICA (ES)
- CLH (ES)
- Transportes Carreras (ES)
- Operinter (ES)
- SWEP (SE)
- Bring (SE)
- Nederman (SE)

Clusters

- SoCool@EU cluster organisations and other European and third country clusters in the area of transport and logistics.
- Regional clusters focusing on similar areas.

Research and knowledge institutions

- Related European networks such as ECCP and EEN.
- SoCool@EU partners.

Authorities

Collaboration with regional authorities may be necessary to apply for certain funding sources.

- European tenders from DG Enterprise and Industry.
- Funding from the regional public authorities.
- VINNOVA
- Private investments.

5.5.7 *Implementation Plan*

The activities are developed in a GANTT chart, Appendix 8.5.

Funding

- H2020, INNOSUP-1-2015. Cluster facilitated projects for new value chains
- COSME programme, 2014-2020.

5.5.8 *Contact person*

Lead:

Dr. Mr. Mats Johnsson

Associate Professor, Packaging Logistics

Lund University

E-mail: mats.johnsson@plog.lth.se

Mobile: +46 702 074 344

Website: <http://www.ism.lu.se> and <http://www.plog.lth.se>

Co-Lead:

Mrs. Petra Rantzow

Project Support/Researcher, Packaging Logistics

Lund University

E-mail: petra.rantzow@plog.lth.se

Mobile: +46 705 624 992

Website: <http://www.ism.lu.se> and <http://www.plog.lth.se>

5.6 Green Supply Chain

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.6.1 Background

Freight transport is a main driver of the global and interconnected economy. At the same time the growing transport activities are generating negative environmental impacts. Industry will hardly invest in green conduct without related economic benefits or regulative pressure. The optimisation of supply chains implies coordination beyond borders and can only be realised through a strong international network.

There is already an on-going Lean & Green programme in Europe (NL, BE, ES, DE, IT), which could provide a starting platform for further work. It provides a simple green solution through horizontal collaboration. Efforts to promote horizontal collaboration are closely related to this programme.

The key issues are how to strengthen regional logistics clusters and to stimulate collaboration of clusters in different countries/regions to form part of green corridors.

5.6.2 Existing Projects, Networks and Experts

Existing Projects

- DaVinc3i (Dinalog)
- 4C4Chem (Dinalog)
- 4C4More (Dinalog)
- 4C4D: City Distribution (Dinalog)
- Cross-Chain order fulfilment (Dinalog)
- Extended Single Window (Dinalog)
- Value Creation by closing the loop (Dinalog)
- SALOMO (Dinalog)
- Logistics in Construction (Dinalog)
- SIEEG (Dinalog)
- Bundling at source location (Dinalog)
- IZI Motive (Dinalog)
- 4C for Healthcare Supply Chains (Dinalog)

Networks

- Connekt (ITS Netherlands)
- Dutch logistics cluster (Dinalog)
- Danish Transport Innovation Network
- SoCool@EU clusters
- Lean & Green Programme in NL, BE, DE, IT, ES and will be extended to other countries

Experts

- Dinalog
- SoCool@EU experts
- Erasmus University Rotterdam
- Tilburg University
- Groningen University

5.6.3 Objectives

The main objective is to reduce the negative environmental impacts of logistics. This could be achieved through, for instance, restructuring of logistics systems and supply chains, transferring freight to greener transport modes, design of greener vehicles, aircraft and ships, reducing the environmental impact of warehousing; improving vehicle utilisation, optimising the routing of vehicles, improving fuel efficiency, reverse logistics (including for the waste management), and support of public policy.

5.6.4 Activities

The following activities could be carried out:

1. Identification of compatible business models in the context of green logistics and collaborative piloting in European clusters to stimulate commitment from the industry side.
2. Investigation of possibilities and best practices for smart regulation to set appropriate incentives for the industry.
3. Support for the continued setup of a demand-driven European incentive programme for sustainable and competitive freight transport with a network oriented approach and European-wide impact.
4. Explicit efforts to raise awareness of all companies and authorities involved in a chain for their individual responsibility to reduce CO₂ emissions, thereby articulating shared values and specific targets, and initiating a joint approach to the achievement of these targets.

5.6.5 Impact

1. Improvement of environment by reducing CO₂ and NO_x emission.
2. Stimulation and enhancement of vertical and horizontal collaborations, better services and new business models.

5.6.6 Potential partners

Companies

Companies will be represented from each industry sector. Each SoCool@EU partner is responsible to contact potential partners in its cluster, and to get them involved in the cooperation area.

Research and knowledge institutions

Institutions that have experience in developing concepts for sustainable supply chain and strong expertise within modelling, are interesting to participate. Each SoCool@EU partner is responsible to contact potential partners in its cluster, and to get them involved in the cooperation area.

The institutions involved will be Technical University of Eindhoven (TU/e), Tilburg University, Breda University of Applied Sciences (NHTV), TNO and Zaragoza Logistics Center (ES).

They are involved in other cooperation areas funded by Dinalog, and are looking forward to other funding possibilities, such as Horizon2020.

Authorities

All authorities in the SoCool@EU clusters, which have interest in sustainable regional development, should be involved.

In 2013, the province of Noord-Brabant has provided funding for a horizontal collaboration cooperation area in our cluster. The interest of the authority is to stimulate and support regional development. International collaboration is possible, if bilateral benefit is foreseen. Noord-Brabant is therefore an interesting authority to be involved in this cooperation area.

5.6.7 Implementation Plan

- Find common interest of the SoCool@EU clusters for developing new business cases within green supply chain:
 1. automotive sector;
 2. inland transport.

Further joint actions with other SoCool@EU clusters are appreciated.

- Lean and Green is an on-going programme in our cluster based on national (authorities and industry related) funds. We would like to extend the cooperation area to other European regions. Further joint actions with other SoCool@EU clusters are appreciated.
- SoCool@EU clusters are preparing proposals for Horizon2020, which will cover this topic.

Activity undertaking timeline

The activities are developed in a GANTT chart, Appendix 8.6.

Funding

A highly relevant on-going programme in Europe (NL, BE, ES, DE, IT) is Lean & Green. Other relevant cooperation areas are EU-funded project as CO3 and Dinalog projects (for example 4C4Chem, 4C4More, 4C4D, City Distribution and DaVinci3i). Dinalog has good contacts with partners who are involved in these projects.

Through national funding from each SoCool@EU cluster or joint programme initiatives and/or Horizon2020. Within Horizon2020, the possible calls are:

- MG.6.1-2014. Fostering synergies alongside the supply chain (including e-commerce)
- MG.6.2-2014. De-stressing the supply chain

The companies involved in this cooperation area are working together with Dinalog in other cooperation areas for implementing horizontal collaboration. We are looking for funding possibilities and interest from other clusters to have a joint action. Dinalog will also apply for 3rd and 4th calls of H2020.

5.6.8 Contact person

Dr. Mrs. Meng Lu

Program Manager International

Dutch Institute for Advanced Logistics

E-mail: lu@dinalog.nl

Mobile: +31 6 4505 4735

Website: <http://www.dinalog.nl>

5.7 The Impact of E-commerce Service Models on SC Cost & Emission Efficiency

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.7.1 Background

The growth of e-commerce is a global phenomenon. E-commerce sales in Europe reached 300 billion Euros in 2012 with a predicted 20% annual growth rate. While the growth has been spectacular, the impacts of the e-commerce model on the supply chain are only beginning to be analysed. The transition from a supply chain organised for scheduled delivery service to retail stores, to one that must also handle on-demand delivery to individuals, can result both in cost inefficiencies and increases in transportation-related greenhouse gas emissions. The differences become apparent when comparing the supply chains and their characteristics:

- A retail outlet supply chain (simplified): Manufacturer -- Distribution Centre -- Retail outlet. Shipments are scheduled and in volume. Therefore, no consolidation is required and shipments are transported directly to the customer. High capacity utilisation as well as the direct routing without transshipment operations result in low emissions per transported item.
- An e-commerce supply chain (simplified): Manufacturer -- Outbound consolidation centre -- Distribution centre(s) -- Individual customer. The shipment is often a single item, collected by a delivery service, cross-docked at a consolidation centre, transhipped through one or more distribution centres, and then shipped to the final customer. The consolidation in hubs results in indirect delivery paths and surplus travelled distances. Emissions and costs per transported item are higher in this model compared to scheduled direct delivery.

Assuming that the customer does not travel to the store when using the e-commerce business model, it could be argued that there is a reduction in emissions generated from customer travel. However, in most cases, the customer still travels to the store/mall to either physically inspect the product before buying it on the Internet or to purchase other goods so that in consequence there is oftentimes no reduced customer travel. E-commerce further oftentimes provides generous return policies. Some estimates in the USA have put e-commerce returns as high as 50% versus retail store returns of 10-15%. As a result, e-commerce requires a more sophisticated reverse loop supply chain, which apparently results in higher emissions.

5.7.2 Existing Projects, Networks and Experts

- CO3 legal framework, gain-sharing mechanisms and pilots. The CO3 project has provided a comprehensive, freely available overview of the topic of horizontal collaboration and demonstrated its benefits and viability through various industrial cases. The project has developed tools to help facing typical adoption barriers referred to in practice (e.g., anti-competitiveness, possible exit strategies, gain sharing), agreement templates and business models based on a transparent and neutral trustee role.
- Modulushka opens standards for load units, real time identification and routing through open facilities.

5.7.3 Objectives

E-commerce significantly impacts the supply chain and logistics network designed for efficient deliveries to retail outlets in terms of cost and emission. Since e-commerce is here to stay, it is imperative that supply chains now and in the future quickly adapt and become as efficient as possible in enabling the changing business model. Most manufacturers will continue to support both the retail store model and the e-

commerce model in the next decades, So efficient solutions have to incorporate both models. The current project will attempt:

- a) to evaluate the impact of the changed business model in terms of transportation cost and emissions for a representative supply chain including the reverse loop.
- b) to investigate and suggest alternative network-, inventory-, transportation-, warehousing-, and collaboration strategies to increase efficiency in the e-commerce supply chain.

5.7.4 Activities

In regard to objective (a):

- Collection of trip data for e-commerce model shipments and similar data for retail store model shipments. Data should include reverse loop shipments if possible.
- Definition of required assumptions and detailed analysis of collected data.
- Benchmark/review of findings against other significant e-commerce supply chain analyses (if possible).
- Conclusion and report on whether e-commerce business models have significantly different performance in terms of logistics costs and greenhouse gas emissions vs. conventional retail store models.

In regard to objective (b)

- Intensive search for innovative supply chain practices in e-commerce, addressing costs and emissions (e.g. store-and-forward concepts and innovative packaging).
- Building of teams of researchers and e-commerce supply chain experts and subsequent expert-driven identification and analysis of alternative approaches.
- Development and execution of pilot/prototype studies of the best alternatives identified under various scenarios (extremely positive theoretical results can be monetised at this stage).
- Communication of results from pilot studies and attempts to build real world operations based on successful pilots.

Two test cases are being proposed through ZLC that involve the e-commerce. These have been formerly discussed in 5.2.4 under the section of Advance Supply Chain and ICT, but are also very much applicable for Green Logistics. These were horizontal collaboration in the automotive sector, and developing synergies in Iberian supply chains.

5.7.5 Impact

Through the single delivery model and the frequent return of goods, the e-commerce business model is bound to lead to increased levels of logistics activities. As a consequence, modern transportation solutions for e-commerce will have significant (alleviating) effect for traffic volumes and congestion caused by transportation and delivery activities, especially in densely populated urban areas. At the same time, related efficiency gains may enable reductions in terms of costs and emissions produced in the e-commerce supply chain.

5.7.6 Potential partners

Companies

- DHL Supply Chain (NL/DE)
- Carreras Grupo Logistico (ES)
- Argusl BV (NL)
- DPD (Netherlands) B.V (NL)
- RFS Holding/Wehkamp (NL)
- Binnenstadservice (NL)
- Tata Steel (NL)
- Logata GmbH (DE)

Research and knowledge institutions

- Zaragoza Logistics Center (ZLC) (ES)
- Dinalog (NL)
- Fraunhofer Institute für Materialfluss und Logistik (IML) (DE)
- Nederlandse organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO (NL)

Other Stakeholders

The Spanish Technology Platform in Logistics, Logistop, will be included under Zaragoza Logistics Center as well as international associations such as Odette International and CLEPA.

5.7.7 Implementation Plan

A first-stage European proposal that will cover both project idea number 2 “Clusters' Orchestration of Horizontal Collaboration” and project idea number 7 “The Impact of E-Commerce Service Models on Supply Chain Cost and Emission Efficiencies” has been prepared and presented to the European Commission on the 18th of March 2014 in collaboration with SoCool@EU partners as well as external stakeholders for the topic indicated below. If approved by the European Commission the second stage proposal will be handed in on the 28th of August 2014.

The activities are developed in a GANTT chart, Appendix 8.7.

Funding

Horizon 2020. Call H2020-MG-2014_TwoStages. Topic MG-6.1-2014: Fostering synergies alongside the supply chain (including e-commerce)

5.7.8 Contact person

Ms. Jeanett Bolder

External Funding and Knowledge Transfer Office Manager/Project Manager
Zaragoza Logistics Center

E-mail: jbolther@zlc.edu.es

Mobile: +34 976 077 603

Website: <http://www.zlc.edu.es>

5.8 Innovative Models in the Rail Freight Transportation System

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DINALOG	HOLM	ULUND	MTSO (mentored)	

5.8.1 Background

Increasing the share of rail freight in total transport volumes is one of the key objectives for transport policy in order to reach the European goal of reducing CO₂ emissions by 60% for 2050 compared to 1990 levels¹³. In that, the EC White Paper¹⁴ calls for a modal shift in which 30% of potential road freight transport over 300 kilometres should move to rail and waterborne transport by 2030 (50% by 2050). Although rail freight has been seen as a future opportunity to reduce both costs and negative environmental impacts of logistics, the share of rail freight transport decreased in the EU from 18.8 in 2001 to 17.1 % in 2011¹⁵. Supposedly, one of the main reasons behind this trend is the difficulty to have a truly interoperable and seamless European rail freight network without which rail often performs worse to road in terms of reliability, cost, and lead times. While the interoperability between national rail systems in European countries is still insufficient, there is also a continuing lack of dynamism, reliability, flexibility, and customer orientation on the part of railway undertakings.

5.8.2 Existing Projects, Networks & Experts

Projects

- **CREAM** - Customer-driven rail-freight services on a European mega-corridor based on advanced business and operating models. CREAM analyzed the operational and logistic prerequisites for developing, setting up and demonstrating seamless rail freight and intermodal rail/road and rail/short sea/road services on the Trans-European mega-corridor between the Benelux countries and Turkey, including field validation. CREAM was committed to developing business cases, which were integrated into an innovative corridor-related freight service concept, with respect to:
 - Innovative rail-based supply chains including intelligent rail and multimodal operation models
 - Quality management system
 - **D-RAIL** - Development of the Future Rail Freight System to Reduce the Occurrences and Impact of Derailment. The direction of the D-RAIL project is threefold, involving multiple and diverse objectives: a) Prevention: to reduce derailment impacts to balance the mechanical effect of railway traffic increase on accident numbers. (b) Mitigation: develop, from causal analysis, suitable monitoring / inspection systems to reduce the propensity for freight derailment. (c) Standards: develop, through evaluation and testing, suitable guidelines and outline standards for detecting and prevention of derailments.
- **PROTECTRAIL** - The Railway-Industry Partnership for Integrated Security of Rail Transport. Based on cutting-edge technologies, the project is developing a system that ensures synergy and compatibility among security subprojects or 'sub-missions'. These sub-missions tackle different

¹³ COM (2011) 112 final. "A Roadmap for moving to a competitive low carbon economy in 2050". European Commission, Brussels, 8.3.2011.

¹⁴ COM (2011) 144 final. WHITE PAPER "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system". European Commission, Brussels, 28.3.2011.

¹⁵ Eurostat: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=tran_hv_frmod&lang=en

sides of the railway system including physical, operational and cargo aspects under different threats and conditions in a global context. In this light, the project is articulating a common vision of current and future risks, proposing specific technologies and designing an advanced rail security solution for the future. Protectrail has already defined user requirements and analyzed regional differences, in addition to articulating functional and technical specifications related to security. Enhanced protection of trains and railways will include safeguarding power distribution and signaling against terrorism acts, detection of foreign objects on the tracks and daily train clearance procedures. It will also feature novel ways to ensure the safety of onboard luggage. In this way the project is outlining actual and future rail-related risks for comprehensive security, promoting concrete standardization of technologies and procedures across Europe. Protectrail is therefore set to improve performance, reliability, speed, cost and security substantially, enabling smarter detection of threats and better risk management in crisis situations. Europe's rail system will be ready to take on the challenges of the 21st century.

- **BRAVO** - Brenner Rail Freight Action Strategy Aimed At Achieving A Sustainable Increase Of Intermodal Transport Volume By Enhancing Quality, Efficiency, And System Technologies. The EU-funded BRAVO project looked at innovations that could address the problems facing intermodal transport on the route, in particular the increased volume of freight traffic. Unaccompanied combined transport on the corridor increased by over 50% during BRAVO's three-year lifespan from 2003-2007. Meanwhile, an information system for combined transport developed by the project has already begun commercial operation (see www.kombiverkehr.de). In addition, Bravo demonstrated the viability of new technologies in a number of areas: sustainable and open corridor management; train path availability and allocation, interoperable rail traction, quality management systems, advanced customer information systems and unaccompanied combined transport services. Specific applications were developed and demonstrated during the project included a radio-remote control pushing engine to help haul heavy trains up steep inclines; a trailer/wagon for suitable for combined transport with maximized volume for transporting road vehicles; an online train monitoring application; and an internet timetable for combined transport operations. The project served as a blueprint for other European transport corridors in their optimization efforts and it also produced a quality manual, which can provide further guidance.

Networks

- Shift2Rail
- ERRAC - European Rail Research Advisory Council
- UNIFE - Association of the European Rail Industry
- UIRR - International Union of combined Road-Rail transport companies
- UIC - International Union of Rail

5.8.3 Objectives

The objective of this project is to analyze current opportunities to move freight from road to rail, whilst sustaining competitiveness and to implement specific projects making use of current and new best practices. Some of them have already been identified and will be subject to thorough investigation, including: Ferroutage¹⁶, re-using idle capacities, horizontal collaboration, and bundling of cargo for long-distance transport.

¹⁶ Ferroutage refers to loading whole lorries onto a train and thus reducing significantly the transshipment costs of transports comprising a modal shift, with the benefits from both transport modes. The combination offers green and cheap transport over railway, combined with the speediness and accuracy from road transport.

5.8.4 Activities

- Initiatives to identify and leverage the potentials of improved and integrated infrastructures in rail transport for the attractiveness of the transport mode, including identification of bottlenecks, hub infrastructure development, international cooperation on further development of technologies (e.g. tracks) and framework conditions as well as network coordination.
- Initiatives to conduct neutral cost-benefit and total cost of ownership analyses for predefined routes to better understand the modal choice and gain insights into the efforts needed to make rail transport more attractive.
- Information exchange and identification of cases for a best practice transfer based on previous findings, e.g. exploration, definition, and development of Ferroustage.
- Implementation of horizontal collaboration practices developed in projects such as CO3¹⁷ between shippers in order to define routes within Europe in which combined volumes of companies could justify a joint request/initiative for specific rail freight (multi-client) service.

Through the three Living Labs (LL's) of the proposal we will cover a good part of the EU corridors:

- **Living Lab 1:** Dedicated services; Wagonload trains. Establishes a service for combining wagon loads of different clients in an efficient way. This will create a new service that can compete with road transport and will improve the capacity use of the railways (multi-client trains). Spain – Hungary / Germany – South East Europe.
- **Living Lab 2:** Managing connectivity of rail with other modes; Control tower for long distance rail freight transport. Creates a logistic “Control Tower” for freight transport on multi-modal corridors including rail links. This Living Lab will show the added value of information availability for all stakeholders involved, which will lead to an improved rail service, better rail capacity use and an increased reliability.
 - Rail freight corridor 2: North Sea Mediterranean (Netherlands, Belgium, Luxembourg, France, operational by November 2013)
 - Rail freight corridor 6: Mediterranean (Spain, France, Italy, Slovenia, Hungary, operational by November 2013)
 - Rail freight corridor 8: North Sea – Baltic (Bremerhaven/Rotterdam/Antwerp – Warsaw/Terespol/Kaunas, operational by November 2015)
- **Living Lab 3:** Reliability of rail and (unexpected) obstructions on the track; Betuwe route (Rotterdam-Genua corridor). In a controlled situation we will develop a system that can also be used in case of sudden obstructions where real time decision making is required. This system will provide the possibility to come to a higher reliability of railways even in case of sudden disruptions. The situation of regular and planned obstruction of the Betuwelijn in the period 2016-2022 is a unique controlled situation where we can learn valuable lessons on how obstructions should be approached and how logistics can be adjusted effectively in order to maintain reliability for the overall supply chain.

5.8.5 Impact

Actions will deliver:

- State of the art innovations in the field of IT infrastructure development that will enhance the visibility and reliability of rail transport in relation to the supply chain as a whole.
- New business models and innovative solutions for collaboration efforts between different stakeholders, which contribute to opening up new markets for rail freight.

¹⁷ Collaboration concepts for Co-modality (<http://www.co3-project.eu/>).

These impacts will increase the reliability, capacity use and attractiveness of rail freight as a mode for long distance transport. The focus on the supply chain as a whole furthermore ensures a good inter-linkage to the other modes of transport. This includes both the link with maritime transport and the other hinterland modes (synchromodality) and will therefore have a link to cooperation area 3 (synchromodal supply chain). Actions will focus on urgent issues from stakeholders and include both technological and organisational matters that exist throughout the rail sector. Lessons learned and technologies delivered in the actions will therefore be easy transferable to the entire European rail community.

5.8.6 *Potential partners*

Companies

- ProRail (NL)
- KeyRail (NL)
- Panteia BV (NL)
- Railistics GmbH (DE)
- SeaCon Logistics BV (NL)
- Netzwerk Europäischer Eisenbahnen e.V. (DE)
- Ederlog (DE)
- TankMatch Rail Hamburg GmbH (DE)

Research and knowledge institutions

- Nederlandse organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO (NL)
- Zaragoza Logistics Center (ZLC) (ES)
- Uniresearch BV (NL)

Authorities

- Port of Rotterdam (NL)

5.8.7 *Implementation Plan*

A first-stage European proposal has been prepared and submitted to the European Commission on the 18th of March 2014 in collaboration with SoCool@EU partners as well as external stakeholders for the topic indicated below. The proposal is coordinated by TNO. If approved by the European Commission the second stage proposal will be handed in by the 28th of August 2014.

The activities are developed in a GANTT chart, Appendix 8.8.

Funding

Horizon 2020. Call H2020-MG-2014_TwoStages. Topic MG.2.2-2014. Smart Rail Services.

5.8.8 *Contact person*

Ms. Jeanett Bolder

External Funding and Knowledge Transfer Office Manager/Project Manager

Zaragoza Logistics Center

E-mail: jbolther@zlc.edu.es

Mobile: +34 976 077 603

Website: <http://www.zlc.edu.es>

5.9 Increasing Efficiency of Inbound Cargo Into Hubs Through ICT Solutions

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DINALOG	HOLM	ULUND	MTSO (mentored)	

5.9.1 Background

Inbound truck traffic into larger urban centres often happens with lacking coordination and deficient transparency about traffic and cargo flows, all leading to large queues of trucks at hub infrastructures such as ports or airports. Trucks often arrive outside their time slots and have to wait for being registered and the cargo processed for the following stage in the supply chain (e.g. air freight). This increases unnecessary emissions and traffic jams at the ports and leads to inefficient processes in inbound logistics and transport. European regions, also within the frame of SoCool@EU, have developed different ideas and partly solutions for these challenges, which need to be taken into account and jointly developed further as well as especially innovative products/solutions in Europe disseminated to the point of demand. Double work should be avoided and existing knowledge about already implemented technology be disseminated.

5.9.2 Existing Projects, Networks and Experts

Regional related projects already implemented in other SoCool@EU clusters (to be named and included as a thematic basis of the project).

5.9.3 Objectives

Collection of existing solutions, such as IT and process solutions, and direction of these solutions to the point of demand, e.g. ports or airports. A variety of pilot solutions have been developed in European regions but the match between supply and demand is yet non-transparent and thus insufficient. IT-based truck portals as information platforms for truck traffic detection and control and with tracking-and-tracing functionalities, including booking/management systems for truck parking deployed on highways in European pilot regions, should be identified and the solutions of technology providers brokered to major hub operators in Europe.

5.9.4 Activities

The activities to be carried out and the cooperation area milestones are:

- identification of truck IT portals built by European technology providers
- identification of points of demand and user specifications (e.g. hub operators such as ports or airports)
 - gathering requirements from stakeholders to implement such IT portals
- matching different solutions and modules with demand
 - development of pilot truck IT portals, built in several stages. These should be dynamic, allowing to work online from mobile devices
- sustainable optimization of processes in truck inbounds traffic.

5.9.5 Impact

The impact is to avoid unnecessary emissions, traffic jams and costs at hub infrastructures and to create efficient processes in inbound truck-based logistics and transport flows. It would be optimal to better coordinate inbound truck traffic flows not only directly at the terminal but start optimizing flows well in advance, in geographic surroundings (50-100 km) by using intelligent truck parking so that trucks which cannot hold their time slot for delivery can plan for rest or idle periods instead of blocking the delivery

areas at the terminals. A further impact is to engage in the development of solutions with other regions and identify interfaces with similar hub infrastructures as ports, inland terminals, or airports.

5.9.6 *Potential partners*

Companies

Fraport, Frankfurt Trade & Exhibition, Infrserv Logistics, Ada Computer, Transportes Carreras, Grupo Jorge, IA Soft, Port of Aarhus, IBM, SAAB AB and other companies from the regions of the SoCool@EU partners.

Research and knowledge institutions

Fraunhofer IML, University of Applied Sciences Frankfurt, ZIV GmbH, Dinalog, Technological Institute of Aragón(ITA), University of Zaragoza, Danish Technological Institute, Aalborg University and other institutions from SoCool@EU clusters.

Authorities

German Spedition- und Logistikverband and authorities from SoCool@EU.

5.9.7 *Implementation Plan*

- Information from SoCool@EU partners to HOLM on cluster best practices and on-going cooperation areas in the area.
- Organize a European workshop on the topic to clarify the European dimension of the cooperation area and to exchange on user requirements and specifications (e.g. freight forwarders and terminal operators).

The activities are developed in a GANTT chart, Appendix 8.9.

Funding

- Private funding through the institutions/organizations of the experts (business, research, public authorities) - travel and personnel cost for workshop/meeting attendance.
- Funding under Horizon 2020 (innovation and deployment), exact call to be evaluated within the frame of the work program 2015 and beyond.

5.9.8 *Contact person*

Mr. Pascal Huther

Senior Project Manager

House of Logistics & Mobility GmbH

E-mail: pascal.huther@frankfurt-holm.de

Mobile: +49 69 247 52 17-12

Website: <http://www.frankfurt-holm.de>

5.10 Logistics Education, Training and Valorisation

Fields of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DINALOG	HOLM	ULUND	MTSO (mentored)	

5.10.1 Background

Research institutions inherit large potential to contribute to industry development and business conduct with their work, but still findings are seldom brought successfully to the market. Oftentimes, industry is not aware of research results with potential for application in practice, But on the other side, research institutions often lack understanding for the needs of industry. As a result, their work is often inapplicable for companies.

Apart from this untapped potential in results exploitation, and considering the ever more complex operations in transport and supply chains, there is an increasing need in Europe for regular knowledge upgrades of the workforce active in logistics companies, as well as increased interaction between education and practice to ensure alignment of curricula with business requirements.

Various programmes for training in logistics and supply chain management are already in place. However, the development and implementation of important issues is insufficient, including logistics and supply chain strategy and finance, business development, service logistics, reverse logistics, as well as the role of technology (e.g. ICT and automation).

5.10.2 Existing Projects, Networks and Experts

Existing Projects

- LOG2020 (LLP)
- Dinalog Master Classes (Dinalog)
- Supply Chain Finance (Dinalog)
- MIT-Zaragoza Master of Engineering in Logistics and Supply Chain management (ZLOG)
- MIT-Zaragoza PhD in Logistics and Supply Chain Management
- Executive Customised Curses of Zaragoza Logistics Center.
- ITA offers courses in different areas such as "Culture and Strategy in Innovation", "Innovation and Management", "Logistics", "Production", "Project Innovation", and "ICTs applied to logistics". Finally, ITA has a distance learning platform for E-learning through which they facilitate access to training to as many users as possible, in an optimal time for them and without the obligations required classroom training.

Networks

- Logistics clusters in NL (Dinalog), SE, BE, DE, IT, FR, ES, DK (TINV), FI, CN, BR

Experts

- Eindhoven University of Technology
- Lund University
- Dortmund University
- Università Iuav di Venezia
- University of Antwerp
- Copenhagen Business School
- Danish Technological Institute

5.10.3 Objectives

A major objective consists in the development of a valorisation framework to bridge the gap between research and innovation, and thus improve the transfer and application of new technologies and scientific results in innovative products and services. Further, it is critical to promote prevalent issues in logistics (e.g. the above mentioned) in current and future training programmes.

5.10.4 Activities

The following activities can be carried out:

1. Development of a model for standardised evaluation of research results towards valorisation possibilities. The goal of the framework is to stimulate researchers to act upon promoting their results to industry for implementation in innovative products and services.
2. Identification of best practice education programmes, further development and implementation of prevalent issues in logistics and supply chain management in education programmes, as well as promotion of education offers to industry.

5.10.5 Impact

- Stimulation and enhancement of knowledge transfer
- Contribution of the training of the next generation (chief) supply chain professionals
- Strengthen the position of the European logistics and supply chain

5.10.6 Potential partners

Companies

The involvement of companies depends on the topic of the education and training programme. So far, Dinalog has taken action through:

1. own logistics network;
2. collaborations with other Dutch organizations who provide a similar programme.

Companies involved are ETC and Unilever.

The participants from companies are interested in the content of the master class initiated and co-organised by Dinalog. However, it is often difficult for people to reserve time for the training programme due to other obligations, and to cover the costs of the training programme development and implementation.

- SAICA (ES)
- ARC International (ES)
- JP Isla (ES)
- Mann-Hummel (ES)
- Operinter (ES)

Research and knowledge institutions

Institutions that have experience for marketing development and valorisation. Each SoCool@EU partner is responsible to contact potential partners in its cluster, and to get them involved in the cooperation area.

Involved parties are Technical University of Eindhoven (TU/e), Tilburg University.

Lecturers are (often) interested to provide training for industry participants. International cooperation is very attractive for them. But they are not able to get participants, and very often, they do not think this is their responsibility.

- Zaragoza Logistics Center (ES)
- Technological Institute of Aragón (ES)
- University of Zaragoza (ES)

Authorities

Not needed, except if any authority would like to provide funding.

Dinalog already has good contact with Dutch authorities, but do not see any need at this stage to interview them for the cooperation area, as Dinalog is a foundation funded by the Dutch government.

5.10.7 Implementation Plan

Two of the SoCool@EU clusters (Netherlands South West & Flanders Cluster and Øresund Region) were involved the development of this topic based on EU funding. Good results from LOG2020 are expected in 2014. In the next step, SoCool@EU should as a joint action explore the topic by at least two clusters. This also includes how to launch the pilots into market.

Activity undertaking timeline:

After implementing the pilots of LOG2020, a new meeting with LOG2020 should be set up to discuss the exploitation of the results and how SoCool@EU could further implement the Joint Action Plan.

The activities are developed in a GANTT chart, Appendix 8.10.

Funding

A highly relevant on-going EU-funded cooperation area is LOG2020 (01-10-2012-30-09-2014) in which Dinalog is the coordinator and ULUND is a Partner.

Through Horizon2020.

5.10.8 Contact person**Dr. Mrs. Meng Lu**

Program Manager International

Dutch Institute for Advanced Logistics

E-mail: lu@dinalog.nl

Mobile: +31 6 4505 4735

Website: <http://www.dinalog.nl>

5.11 Coordinated European Development of Pilot Solutions For Urban Logistics

Field of Joint Action					
Advanced Supply Chains & ICT	Cluster Development & Internationalization	Green Logistics	Intelligent Hubs	Knowledge Transfer & Valorisation	Urban Logistics
Responsible Consortium Partners					
ALIA	DIALOG	HOLM	ULUND	MTSO (mentored)	

5.11.1 Background

Historically, economic activity has oftentimes concentrated in urban areas. Although the rise of the information age has made spatial distances less relevant in many respects, the geographical dimension is still of high importance for many economic activities involving transportation. Many countries currently observe an on-going migration trend from rural to urban areas, leading to higher population densities and growing economic activity in those locations. In direct consequence, the local urban transport infrastructure has to accommodate ever larger numbers of commuters and commercial traffic volumes.

In addition to the increase in the absolute number of consumers, transformations in the retail landscape (more chain retailers and shopping centres, less independent local stores) as well as new business models and technological innovation related to transportation and e-commerce (e.g. mail order outlets) reshapes or increase the demand for urban logistics solutions. Metropolitan areas are endowed with often global transportation hubs enjoying constant growth due to globalisation trends. This puts additional strain on the local infrastructure due to their incoming, outgoing, and transit passenger and cargo flows.

These trends towards ever larger and volatile traffic volumes lead to situations in which the capacity of the local transport infrastructure is exceeded, especially during peak hours. Negative effects of transport activities on the quality of life in urban areas such as congestion, traffic safety, air pollution and noise are increasing public resistance to additional invasion. Changed priorities in regard to infrastructure development and environmental protection often further tighten the requirements raised towards transportation activities. In order to sustain an efficient functioning of the economic system and preserve quality of life in metropolitan areas, new solutions for the movement of cargo and passengers in the urban context have to be found.

5.11.2 Existing Projects, Networks and Experts

Projects

- CITYLOG**, Sustainability and efficiency of city logistics. This project was set up to boost the quality of urban delivery of goods. Partners aimed to realise this goal by offering adaptive and integrated mission management coupled with innovative vehicle solutions. They identified three areas in which action has the potential to improve current city logistics systems: logistic-oriented telematics services, vehicle technologies and innovative load units. The latter includes a re-configurable internal layout that enables different uses, such as a mobile pack station — the so-called BentoBox concept, which aims to desynchronise the delivery process between operators and final customers. The outcome is fewer non-successful deliveries. Initial work entailed identifying functional requirements and designing the various tools — subsequently advanced to implementation phase — needed to achieve project goals. Researchers also analysed main trends in city logistics and collected stakeholder needs by means of web questionnaires and the organisation of a public workshop in Brussels. Proposed solutions detail a pre-trip planner, ad hoc maps, dynamic assisted navigation and last-mile parcel tracking, all of which have since been integrated into a common architecture. Regarding vehicle and load unit solutions, Citylog focused on technical solutions enabling full interoperability between the freight bus and distribution van, as well as implementation of an effective and reliable BentoBox concept. For load unit operations, project

members proposed a vehicle-centred solution and containers with extensible legs. Field trials for test-case experiments were planned for the European cities of Berlin, Lyon and Turin, while future work is geared toward introducing a freight bus and two distribution vans in field trials for validation of the logistics model. Citylog's innovative approach promises not only better quality of services, but a decreased number of delivery vehicles and optimal use of delivery trucks in urban areas. These benefits also translate to increased energy efficiency, with the added benefit of no need for additional infrastructures in the cities.

- **TURBLOG_WW**, Transferability of urban logistics concepts and practices from a worldwide perspective. The project team is establishing an extended global network of urban freight experts, users and systems providers. It is also creating a platform for new concepts on urban-friendly transport systems and freight distribution, contributing to the vision of sustainable urban mobility. The project's mandate involves the harmonisation of concepts and systems for data collection, as well as development of more environmental loading and unloading systems and infrastructure. In parallel, Turblog WW is networking with key logistics organisations and cooperating with other similar projects. It has conducted several workshops, established the project website and produced reports on different regions of the world, including one on urban logistic solutions and data collection techniques. Other expected outcomes include sets of guidelines for urban mobility authorities, logistics operators and service providers, in addition to recommendations for urban mobility development and logistics development. Societies and communities may ultimately benefit from a reduction in road traffic and more efficient transport, thanks to better logistics and better evaluation of services. The new approaches, which focus on integrating urban freight into urban mobility policies, in addition to transferring European best practices abroad, are set to improve the logistics sphere worldwide. Such enhanced mobility and freight services should open new horizons in trade, commerce, travel and tourism, effectively contributing to a more robust global economy with Europe at its centre.
- **STRAIGHTSOL**, STRAtegies and measures for smarter urban freIGHT SOLutions. A new assessment framework is developed for the evaluation of measures applied to urban-interurban freight transport interfaces. The framework includes multiple methodologies that stress the involvement of various stakeholders in the decision process, as well as on the measure impact both on society and private sector. The framework can be used by private companies or governments at different levels, and it can be applied in different stages of the decision making process. The STRAIGHTSOL project distinguished five relevant stakeholders in the urban and urban-interurban freight transport context: (i) the shippers; (ii) the receivers; (iii) the logistics service providers; (iv) the local authorities; and (v) the citizens living and consuming in the urban area under consideration. The framework includes three stages that are fed by initial input. The first stage 'Description and assessment' aims to first identify the context and the current situation and secondly to explore possible alternatives to the current situation. The second stage 'Evaluation of alternatives' aims to perform an overall evaluation of the current situation and the various alternatives. The last stage 'Recommendations and lessons learned' aims to give recommendations for large-scale implementation throughout Europe. The outcome of stage 3 will enable decision-makers to mutually compare specific measures or initiatives and describe the steps that are required to move from demonstration to large-scale implementation and to reach long-term objectives. This will enable the different actors to plan and coordinate the further deployment of measures and to make the innovation happen.
- **FIDEUS**, Freight innovative delivery in European urban space. The project focused on three different axes in its new approach. Firstly, it worked to develop more efficient vehicles for delivery and collection of goods in urban settings. Secondly, it recommended different approaches to organise and manage urban logistics using these new vehicles and novel containers to carry goods.

Thirdly, it supplied tools and information to relevant authorities regarding strategies for efficient urban delivery. This integrated approach is expected to alleviate environmental impact and decrease noise level while promoting ergonomics and safety. Three different types of vehicles were proposed in this regard. They are micro carriers that manoeuvre unrestrictedly in pedestrian areas, 3.5 tonne urban delivery vans ideal for downtown or high-traffic areas and 12 tonne trucks for large deliveries. In addition, high-tech tools allow authorities to highlight traffic restrictions or vehicle violations online to facilitate management, while logistics companies can reserve unloading bays and conduct other online tasks. Radiofrequency identification (RFID) tags were also introduced to upgrade the logistics process. In short, the new 'cooperative transport' approach is characterised by the flow of goods from larger vehicles to micro carriers. It addresses customers from large-chain supermarkets to parcel deliveries, offering novel solutions that can be of great benefit to cities while reducing pollution and streamlining delivery.

- **SMARTFUSION**, Smart Urban Freight SoluTIONs. The SMARTFUSION public-private partnership (PPP) build upon existing urban freight development strategies of three demonstration regions and demonstrated smart urban freight solutions on co-operative and sustainable city distribution in urban interurban supply chains. The leading idea was to introduce the concept of the European Green Car Initiative in the last mile operations, introduce innovative technology developments in the field of urban freight planning, vehicle technology and urban inter urban transshipment and to develop comprehensive and transferable impact assessment models for smart urban freight solutions. The critical success factors in stimulating the market uptake of new sustainable vehicle technology and other innovations in the urban logistics environment were determined.
- **SMARTFREIGHT**, Smart freight transport in urban areas. ICT solutions enabled a co-operation between traffic and freight management operations, as a step towards an integrated urban transport system. Freight transport was monitored and controlled through open ICT services. Traffic management measures were tailored towards individual vehicles by means of on-board units and a wireless communication infrastructure based on CALM (the ISO framework for heterogeneous communication in mobile environments).

Networks

- Civitas
- POLIS
- Eurocities
- URBACT

5.11.3 Objectives

The pervasive challenge relates to the continuous efficient transport of goods and passengers in urban areas in face of increasing volumes while at the same time sustaining the quality of life in these conurbations by minimizing the invasiveness of logistics activities.

More specifically, the information base on passenger and goods flows in their specific urban context has to be improved in order to gain a holistic understanding for the prevalent issues of all modes of transportation and their related infrastructures. Further, the objective extends to the investigation of collaborative, technological, and regulatory possibilities to arrive at solutions for the design, equipment and implementation of orchestrated urban transport in concepts of "smart cities" or cities as "smart hubs". These approaches will have to be large-scale and consider issues, actors, technologies and business models of an entire urban transport system to ensure success. They should build on best practices as identified not only on a local, but on a European level. Therefore, also the exchange between researchers and experts on a European level on different topics within urban logistics needs to be strengthened and appropriate formats, such as workshops and expert groups, be defined and held in the SoCool@EU cluster regions.

5.11.4 Activities

- Real-time diagnosis of the issues in urban logistics in European metropolitan areas in order to provide a sound foundation for further action. Databases with real-time data on traffic generators and flows in urban areas are a fundamental requirement.
- Development of simulation models to enable analysis of traffic scenarios, stress tests of network capacities, and carbon footprint calculations.
- Identification of optimisation potentials and comparative analysis of the cities to identify similarities in issues and best practices, enlarge the individual perspective of each partner, and discuss the inter-regional transferability of solutions.
- Business impact assessment of transforming urban areas into smart cities (e.g. in regard to e-commerce), and investigation of possible new business models and opportunities.
- Development of specific common or individual actions and pilot projects to be implemented towards optimised urban logistics. Three test cases are being proposed by the SoCool@EU partners:
 - **Frankfurt am Main and Berlin:** The test case in Frankfurt and Berlin is dedicated to improving basic knowledge and understanding on local freight distribution and service trips in a predefined test area i.e. the main shopping area around the “Zeil” representing a huge variety for small and medium-sized shops as well as department stores, several restaurants and grocery stores and two international hotels. The test case addresses research on indicators, measurement and data on commercial retail goods traffic in and around the test case area. Herewith the test case Frankfurt performs the follows the following objectives:
 - Data collection, analysis and benchmarking with other cities on commercial goods transport and delivery leading to a comprehensive logistics atlas for the test case. Exemplary indicators are structure of traffic flows such as quantity, speed profile, average speed profile, load factors, congestions, probability and duration of congestion and CO2 emission of commercial traffic as well as infrastructural data such as routing and connection, capacity and quality. The objective is to gain an understanding and knowledge about the freight and service trips in the test area in down town Frankfurt, to bundle existing data and to improve the cooperation between private sector and public administration in order to reduce co2 emissions through the development of a comprehensive database.
 - Based on the data collection, the test case develops and implements measures and solutions for optimized distribution and delivery in the test area with regard to the above mentioned stakeholders, with a focus on improving delivery areas management with retail shops, e.g. optimized usage of loading and unloading zones. The objective is to deploy and validate the implemented measures.
 - **Zaragoza:** Summary of major issues to be tackled:
 - Night delivery from warehouse to retailer’s stores and supermarkets in cities is an increasing practice in Europe. It has been demonstrated the benefits in cost and emissions reduction as well as having positive impact in congestion (less trucks in peak hours). However, retailers need to pass a long process until this practice is approved by a specific city council. The living lab will propose a full procedure including requirements, alternatives, benefits and implementation path of this process to support ample and easy implementation by retailers in cities.
 - 96 % of SIMPLY goods distribution to stores is centralized though major warehouses. Simply gets deliveries from their suppliers in its warehouses and then goods are transported to SIMPLY’s supermarkets and stores. With this case, Simply will analyse and test the opportunity of integrating transportation routes to

(pooling of freight from suppliers) and from its warehouse. The trucks delivering in the cities will collect recycling materials of the stores as well as the freight from SIMPLY suppliers optimizing freight trips. This measure should increase load factor of trucks and reduce freight trips.

- **Copenhagen:** The aim of Citylogistik KBH is to create an alternative logistics service for the shops in central Copenhagen in order to reduce the negative environmental impacts of traffic in the city. Citylogistik KBH has established a logistics service that supplies goods to companies in central Copenhagen using more environmental friendly (electrical) vehicles. The target group for the city logistic service is retailer as they have a large number of deliveries, both parcels and pallets and they account for the heaviest transport pattern with a high number of trucks according to analysis. The core of the city logistics concept is that the users (the retailers) redirect their delivery address from their shop in the city to an urban consolidation centre (UCC)/warehouse in which the deliveries to and from the shops are consolidated. The advantage of this concept is that there are fewer drops by delivery vans and trucks in the city centre. If a shop previously received in average six deliveries each day from different trucking companies, the shop now receive the same amount of goods with one consolidated drop or can choose to have the goods delivered just a few times each week. The lower amount of drops reduces the amount of vehicles in the city centre. A previous analysis show that the key advantage for potential users of the city logistics service are:
 - fewer deliveries (maximum once a day), which improves the management of the shop.
 - the same service minded driver delivers all the goods and the retailer can agree with the retailer on how the goods should be delivered. This ensures smooth goods delivery with less inconvenience to the daily business of the shop.

Also the urban consolidation centre should be seen as a service centre for the users. One of the extra services is return logistics of cardboard, plastic and pallets. This saves the users some costs and removes a potential source of irritation in the management of the shop. Another service, that the users are interested in, is using the consolidation centre as warehouse, typically for shorter periods of time. Additional value adding services are handling of mail, returned goods, parcels for e-commerce and pre-retail activities (e.g. goods reception, entry control, price labelling, anti-theft protection).

Moreover, and beyond the above-mentioned project scope, SoCool@EU will generate and sustain the possibility for related actors in urban logistics to meet on selected topics of interest, exchange ideas and knowledge, and to define further projects from these expert discussions. This will be done in so-called expert groups, e.g. on construction site logistics or transport and logistics around large exhibitions (e.g. Messe Frankfurt). The present cooperation area thus shows strong interdependencies with the cooperation area number 4.

5.11.5 Impact

Actions will increase the knowledge of freight distribution by the assessment with a tool on zero emissions logistics and logistics performance and will obtain a better integration between retailers and public administration and a better planning and traffic management. Strategies and solutions that will reduce emissions and kilometres inside the city will be created and, consequently, will reduce the cost and negative impact of freight distribution. Solutions implemented will increase the load factor of vehicles; night deliveries will allow using bigger vehicles with the possibility of increasing load factor and reducing number of shipments that will reduce congestion and pollution. Actions will create best practices in specific areas of the city perfectly transferable to other similar areas by which there will be a wide transferability to

other cities in Europe and an ambitious Europe-wide take up and rollout of results during and following the actions are expected.

5.11.6 Potential partners

Companies

- Simply (ES)
- Citylogistik KBH (DK)
- DHL (DE)
- WUXUS (DK)

Research and knowledge institutions

- Zaragoza Logistics Center (ZLC) (ES)
- Center of Transportation and Logistics – Massachusetts Institute of Technology (CTL-MIT) (US)
- Frankfurt School of Applied Science (DE)

Authorities

- City Council of Zaragoza (Department of Urban Mobility) (ES)
- City Council of Frankfurt (Department of Road Traffic) (DE)
- City Council of Copenhagen (DK)
- Berlin Senate Department of Urban Development and the Environment (DE)

Other Stakeholders

- Clusters:
 - The Danish Transport Innovation Network (Maritime Development Center of Europe) (DK)
 - House of Logistics and Mobility (HOLM) (DE)

5.11.7 Implementation Plan

A first stage European proposal has been prepared and submitted to the European Commission on the 18th of March in collaboration with SoCool@EU partners as well as external stakeholders for the topic indicated below. The proposal is coordinated by Zaragoza Logistics Center. If approved by the European Commission the second stage proposal will be handed in by the 28th of August 2014.

The activities are developed in a GANTT chart, Appendix 8.11.

Funding

Horizon 2020. Call H2020-MG-2014_TwoStages. Topic MG.5.2-2014. Reducing impacts and costs of freight and service trips in urban areas.

5.11.8 Contact person

Lead:

Ms. Jeanett Bolder

External Funding and Knowledge Transfer Office Manager/Project Manager

Zaragoza Logistics Center

E-mail: jbolther@zlc.edu.es

Mobile: +34 976 077 603

Website: <http://www.zlc.edu.es>

Co-Lead:

Mr. Pascal Huther

Senior Project Manager

House of Logistics & Mobility GmbH

E-mail: pascal.huther@frankfurt-holm.de**Mobile:** +49 69 247 52 17-12**Website:** <http://www.frankfurt-holm.de>

6 Conclusion of the Analysis and Future Guidelines For How To Develop Efficient Regional Clusters

The project SoCool@EU has developed knowledge of how to create and nurture efficient regional logistic and transport clusters. That knowledge will be collected in a guideline for a cluster platform concept that is usable for clusters working trans-national within EU but also be used worldwide. The project also delivers guidelines for how to mentor clusters with a less developed research profile.

6.1 Analysis

All clusters go through development stages as written in the theory chapter. The common goal for the project has been valid through the whole project process, which make the clusters stable and long-term oriented. The general idea of clusters cooperation is to develop knowledge by innovations to effect regional wealth, economic growth and environmental sustainability. The identified eleven cooperation areas all support that vision.

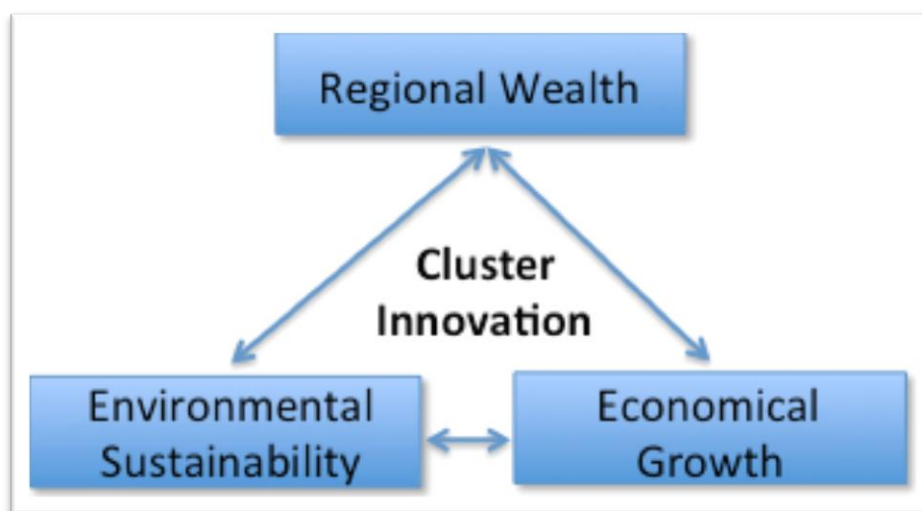


Figure 9: Cluster Initiatives That Produces Outcomes

Source: Own illustration, 2014.

Cluster theory describes (which is also indicated in this project) how external factors impact competitiveness and innovation of a company. It is not just the characteristics of companies that create a truly competitive cluster; there are regional external factors that matter as well. Universities affect the “regional factors” which impact the dimensions of cluster competitiveness. Universities are also an asset that increases the quality of input and producers, by upgrading human capital and disseminating knowledge.

6.2 Future Guidelines

6.2.1 European Platform

The clusters within SoCool@EU will continue to develop for many years forward. New partners will be added both to the core team but also to the network platform. A cluster setup should not be fixed as new perspectives will drive the cluster development forward. SoCool@EU has at this stage developed to a solid European Platform, with established expert forums.

The cooperation areas build on to the European Platform. Structured implementation plans have been documented which will continue to develop knowledge during implementations for at least two years after SoCool@EU is finalized.

6.2.2 Fostering Trans-National Cooperation

The Porter Model defines determinants of the regional business environment.¹⁸

To succeed in the implementation of the cooperation areas, the funding and resource allocation from the partners and involved actors are critical which is a part of the factor conditions. Several of the cooperation areas are applying for funding from H2020, a few of them are competing. The identification of competitive funding partners should be defined at an early stage of a project in order to avoid resource waste. The project has identified the demand condition by focusing on eleven cooperation areas with high effect on regional business environment. As there is competition between the clusters, the context will be affected and the strategy has to be adopted as the clusters develop. Without having a wide network, the implementation of the cooperation areas will not succeed.

6.2.3 Developing and Implementing Joint Action Plans

Actions plans have been developed for all cooperation areas in Appendix 8. Several of the cooperation areas will be active until the end of 2018, which will strengthen the SoCool@EU clusters to a long-term cooperation platform. During the project-planning phase, some of the cooperation areas merged to single funding applications but still identified as separate implementation projects.

CA	Task Activity	2014 - 2016											2017											2018											Lead Partner			
		49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81		82	83	84
1	Smart Humanitarian Logistics																																					Danish Transport Innovation Network
2	Clusters Orchestration of Horizontal Collaboration																																					Zaragoza Logistics Center
3	Synchromodal Supply Chain Management																																					Dinalog
4	International Expert Groups in Logistics and Mobility																																					House of Logistics and Mobility
5	Empowering Industrial Internationalization Through Inter-Cluster Collaboration																																					Lund University
6	Green Supply Chain																																					Dinalog
7	The Impact of E-commerce Service Models on SC Cost & Emission Efficiency																																					Zaragoza Logistics Center
8	Innovative Models in the Rail Freight Transportation System																																					Zaragoza Logistics Center
9	Increasing Efficiency of Inbound Cargo Into Hubs Through ICT Solutions																																					House of Logistics and Mobility
10	Logistics Education, Training and Valorisation																																					Dinalog
11	Coordinated European Development of Pilot Solutions For Urban Logistics																																					Zaragoza Logistics Center

Table 4: Cooperation Area Development Y2014-Y2018

Source: Own illustration, 2014.

6.2.4 Internationalization of the Regional Research Driven Clusters

Except for Mersin, all logistics clusters involved in the project are advanced logistics hubs and gateways in Europe, with mature cluster strategies and research agendas. The Mersin logistics cluster is the mentoring region, which has yet to define its cluster strategy and sharpen its profile in cluster development and management. The SoCool@EU project will assist in achieving these goals.

While the clusters have their own successful research profile in their respective hub functions, their strategic research agendas and roadmaps differ significantly. The integration of the isolated approaches in a strategic research agenda between the clusters at EU level is a central instrument to support future innovativeness and competitiveness of the logistics sector in Europe. As a pioneering effort, the current Joint Action Plan presents and justifies major fields of joint action which have been identified in a collaborative, inter-regional work process, and for which specific cooperation area impulses will be developed for later implementation within the upcoming WP4 as of summer 2013. The strategic agenda follows a short-, middle-, and long-term perspective and presents an outlook into project status for the years 2015, 2020, and 2025.

¹⁸ Porter, M. E. (2008). *On Competition*. Boston: Harvard Business Press.

In the short term, the operative goal consists in the setup of the platform for collaboration between the research-driven clusters. To define the initial focus of the platform and enable the collaborative research approach between actors of different clusters in specific projects, operative fields for joint action and objectives have been identified and integrated in the present Joint Action Plan, namely

1. Advanced supply chains and ICT
2. Cluster development and internationalization
3. Green logistics
4. Intelligent hubs
5. Knowledge transfer and valorisation
6. Urban logistics

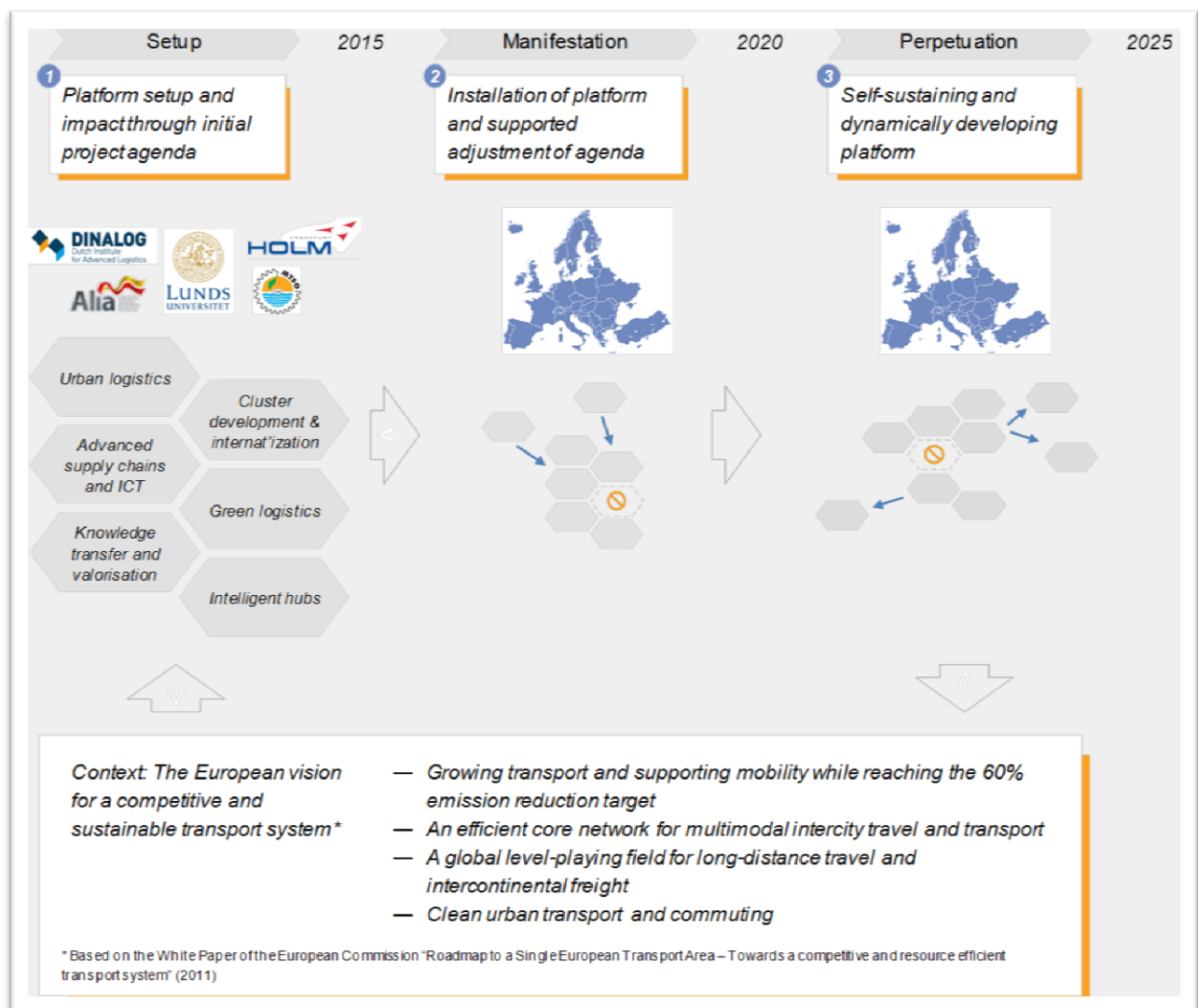


Figure 10: Short-, Medium- and Long-Term Objectives for the SoCool@EU Platform

Source: Own illustration, 2013.

These fields represent fundamental issues for SoCool@EU clusters demanding a joint approach. The partners are convinced that coordinated research action in the topic areas will contribute to the European vision for a competitive and sustainable transport system as formulated by the European Commission. Initially, the SoCool@EU partner regions have been the primary locus for the cooperation area implementation. The integration of other clusters will be promoted and piloted in the future.

In the medium-term, the platform will be manifested and expanded, with full-scale integration of logistics clusters from all over Europe. The project agenda will be actively redefined as the interests and needs of newly involved partners are taken into consideration, results from the initial cooperation areas are used for further collaborative activities or specific joint actions are discontinued due to goal achievement or redundancy. Implicitly, the consortium partners will continue to collaborate and foster collaboration in and between their and other clusters after the end of the funding period for SoCool@EU.

Finally, the long-term objective consists in the perpetuation of the platform. The emerged inter-cluster linkages should be enabled to sustain themselves and define agendas/issues as well as initiate consequent cooperation areas on the platform independently. While the SoCool@EU platform initially applies the European vision for a competitive and sustainable transport system as a guiding agenda for development, in later stages it will also be able to return valuable input to the European policy programmes.

6.2.5 Mentoring Regions With A Less Developed Research Profile

Mersin Region in Turkey is selected as a mentoring region in the SoCool@EU project. Excellence and knowledge transfer from the four European mature clusters to Mersin logistics cluster will be demonstrated within SoCool@EU.

The deliverable presents the mentoring strategies, which will be a guide for the Mersin Region with the aim of establishing a cluster to improve innovation through collaboration and knowledge sharing in networks. Furthermore, it analyses the status of the Mersin region, develops a roadmap, and determines the action plan for the Mersin Region.

The Vision, Mission and Objectives of the mentoring activities in the SoCool@EU project are described in the document D.5.2. Mentoring Action Plan.

The Mersin cluster has developed to an innovative, interactive and sustainable cluster platform with an increased level of network exchange with cluster periphery on European level. This was a factor that was identified as an improvement area for the Mersin cluster.

The cluster will continue to develop over the next coming years through the exchange of knowledge within the funded cooperation areas. Through an interactive platform, SoCool@EU will integrate research institutes, policy makers and business entities with all partners including the mentoring region. To achieve the mission, a long-term focus is applied. The regions are facing different problems concerning for example legislation and bureaucratic procedures. Those obstacles are not possible to solve within the SoCool@EU, but the clusters have added input by a worldwide vision. Sustainable cooperation has been achieved for the Triple Helix in the mentoring region but it is important that the development continues.

7 References

- CO3 Consortium (2011). Description of Work, CO3 (Collaboration concepts for Co-modality) Consortium, Brussels.
- COM (2011) 112 final. "A Roadmap for moving to a competitive low carbon economy in 2050". European Commission, Brussels, 8 March 2011.
- COM (2011) 144 final. WHITE PAPER "Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system". European Commission, Brussels, 28 March 2011.
- Eurostat: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=tran_hv_frmod&lang=en
- Ketels, C. H. M. (2006, July 5). *Strategie entscheidet: Erfolgreiches Clustermanagement*. Frankfurt am Main
- Morse, J. M. (2003). Principles of Mixed Methods and Multimethod Research Design. *Handbook of Mixed Methods in Social & Behavioural Research* (pp. 189–208).
- Porter, M. E. (1998). "Clusters and Competition: New Agendas for Companies, Governments, and Institutions" in *On Competition*, Cambridge, Massachusetts: Harvard Business Review Books.
- Porter, M. E. (2001). Clusters of innovation initiative. Council on Competitiveness. Atlanta-Columbus.
- Porter, M. E. (2002). *Research Triangle: clusters of innovation initiative*. Washington, D.C.: Council on Competitiveness. Retrieved from http://www.compete.org/images/uploads/File/PDF%20Files/CoC_research_tri_cluster.pdf
- Porter, M. E. (2008). *On Competition*. Boston: Harvard Business Press.
- Portugal Ministry of Industry and Energy, Cooperation and Competitiveness: Inter-firm cooperation-a means toward SME competitiveness, Proceedings of an International Conference, Lisbon, Portugal, October 6-8, 1993.
- Raschke, F. W. (2009). *Regionale Wettbewerbsvorteile*. (C. Jahns, Ed.) Einkauf, Logistik und Supply Chain Management. Wiesbaden: Gabler.
- SoCool@EU Consortium (2011). Description of Work, SoCool@EU (Sustainable Organisation between Clusters Of Optimised Logistics @ Europe) Consortium, Brussels.
- SoCool@EU Consortium (2012a). Deliverable D2.1: Cluster analysis report, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2012b). Deliverable D2.2: Cluster workshops, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2012c). Deliverable D5.1: Needs analysis / SWOT report, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2012d). Deliverable D5.2: Action plan, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2013a). Deliverable D3.1: Report on cluster conference, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2013b). Deliverable D3.2: Joint action plan, SoCool@EU Consortium, Brussels.
- SoCool@EU Consortium (2013c). Deliverable D3.3: Business plan, SoCool@EU Consortium, Brussels.
- Sölvell, Ö.. (2009). Clusters - Balancing Evolutionary and Constructive Forces. Ödeshög, Danagårds Grafiska.
- Sölvell, Ö. et. al.. (2003). The Cluster Initiative Greenbook. Stockholm: Bromma tryck AB.

8 Appendix

In the following appendix, the cooperation areas are developed in GANTT format.

Each cooperation area has a GANTT accompanied by a description of activities.

8.1 GANTT CA 1: Smart Humanitarian Logistics

Task	Task Activity	2014												2015												2016												2017						Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	
5.1.7.1	Funding																																											University of Fulda
5.1.7.2	Establishment of Lead Part																																											University of Fulda
5.1.7.3	Kick-off meeting																																											University of Fulda
5.1.7.4	Education Business and Research																																											University of Fulda
5.1.7.5	Expert Groups																																											University of Fulda
5.1.7.6	Network Platform																																											University of Fulda
5.1.7.7	Summarization of Findings and Report																																											University of Fulda
5.1.7.8	Project Closure																																											University of Fulda

Activity on-going
Milestone
Delivery



5.1.7.1 Funding: Possible funding sources will be analysed.

5.1.7.2 Defining Lead Part: Who will take the lead? Workshop 19/5 2014, Frankfurt, to define the area and discuss Leading Part.

5.1.7.3 Kick-off meeting: If the proposal is approved for funding by the European Commission then the kick-off meeting of the project should take place in January 2015.

5.1.7.4 Education Business and Research: Parallel education sessions to create awareness of the subject and to get input to the cooperation area.

5.1.7.5 Expert Groups: Experts sharing knowledge and adding input both to the education but also to the establishment of a network platform..

5.1.7.6 Network Platform: A long term strategy to create a network platform that will be the base for future development of the knowledge area in Europe.

5.1.7.7 Summarization of Findings and Report: The results of the project will be analyzed and gathered in a report.

5.1.7.8 Project Closure: The project will have a total duration of 30 months.

[illegible]

71

8.3 GANTT CA 3: Syncromodal Supply Chain Management

Task	Task Activity	2014												2015												2016												Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
5.3.7.1	Application Funding																																					DIALOG, LUND, MDCE, and other partners
5.3.7.2	Workshop, Symposium and Conference																																					DIALOG, LUND, MDCE, and other partners
5.3.7.3	Case Studies																																					
5.3.7.4	Expert Group Session																																					DIALOG, LUND, MDCE, and other partners
5.3.7.5	Analysis & Theory																																					DIALOG, LUND, MDCE, and other partners
5.3.7.6	Complementary Interviews																																					DIALOG, LUND, MDCE, and other partners
5.3.7.7	Summarisation of Findings and Report																																					DIALOG, LUND, MDCE, and other partners
5.3.7.8	Project Closure, Delivery																																					DIALOG, LUND, MDCE, and other partners

Activity on-going

Milestone

Delivery

5.3.7.1 Funding: National funding of Dinalog is available for Dutch participants. We are looking forward to the 3rd and the 4th calls of Horizon2020.

5.3.7.2 Events: Events will be organised regularly. The indicated events are planned by NL/BE cluster.

5.3.7.3 Case study: N/a

5.3.7.4 Expert: Invited experts will describe the state of the art and next steps.

5.3.7.5 Analysis: Researchers will address (new) findings, and next steps.

5.3.7.6 Interview: Interviews will be carried out during the event, and additional meetings.

5.3.7.7 Summary: The results will be reported annually.

5.3.7.8 Delivery: Each year at least one project on this topic will be finalised.

8.4 GANTT CA 4: International Expert Groups in Logistics and Mobility

Task	Task Activity	2014												2015												2016												Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
5.4.7.1	European Expert Group Digital SC																																					see HOLM cluster actors, SoCool@EU partners
5.4.7.2	European Expert Group Practice-driven Advance of Studies and Exchange between European and Non-European Universities																																					see HOLM cluster actors, SoCool@EU partners
5.4.7.3	European Expert Group Urban Commercial Traffic																																					see HOLM cluster actors, SoCool@EU partners
5.4.7.4	Further European Expert Groups to be named from all SoCool@EU partners (ongoing)																																					see HOLM cluster actors, SoCool@EU partners

Activity on-going
Milestone
Delivery

5.4.7.1 European Expert Group Digital SC: Bring together European experts on the topics of structured and unstructured data, data transparency in the supply chain, and big data. Regional elaboration on the topic ongoing in Frankfurt. Expert group planned to be held in M29 and /or M35.

5.4.7.2 European Expert Group Advance of Studies & Exchange: Discussion on development and integration of application-oriented courses of study for further qualifications of students in selected courses on the topics of transport and logistics, both in Europe and abroad (first meeting scheduled for May 2014, M29, preparation ongoing).

5.4.7.3 European Expert Group Urban Commercial Traffic: Apart from the project scope in cooperation area 11, there will be thematic discussions on other related topics in urban logistics to allow knowledge transfer and generate follow-up projects in urban logistics. One European workshop is planned for M30 and M35.

5.4.7.4 Further Expert Groups: Other topics for discussion are constantly nominated by all SoCool@EU partners during and after the project SoCool@EU. As delivery, there will be an overview of all ongoing expert groups after project life as to guarantee the knowledge exchange between the SoCool@EU regions long after SoCool@EU has ended.

8.5 GANTT CA 5: Empowering Industrial Internationalization Through Inter-Cluster Collaboration

Task	Task Activity	2014												2015												2016												2017												
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
5.5.7.1	Kick-off meetings																																																	
5.5.7.2	Funding																																																	
5.5.7.3	Educational Events																																																	
5.5.7.4	Network Events																																																	
5.5.7.5	Analysis of Legislative, Build Strategy Platform																																																	
5.5.7.6	Establishment of Educational Platform																																																	
5.5.7.7	Establishment and Collection of Database																																																	
5.5.7.8	Expert Group Sessions																																																	
5.5.7.9	Case Study A																																																	
5.5.7.10	Case Study B																																																	
5.5.7.11	Case Study C																																																	
5.5.7.12	Analysis																																																	
5.5.7.13	Summarization of Findings and Report																																																	
5.5.7.14	Project Closure																																																	

Activity on-going

Milestone

Delivery

5.2.7.1 Kick-off meetings: The kick off meetings will be to inspire the development of the cooperation area and to work with potential case studies. Input will be added to the funding applications.

5.2.7.2 Funding: The stage-one application for the H2020 topic INNOSUP-1-2015 Cluster facilitated projects for new value chains will be handed in on 2015-04-30. The stage-two application for the H2020 topic INNOSUP-1-2015 Cluster facilitated projects for new value chains will be handed in on 2015-09-09.

5.2.7.3 Educational Events: Will be arranged in combination with networks events. Themes for every session, with invited experts.

5.2.7.4 Network Events: Will be arranged in combination with educational events. Invited business profiles.

5.2.7.5 Analyse legislative, build strategy platform: Literature review and creation of a strategy platform. A handout will be created that will guide the SMEs in their cluster cooperation.

5.2.7.6 Establishment of educational platform: Preparation for the educational events.

5.2.7.7 Establishment and collection of database: Establish a useful tool (or use existing) for the SMEs when searching for cluster partners.

5.2.7.8 Expert Group Sessions: Expert group sessions to support the development of the cooperation area and to give input to coming educational and network events.

5.2.7.9 Case Study A: Case study by monitoring the development of three SME's.

5.2.7.10 Case Study B: Case study by monitoring the development of three SME's.

5.2.7.11 Case Study C: Case study by monitoring the development of three SME's.

5.2.7.12 Analysis: Analysis and documentation of the development of the cooperation area. Sanctionalise the findings in Expert Group sessions, which will be used as milestones.

5.2.7.13 Summarization of Findings and Report: The results of the project will be summarized and gathered in a report as a final delivery.

5.2.7.14 Project Closure: The project will have a total duration of 32 months and will end in December 2017.

8.6 GANTT CA 6: Green Supply Chain

Task	Task Activity	2014												2015												2016												Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
5.6.7.1	Application Funding																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.2	Workshop, Symposium and Conference																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.3	Case Studies																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.4	Expert Group Session																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.5	Analysis & Theory																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.6	Complementary Interviews																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.7	Summarization of Findings and Report																																					DIALOG, ULUND, MDCE, and other partners
5.6.7.8	Project Closure, Delivery																																					DIALOG, ULUND, MDCE, and other partners

Activity On-going

Milestone

Delivery

5.6.7.1 Funding: National funding of Dinalog is available for Dutch participants. We are looking forward to the 3rd and the 4th calls of Horizon2020.

5.6.7.2 Events: Events will be organised regularly. The indicated events are planned by NL/BE cluster.

5.6.7.3 Case study: Successful cases will be selected and analysed.

5.6.7.4 Expert: Invited experts will describe the state of the art and next steps.

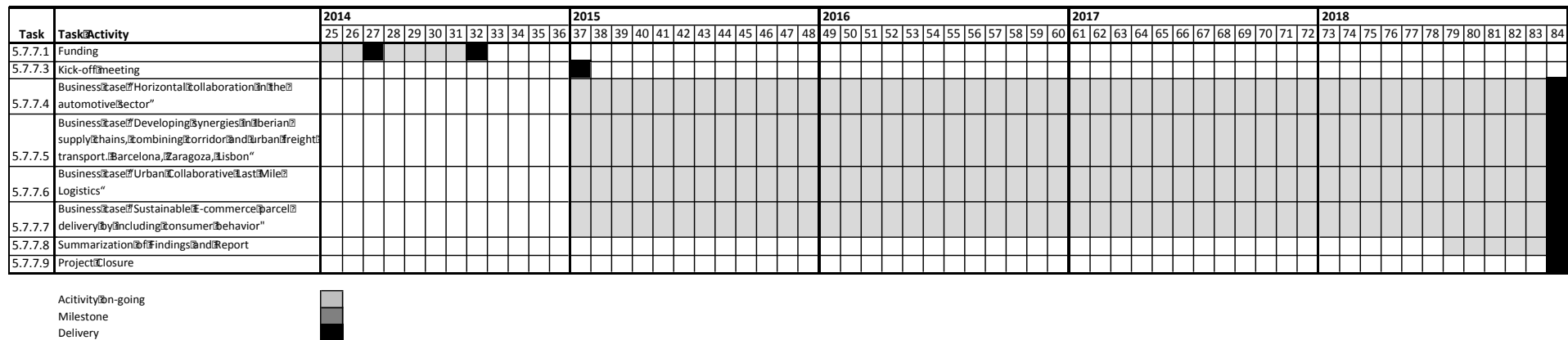
5.6.7.5 Analysis: Researchers will address (new) findings, and next steps.

5.6.7.6 Interview: Interviews will be carried out during the event, and additional meetings.

5.6.7.7 Summary: The results will be reported annually.

5.6.7.8 Delivery: Each year at least one project on this topic will be finalised.

8.7 GANTT CA 7: The Impact of E-commerce Service Models on SC Cost & Emission Efficiency



5.7.7.1 Funding: The stage-one application for the H2020 topic MG-6.1-2014 Fostering synergies alongside the supply chain (including e.commerce) will be handed in on 2014-03-18. The stage-one application for the H2020 topic MG-6.1-2014 Fostering synergies alongside the supply chain (including e.commerce) will be handed in on 2014-08-28.

5.7.7.2 Kick-off meeting: If the proposal is approved for funding by the European Commission then the kick-off meeting of the project should take place in January 2015.

5.7.7.3 Business case “Horizontal collaboration in the automotive sector”: This business case would leverage new synergies in the common horizontal logistics flows in the automotive sector to obtain supply chain integration and obtain a reduction in the number of delivery vehicles (including empty running vehicles) and CO2 emissions while obtaining logistics cost savings. To implement these collaborative practices, professional associations (and institutions) in the automotive industry have a key role in order to guarantee neutrality as well as fairness.

5.7.7.4 Business case “Developing synergies in Iberian supply chains, combining corridor and urban freight transport. Barcelona, Zaragoza, Lisbon”: This pilot case will be focused on the development of Supply Chain Synergies practices at different levels, considering different roles to identify and exploit these Synergies. Stakeholders like shippers associations, such as the Spanish technology platform on logistics, Logistop (Spain), ports, or corridors managers will play a key role to detect synergies in logistics flows (off-line trustee/neutral orchestrator) and to implement collaborative practices, as well as disseminate the best practices and standard practices between the shippers and between logistics service providers in a particular region (Iberia for this case).

5.7.7.5 Business case “Urban Collaborative Last Mile Logistics”: Urban Collaborative Last Mile Logistics is the idea of an urban consolidation center for multichannel retailers. As a multi-user transshipment it point allows retailers and shippers to bundle their good flows on the last mile. The collaborative is able to carry out deliveries to retail outlets (B2B) and to end consumers (B2C) as well as reverse logistics for return consignments.

5.7.7.6 Business case "Sustainable e-commerce parcel delivery by including consumer behavior": Customized booking slots for last mile delivery in which consumers supply their availability information to (collaborating) LSPs to improve success rate of first delivery attempt. Multiple e-commerce channels can be jointly bundled.

5.7.7.7 Summarization of Findings and Report: The results of the project will be analyzed and gathered in a report.

5.7.7.8 Project Closure: The project will have a total duration of 48 months and will end in December 2018.

[illegible]

5.8.7.1 Funding: The stage-one application for the H2020 topic MG.2.2-2014. Smart Rail Services.will be handed in on 2014-03-18. The stage-one application for the H2020 topic MG.2.2-2014. Smart Rail Services.will be handed in on 2014-08-28.

5.8.7.2 Kick-off meeting: If the proposal is approved for funding by the European Commission then the kick-off meeting of the project should take place in January 2015.

5.8.7.3 Living Lab 1: Dedicated services; Wagonload trains: Establishes a service for combining wagon loads of different clients in an efficient way. This will create a new service that can compete with road transport and will improve the capacity use of the railways (multi-client trains). Spain – Hungary / Germany – South East Europe.

5.8.7.4 Living Lab 2: Managing connectivity of rail with other modes: Control tower for long distance rail freight transport. Creates a logistic “Control Tower” for freight transport on multi-modal corridors including rail links. This Living Lab will show the added value of information availability for all stakeholders involved, which will lead to an improved rail service, better rail capacity use and an increased reliability.

5.8.7.5 Living Lab 3: Reliability of rail and (unexpected) obstructions on the track; Betuwe route (Rotterdam-Genua corridor). In a controlled situation we will develop a system that can also be used in case of sudden obstructions where real time decision making is required. This system will provide the possibility to come to a higher reliability of railways even in case of sudden disruptions. The situation of regular and planned obstruction of the Betuwelijn in the period 2016-2022 is a unique controlled situation where we can learn valuable lessons on how obstructions should be approached and how logistics can be adjusted effectively in order to maintain reliability for the overall supply chain.

5.8.7.6 Summarization of Findings and Report: The results of the project will be analyzed and gathered in a report.

5.8.7.7 Project Closure: The project will have a total duration of 36 months and will end in December 2018.

8.9 GANTT CA 9: Increasing Efficiency of Inbound Cargo into Hubs through ICT Solutions

Task	Task Activity	2014												2015												2016												Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
5.9.7.1	Information from SoCool@EU partners																																					see HOLM cluster actors, SoCool@EU partners
5.9.7.2	Identification points of demand (e.g. hub operators) and user specifications																																					see HOLM cluster actors, SoCool@EU partners
5.9.7.3	European Workshop																																					see HOLM cluster actors, SoCool@EU partners
5.9.7.4	Setup of pilot portal solutions																																					see HOLM cluster actors, SoCool@EU partners

Activity on-going
Milestone
Delivery



5.9.7.1 Information from SoCool@EU partners: Research on existing solutions and information from SoCool@EU partners to HOLM on cluster best-practices and ongoing projects in the area (ongoing) .

5.9.7.2 Identification points of demand/user specifications: Discussion with hub operators on demand situation and expectations/requirements for technology solutions (IT portal specifications).

5.9.7.3 European Workshop : Preparation of a European workshop on the topic (planned for M33) in order to clarify the European dimension of the project and to exchange on user requirements and specifications (freight forwarders, terminal operators, etc.). Regional preparation in Frankfurt ongoing.

5.9.7.4 Setup of pilot portal: Delivery of pilot portal test case(s) for inbound truck traffic to be adapted to regional user requirements and implemented after project life. Regional activities in Frankfurt ongoing.

8.10 GANTT CA 10: Logistics Education, Training and Valorisation

Task	Task Activity	2014												2015												2016												Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
5.10.7.1	Application Funding																																					DIALOG, ULUND, and other partners
5.10.7.2	Workshop, Symposium and Conference																																					DIALOG, ULUND, and other partners
5.10.7.3	Case Studies																																					
5.10.7.4	Expert Group Session																																					DIALOG, ULUND, and other partners
5.10.7.5	Analysis & Theory																																					DIALOG, ULUND, and other partners
5.10.7.6	Complementary Interviews																																					
5.10.7.7	Summarisation of Findings and Report																																					DIALOG, ULUND, and other partners
5.10.7.8	Project Closure, Delivery																																					DIALOG, ULUND, and other partners

Activity on-going

Milestone

Delivery

5.10.7.1 Funding: National funding of Dinalog is available for Dutch participants. We are looking forward to valorisation of the developed modules.

5.10.7.2 Events: Events will be organised regularly. The indicated events are planned by NL/cluster.

5.10.7.3 Case study: N/a

5.10.7.4 Expert: Invited experts will describe the state of the art and next steps.

5.10.7.5 Analysis: Researchers will address (new) findings, and next steps.

5.10.7.6 Interview: N/a

5.10.7.7 Summary: The results will be reported annually.

5.10.7.8 Delivery: Each year at least two masterclass will be implemented.

8.11 GANTT CA 11: Coordinated European Development of Pilot Solutions for Urban Logistics

Task	Task Activity	2014												2015												2016												2017						Partner
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	
5.11.7.1	Funding																																											Zaragoza Logistics Center
5.11.7.2	Kick-off meeting																																											Zaragoza Logistics Center
5.11.7.3	Living Lab Frankfurt am Main and Berlin																																											House of Logistics and Mobility
5.11.7.4	Living Lab Copenhagen																																											Danish Transport Innovation Network
5.11.7.5	Living Lab Zaragoza																																											Zaragoza Logistics Center
5.11.7.6	Summarization of Findings and Report																																											Zaragoza Logistics Center
5.11.7.7	Project Closure																																											Zaragoza Logistics Center

Activity on-going
Milestone
Delivery



5.11.7.1 Funding: The stage-one application for the H2020 topic MG-5.2-2014: Reducing impacts and costs of freight and service trips in urban areas will be handed in on 2014-03-18. The stage-one application for the H2020 topic MG-5.2-2014: Reducing impacts and costs of freight and service trips in urban areas will be handed in on 2014-08-28.

5.11.7.2 Kick-off meeting: If the proposal is approved for funding by the European Commission then the kick-off meeting of the project should take place in January 2015.

5.11.7.3 Living Lab Frankfurt am Main and Berlin: The test case in Frankfurt and Berlin is dedicated to improving basic knowledge and understanding on local freight distribution and service trips in a predefined test area i.e. the main shopping area around the "Zeil" representing a huge variety for small and medium-sized shops as well as department stores, several restaurants and grocery stores and two international hotels. The test case will be linked to a test case in Berlin for research on indicators, measurement and data on commercial retail goods traffic in and around the test case area and comparison between the two cities.

5.11.7.4 Living Lab Copenhagen: The aim of Citylogistik KBH is to create an alternative logistics service for the shops in central Copenhagen in order to reduce the negative environmental impacts of traffic in the city. Citylogistik KBH has established a logistics service that supply goods to companies in central Copenhagen using more environmental friendly (electrical) vehicles. The target group for the city logistic service is retailer as they have a large number of deliveries, both parcels and pallets and they account for the heaviest transport pattern with a high number of trucks according to analysis.

5.11.7.5 Living Lab Zaragoza: Summary of major issues to be tackled: Night delivery from warehouse to retailer's stores and supermarkets in cities is an increasing practice in Europe. It has been demonstrated the benefits in cost and emissions reduction as well as having positive impact in congestion (less trucks in peak hours). However, retailers need to pass a long process until this practice is approved by a specific city council. The living lab will propose a full procedure including requirements, alternatives, benefits and implementation path of this process to support ample and easy implementation by retailers in cities. 96 % of SIMPLY goods distribution to stores is centralized through major warehouses. Simply gets deliveries from their suppliers in its warehouses and then goods are transported to SIMPLY's supermarkets and stores. With this case, Simply will analyze and test the opportunity of integrating transportation routes to (pooling of freight from suppliers) and from its warehouse. The trucks delivering in the cities will collect recycling materials of the stores as well as the freight from SIMPLY suppliers optimizing freight trips. This measure should increase load factor of trucks and reduce freight trips.

5.11.7.6 Summarization of Findings and Report: The results of the project will be analyzed and gathered in a report.

5.11.7.7 Project Closure: The project will have a total duration of 30 months.