

REPORT ON THE PRESENT AND FUTURE SCENARIO FOR **VET & LOGISTICS** IN EUROPE

ERASMUS + KA220-VET - COOPERATION
PARTNERSHIPS IN VOCATIONAL
EDUCATION AND TRAINING

2021-1-ES01-KA220-VET-000034818





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1 THE LOGISTICS INDUSTRY AND ITS COMPONENTS

The following section describes what the logistics industry is, its main components, and the different typologies associated with the supply chains.

The logistics industry includes all business activities intended to make products and services available at the place, in the form and under the conditions customers want at the lowest possible cost to them (Fundació BCN FP, 2020). The industry differentiates between the supply and logistics chains.

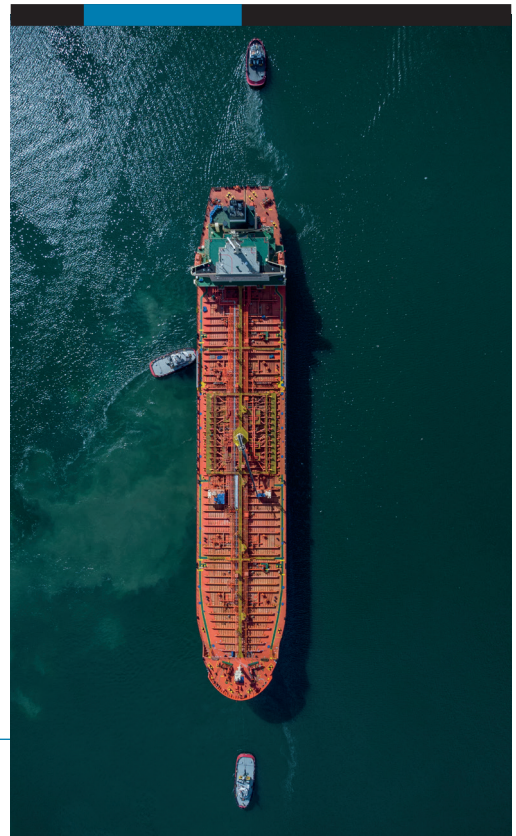
The supply chain manages the multiple steps of a product or service from the acquisition of raw materials to the delivery and consumption of the finished product. The main activities included are the acquisition of raw materials, and the management of their processing and procurement. The supply chain consists of the activities involved in the manufacture, distribution, and sale of a product and all movements and logistics activities that make it possible to convert raw materials into a product for consumption. This concept involves the participation of companies belonging to different industries and activities and logistics agents in a complete process based on product life.

There are four different types of logistics associated with a point in the supply chain:

- **Procurement logistics:** the set of operations carried out by the company to obtain the materials necessary to carry out manufacturing or marketing activities. These processes provide the company with all the materials and products necessary for its operation.
- **Production logistics:** includes all the supply chain processes that take place within the company itself, i.e., from the company receiving the goods in its premises until the product leaves, either for a logistics company or for its final destination.
- **Distribution logistics:** plans and manages the path a product takes from the time it is produced by the manufacturer until it reaches the hands of the end consumer. It is therefore the part of the supply chain responsible for sending the product to the end customer.

▪ **Reverse logistics:** handles the process and control of the network operations supplying materials from the user or consumer to the manufacturer or collection points for reuse, recycling, or removal.

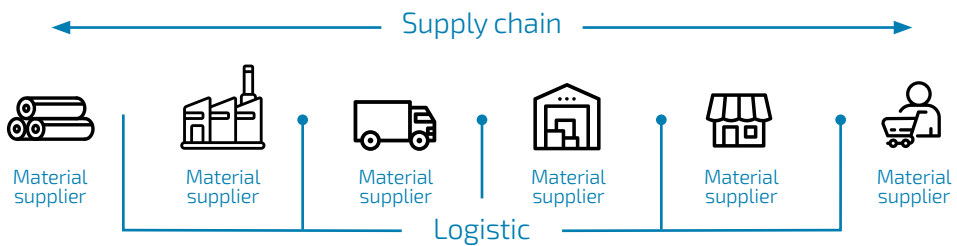
Logistics focuses exclusively on placing the product in the right place, at the right time, and under the conditions agreed with the customer (time, quantity, price, quality, and location). It includes freight transport, storage, handling, order preparation, planning, and managing a logistics network, among other functions.





2 METHODOLOGY

The methodology described below was developed taking into account the complexity of the logistics supply chain and the importance of logistics for the viability of any economic sector and business activity. The following diagram summarizes the different components of the supply chain covered in the stakeholder interviews, good practices, and examples compiled by the different partners.



To compare and analyse the needs of the logistics industry in terms of profiles and skills and detect good practices in local areas, Xarxa FP and Fundació BCN FP created a methodology consisting of collecting data from all participating partners in a standardized file. This file includes three main points of interest.

1) Contextualization of the study region:

This section contains information on each local area in terms of location, main logistics infrastructure, and employment-related data.

The sources for data collection were national/subnational/local public institutions and their data warehouse. The main objective was to identify local trends as well as the international projection of the logistics industry and the needs and demands of the industry in terms of skills, human resources, and changes in operational performance. In addition to the information collected in the file described above, a documentary analysis of reference publications was carried out to contextualize the development of the logistics industry over time and its importance at European level.

2) Collection of good practices:

This file includes initiatives, methodologies, projects, or processes developed in the metropolitan area with good potential to offer learning and

inspiration to other partners or regions. The good practices collected by partners were related to three targets or areas:

- **Logistics industry/business:** logistic-related companies considering VET as the education level to meet their needs
- **Education centres:** schools and colleges at all levels, to adapt training to market needs
- **Society-publicity:** activities/initiatives promoting logistics VET as a career option among young people/parents

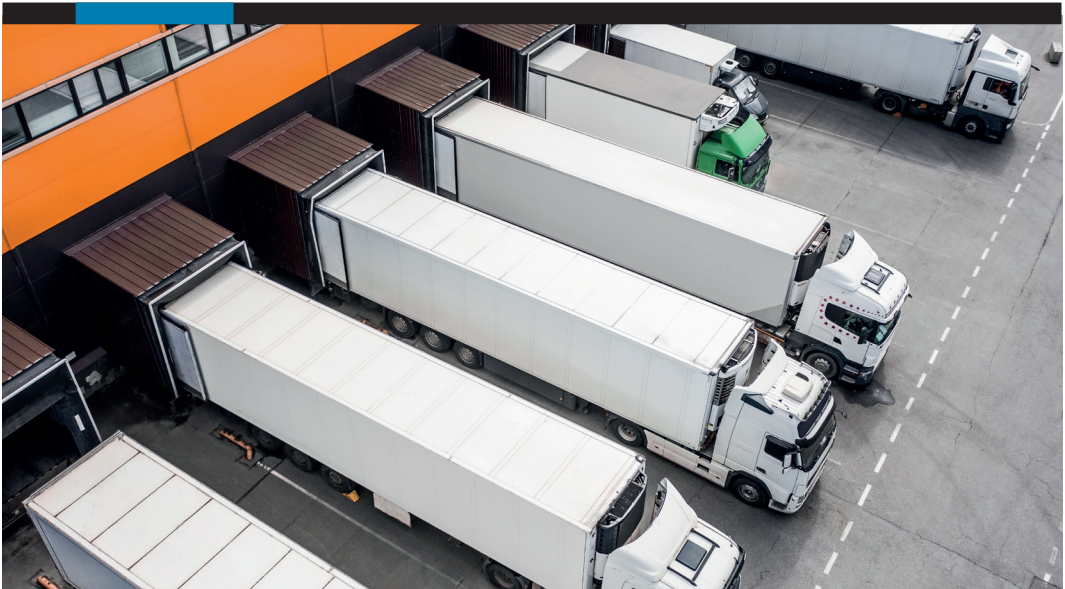
To systemize data collection, each good practice received from the regions was developed in a standardized template (1-2 pages approximately). The optimal number of good practices to be collected was set at a minimum of six cases (and a maximum of 12), which were distributed as follows:

- ✓ Logistics industry/business: 2-4 cases
- ✓ Education centres: 2-4 cases
- ✓ Society-dissemination: 2-4 cases

In total, 34 good practices were collected: nine related to society, 14 to education centres, and eight to business. Table 1 shows the information collected by the local area and the type of good practice.

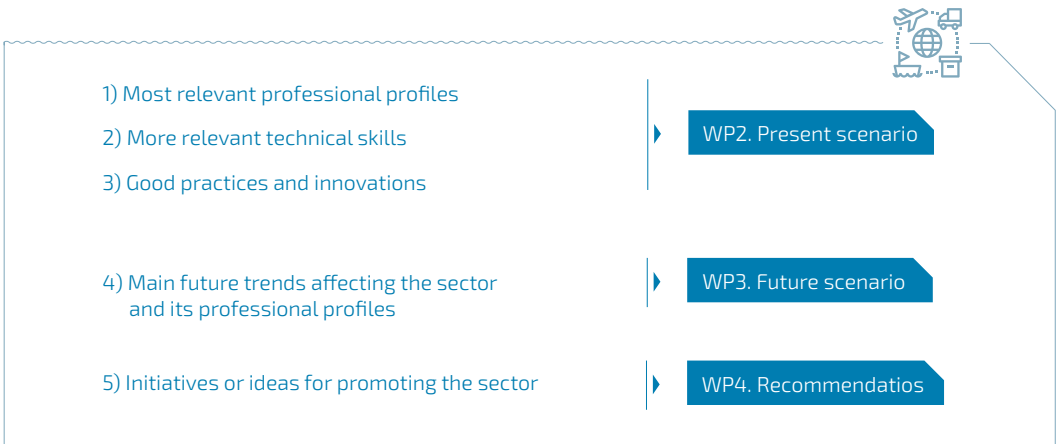
Table 1¹: Good practices gathered from each local area

Good practices (6-12)						
City	Country	Organization	Business (2-4)	Education centers (2-4)	Society (2-4)	Total
Barcelona	ES	Xarxa FP, Fundació BCN FP	4	2	1	7
Lisbon	PT	Camara Municipal de Lisboa	1	3	1	5
Tartu	EE	Tartu Vocational College		1	5	6
Rovaniemi	FI	Lapland Education Center	1	4	1	6
Skellefteå	SE	Skellefteå kommun		4		4
Hardenberg & Hoogeveen	NL	Alfa-College	2	3	1	6
Total			8	17	9	34



¹ No data available for Kuopio.

3) Interviews: This section includes a qualitative research method based on formulating questions to collect data. The main aim of this section was to collect information on present and future trends in logistics, opinions on the industry and its needs, and specific cases of good practices in companies. Specifically, the interviews with key stakeholders included information about:



The interviews also covered some of these different profiles:



In total, 60 interviews were conducted. Table 2, displays the different information by local area and type of stakeholder interviewed.



Table 2: Interviews gathered from each local area.

City	Country	Organization	Interviews (10-15)					Expert	Total
			Business (2-4)	Small company (1-3)	Umbrella Prof. Orgs.	VET centre			
Barcelona	ES	Xarxa FP, Fundació BCN FP	-	-	1	-	-	1	
Lisbon	PT	Câmara Municipal de Lisboa	2	1	5	1	-	9	
Kuopio	FI	SAVO Vocational college	10	1	-	-	-	11	
Tartu	ET	Tartu Vocational College	7	1	2	-	-	10	
Rovaniemi	FI	Lapland Education Centre (REDU)	4	1	1	1	1	8	
Skellefteå	SE	Skellefteå kommun	6	1	-	2	-	9	
Hardenberg & Hoogeveen	NL	Alfa-College	6	5	1	-	-	12	
Total			35	10	10	4	1	60	



3 CONTEXTUALIZING THE LOGISTICS INDUSTRY AND INDUSTRY 4.0

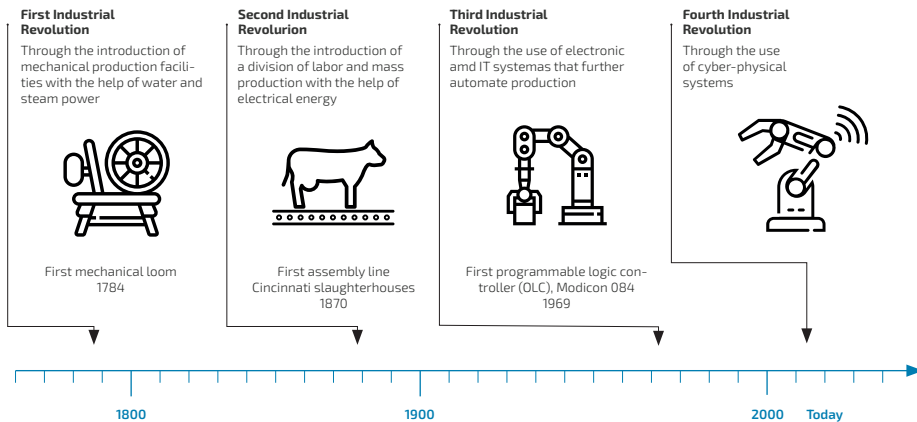
This section takes a brief look at the history and explains the main changes and events that have generated the fourth industrial revolution, or Industry 4.0. To contextualize the logistics industry and the so-called smart manufacturing industry, after the brief presentation of industrial development, the text will focus on the logistics industry and how it has changed over time.

3.1 Development of the industry over the years

At the end of the 18th century in Great Britain, the first industrial revolution made mass production possible using water and steam power instead of only human and animal power. Final products were built by machines rather than produced by hand (IBM, 2022). A century later, the second industrial revolution introduced assembly lines and the use of oil, gas, and electric power. These new energy sources brought mass production and some degree of automation to manufacturing processes (IBM, 2022). In the middle of the 20th century, the third industrial revolution began. This one came hand in hand with digitalization and brought a change in

machinery which allowed the automation of some processes and the collection and sharing of data (IBM, 2022).

Nowadays, the industry is immersed in advanced manufacturing or industry 4.0, because of the digitization, networking, and automation of industrial production combinations (Buhr, 2018). Companies have focused on improving distribution, reducing infrastructure costs, increasing e-commerce, and including machine learning in their operations (IBM, 2022). In this way, the main objective of industry 4.0 is to increase the transparency of the process, the personalization of the products and services, and efficiency and productivity throughout the value chain.



Font: DFKI (2011)

Industry 4.0 has brought many changes, fundamentally due to technological improvements. In this respect, many industries, from agriculture and energy, IT and communications, to mechanical engineering and vehicle manufacturing are going to undergo important changes in their conception and operation. Specifically, there have been changes in the logistics in terms of the volume of goods, distribution, and transparency of processes. We will now see how these changes have taken place and how the logistics industry has changed in time.

3.2 Development and main changes in the logistics industry

The term logistics, as it is known today, was coined in the middle of the 19th century. However, logistics underwent important developments and changes before arriving at the concept as it is now understood. This section gives a brief description of the key stages in the development of logistics, as well as the changes it has undergone over time.

Before the 1950s, the first definition of the word logistics referred to the supply of ammunition and weapons as the main logistics activity. The main aim was to divide labour and provide the soldiers with the weapons they needed. During wars, the interests of businessmen also meant a change in the concept of logistics, as they began to see the logistics function as a powerful tool to reach new geographically separated markets, as well as improving the efficiency of the company by reducing costs (Gutiérrez and Prida, 1998). Therefore, from the 1960s onwards, to reduce costs, logistics underwent a transition with the development of the first distribution centres and the development of transport. Logistics then reached peak physical distribution, as until then it had referred only to basic distribution functions (Beetrack, 2021).

However, it was not until the 1980s, with the second part of the economic crisis, that customer service and delivery times began to be more highly valued. As part of the development of logistics, the productivity of distribution plants increased and, transport services became better established (Beetrack, 2021). Starting in the **1990s**, with the unstoppable advance of technology, the logistics reached a historical peak: distribution channels were improved, logistics services were outsourced and demand for them expanded (Beetrack, 2021). Since 2000, with the proliferation of new tech-

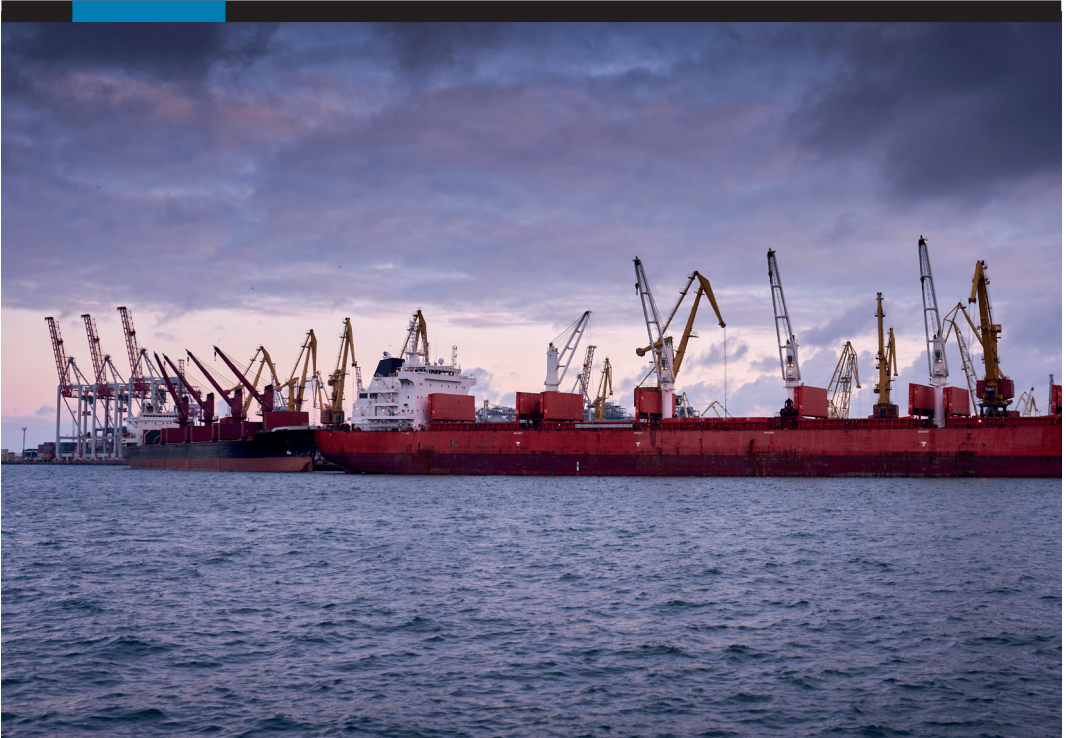
nologies, logistics has been rediscovered and revalued. This has been made possible by the integration of operational industrial technologies with corporate IT.

Some of the most important technologies that have revolutionized value chains into a fully integrated, automated, and optimized flow that improves efficiency and the traditional relationship between suppliers, producers, and customers, as well as between people and machines have been:

- **Big Data and Analytics:** these consist of the analysis of data sets which due to their volume, their nature, and the speed at which they must be processed, exceed the capacity of common computer systems. In the context of logistics, the mass of data analysis (production systems and equipment, supplier management systems, etc.) makes it possible to support decision-making in real time.
- **Living robots:** Robots are increasingly autonomous, flexible, and cooperative, so they can interact with each other and work safely alongside and learn from humans. In the logistics industry, the presence of robots is increasing in warehouses.
- **Simulation 3D:** simulations make it possible to reproduce the physical world in a virtual model, which can include machines, products, and people, and allow operators to test and optimize the programming of a machine in the virtual world before implementing it.
- **Horizontal and vertical integration of systems:** manufacturers, suppliers, and customers are closely linked through IT systems, facilitating value chains.

3.3 Logistics industry (Present scenario).

In today's society, where the purchase of services and goods is an important part of life, logistics needs to provide a rapid response to meet the customers' needs in a competitive environment seeking to optimize time and costs. In this way, logistics takes on a fundamental role not only in improving the business fabric but also in the economy of an area. For this reason, a set of logistics strategies has been developed alongside other strategies like competitiveness. In this section, we present these logistics strategies at European and international levels, including the most important European laws related to logistics and the current situation of the industry in Europe.



International context

In 2018, the trade in international goods grew by 3%, outpacing global GDP growth (WTO, 2019). However, despite this increase, growth was 1.6% lower than the value recorded in 2017. This loss was partly explained by trade restrictions and their intensification.

In 2018, the top 10² trading economies accounted for more than half of world trade – about 53% – and the top five also accounted for 37% of world transactions. China continues to be the world's leading goods trader. Its exports reached US\$2.39 billion in 2018 or 13% of world exports. In terms of imports, the United States is the top importing country, with \$2.61 billion in 2018.

Regarding the distribution of world goods exports by major product groups, in 2018, manufactured goods accounted for 68% of trade; fuels, and extractive industry products 19%; and agricultural products 10%.

Economies with low per capita levels are becoming significantly important in international trade, especially trade between countries of the same income level. In 2011, exports between low per capita income

countries exceeded exports between high-income countries (WTO, 2019).

European context

Logistics is one of the main drivers and key pillars of European competitiveness, as it paves the way for industrial added value, the movement of goods and cooperation between companies. It is also a key factor in the Lisbon agenda for growth and jobs (Satta et al., 2011). The share of the logistics industry in the European economy is estimated at 14% of European GDP and employs about 10.4 million people representing 7.9% of those employed in the non-financial business economy and 7.4% of the wealth generated in the non-financial business economy (Eurostat, 2022). The transport and storage services industry moves about 19 billion tonnes and accounted for 5.4% of all EU businesses in 2019 (Eurostat, 2022). Table 3 highlights the most important logistics companies in Europe and their revenues in the world and in Europe, in addition to their workforces.



Table 3. Most important logistics companies in Europe

Rank	Company	Data quality	Logistics revenue worldwide	Logistics revenue Europe	Employees	Bulk Logistics revenue 2018 in m. €
1	Deutsche Post DHL (Group) (DE)	**	51,841	28,475	547,459	
2	Maersk A/S (DK)	**	34,085	17,050	80,220	
3	Deutsche Bahn AG (DE)	**	21,400	16,160	331,600	1,750
	DB Schenker (part of DB AG) (DE)	**	16,973	11,700	70,000	
4	Kuehne + Nagel International AG (Konzern) (CH)	***	18,435	10,972	77,416	
5	CMA-CGM SA (FR)	**	19,895	9,950	37,092	
6	SNCF SA (FR)	**	9,935	9,935	50,000	1,700
7	La Poste (Group) (FR)	**	9,665	9,665	140,000	
8	Mediterranean Shipping Company Holding SA (MSC) (CH)	*	19,550	9,500	47,000	
9	UPS Europe NV (BE)	*	62,775	7,850	481,000	
10	DSV A/S (DK)	***	10,606	7,832	47,394	
Total Top 10			258,187	127,389	1,839,181	3,450

Source: Schwemmer, M. (2019)

Within world trade, the EU-28 accounts for 15% of trade in goods. The main destinations for these goods are the United States, China, Switzerland, Turkey, Japan, and Norway. These countries are also the main suppliers of EU-28 imports.

In 2018, the trade balance between exports and imports was in deficit by €24.6 million. This deficit balance came mainly from imports of energy and raw materials, which could not offset the surplus of exports of vehicles and machines and the chemical

industry. With the advent of COVID-19, the logistics industry became a strategic sector of the economy, but it also highlighted the vulnerability of long-distance supply chains. This has not only triggered a wave of offshoring to bring manufacturing closer to the point of distribution but has also encouraged companies to hold larger inventories.

In this competitive market context, the EU-28's commercial future depends on its ability to grow. For this reason, it is essential to have an efficient, environmen-

tally friendly, sustainable and quality logistics industry. For this reason, the European Union has promoted several strategies and laws to harmonize the logistics industry among member countries to give a message of unity, competitiveness and sustainability of the industry at a global level. In addition, these strategies and laws presented below are directly related to meeting the SDG 7, 9, 10, 11, 12 targets. Logistics plays a key role in achieving these.

Main logistics strategies:

■ **Trans-European transport network (TEN-T):** The Trans-European Transport Network (TEN-T) policy addresses the implementation and development of a Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports, and railroad terminals. The ultimate objective is to close gaps, remove bottlenecks and technical barriers, and to strengthen social, economic, and territorial cohesion in the EU. TEN-T comprises two network "layers" (European Commission, 2022)

- The **Core Network** includes the most important connections, linking the most important nodes, and is to be completed by 2030.
- The **Comprehensive Network** covers all European regions and is to be completed by 2050.

The backbone of the Core Network is represented by nine Core Network Corridors, which were identified to streamline and facilitate the coordinated development of the Core Network

■ **European Commission, Directorate-General for Mobility and Transport, White Paper on Transport (2011):** In March 2011, the European Commission adopted a detailed strategy (Transport 2050) to create a competitive transport system that increases mobility, removes major barriers in key areas and fosters growth and jobs. At the same time, the proposals aim to drastically reduce Europe's dependence on imported oil and mitigate carbon emissions from transport by 60% in the year 2050.

The ten measures included in the strategic plan are as follows:

🌿 **Developing and deploying new and sustainable fuels and propulsion systems.**

1. Specifically, halving the use of "conventionally fuelled" cars in urban transport by 2030; phasing them out in cities by 2050; and achieving essen-

tially CO₂-free city logistics in major urban centres by 2030.

2. Reaching a 40% share of hydrogen sustainable fuels in the air industry by 2050; reducing the EU's CO₂ emissions from boiler fuel in the maritime sector to 40%, also by 2050.

🌿 **Optimizing the performance of multimodal logistic chains, including greater use of more energy efficient forms.**

3. For instance, 30% of road freight over 300 km should shift to other modes, such as rail or waterborne transport, by 2030, and this figure should rise to more than 50% by 2050, facilitated by efficient, green freight corridors.
4. Trying to transfer 30% of road freight transport to other modes, such as rail and river navigation, by 2030, and more than 50% by 2050, relying on efficient, green corridors.
5. Completing a European high-speed rail network by 2050. Tripling the length of the existing high-speed rail network by 2030 maintaining a dense rail network in all Member States. By 2050, on average, the majority of passenger transport should be by rail.
6. By 2030, the EU should have a basic TEN-T multimodal network covering the whole area fully operational, with a high-quality and high-capacity network by 2050 and the corresponding set of information services.
7. By 2050, connecting all airports in the basic network to the rail network, preferably high-speed; ensuring that all major seaports are sufficiently connected to the rail system of freight transport and, where possible, the inland waterway system.

🌿 **Increasing the efficiency of transport and use of the infrastructure, with information systems and market-based incentives.**

8. By 2020, establishing the framework for the European multimodal transport information, management and payment system.
9. By 2050, approaching the target of "zero deaths" in road transport. In line with this objective, the EU has set itself the target of halving road accident victims by 2020. Ensuring that the EU is a world leader
10. Advancing towards full implementation of principles of "the user-payer" and "the polluter pays" and of the private sector's commitment to

¹² <https://planderecuperacion.gob.es/como-acceder-a-los-fondos/pertes/perte-del-vehiculo-electrico-y-conectado>

¹³ <https://govern.cat/salaprensa/notes-prensa/418194/empresa-treball-posa-marxa-loficina-publica-transformacio-industries-mobilitat-automocio>

eliminate distortions, including harmful subsidies; generate income; and secure funding for future transport investments.

Laws and regulations in the European logistics industry.

The services and products provided for logistics and transport are subject to various laws and regulations. Some of the most important ones are outlined below in Table 4. As can be seen, the table is divided depending on the different means of transport.





Table 4. EU Laws and regulations

Key EU legislation	Description of legislation
Sector: Aviation	
Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 establishing common rules for the operation of air services in the Community (Recast).	Common rules for the operation of air services. This instrument governs the licensing of EU air carriers, their access to the market, and the pricing of air services.
Directive 2009/12/EC of the European Parliament and The Council of 11 March 2009 on airport charges	Lays down common principles for the levying of airport charges at EU airports.
Sector: Maritime	
Council Regulation (EC) 718/1999	The purpose of this Regulation, on EU fleet capacity policy, is to promote inland waterway transport.
Council Directive 91/672/EEC	This Directive is to establish the reciprocal recognition of national boat master certificates for inland waterway navigation between Member States.
Council Regulation (EC) 1356/96	The aim of this Regulation, on common rules applicable to the transport of goods or passengers by inland waterway between the Member States to establish freedom to provide such transport services, is to institute freedom to provide transport services between EU countries.
Council Directive 1999/32/EC	Shipping emissions. Directive 1999/32 relating to a reduction in the sulphur content of certain liquid fuels sets sulphur limits for marine distillate oil used in EU territorial waters.
Sector: Rail	
The "First Railway Package" of three directives: Directive 2001/12 of the European Parliament and the Council on the development of the Community's railways, amending Directive 91/440.	Opens the international rail freight market. Establishes a general framework for the development of European railways which imposes certain separation requirements for bodies responsible for the management of infrastructure and the operation of transport services. Sets out the role of independent national regulators, including monitoring competition and ensuring fair access to the rail network and services.
Directive 2001/13/EC of the European Parliament and the Council on the licensing of railway undertakings, amending Directive 95/18.	Sets out common criteria that must be met to be granted a licence to operate passenger or freight services on the European rail network. Member States must also designate an independent body responsible for issuing EU licences. Provides for the mutual recognition of EU licences.
Directive 2007/58 of the European Parliament and of the Council amending Directives 91/440 and 2001/14 (part of the "Third Railway Package").	Opens up international passenger services to competition within the EU from 2010.
Sector: Aviation	
Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 establishing common rules for the operation of air services in the Community (Recast).	Common rules for the operation of air services. This instrument governs the licensing of EU air carriers, their access to the market, and the pricing of air services.
Directive 2009/12/EC of the European Parliament and The Council of 11 March 2009 on airport charges	Lays down common principles for the levying of airport charges at EU airports.

Main characteristics of the European logistics industry

COVID-19 has caused a major change of context in the logistics industry, which has generated new realities and scenarios, such as delays in deliveries, shortages, stranded containers, and a lack of personnel. These factors have caused certain goods to be stored in ports or logistics facilities while awaiting lower prices. On the other hand, the increase in the price of electricity and fuel has also generated an increase in the cost of means of transport, leading to a readjustment of the strategies of all agents involved in logistics activity in Europe. The current situation shows that, although the industry is disturbed, it seems to be immersed in important correction processes. And despite these changes and imbalances, the European logistics industry is characterized by constant innovation – its supply chains are more balanced than in the rest of the world (Solisitca, 2019).

The logistics industry also continues to play a major role in the European economy, accounting for 14% of the GDP of the European economy. More than 11 million people work in the European logistics industry and almost a quarter of these jobs are in the postal and courier sector. Also, Europe has the countries (Germany, the Netherlands, and Belgium) with the best logistics in terms of the quality of transport infrastructures, process efficiency, and punctuality (Solisitca, 2019). The European logistics industry is also resilient and flexible in responding to unprecedented challenges such as the COVID-19 crisis. With COVID, shoppers turned to internet sales and traditional retailers developed internet solutions for their customers. Both factors contributed to an increase in e-commerce sales (European Logistics Market, 2022).

Europe has also upgraded its factories and automated logistics warehouses in recent years. For example, much of the demand for space in the sector has been driven by warehousing, to store and distribute finished manufactured products over long distances. In terms of strategies to mitigate the impacts of COVID-19, some industries, such as maritime transport, have relied on technology as an ally. There have been technological improvements in lines of communication, procedures have been streamlined, emergency management plans implemented, and governmental and industry organizations have participated (Fundació BCNFP, 2022).

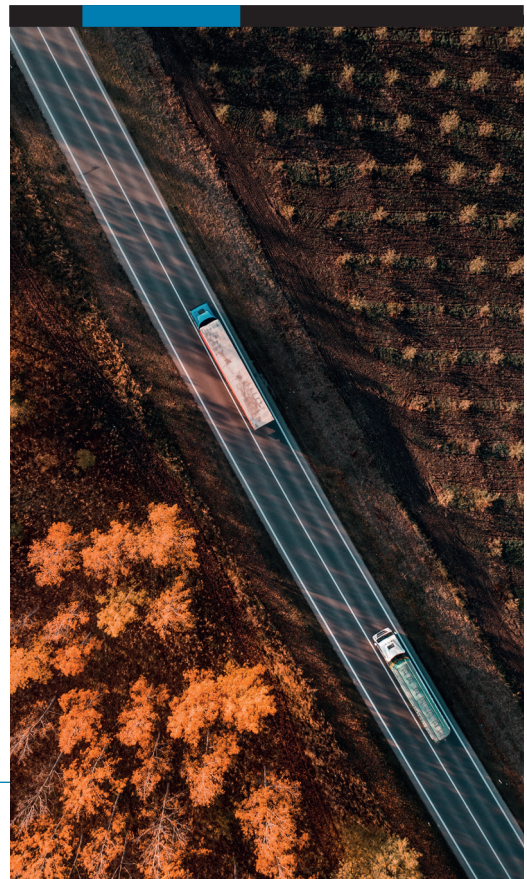
Finally, the digitization of the sector has accelerated radically to cope with the situations and changes generated by the pandemic and the current global crisis.

Companies have relied on technology and the facilitation of communications and procedures based on the latest technology. The companies that already had technolog-

ical transition processes under way have accelerated them and the vast majority that did not have them have been forced to implement them so they can continue to carry on their activity.

Some of the most commonly used technologies in this process are:

- Cloud technology: organizations have used this to operate remotely both for internal coordination and so they can carry out processes from multiple locations.
- Artificial intelligence: generating supply and demand flow predictions and data collection to improve companies' activity.
- Blockchain: improved transmission, transparency and security in concluding contracts and transmitting documentation.
- Terminal automation: to achieve greater productivity, competitiveness and security and lower service costs.
- Big data/deep learning to make decisions to improve the flow and efficiency of work at the port.
- Value-added geographical information systems that allow real-time geolocation of vehicles, orders, and goods, as well as the monitoring of data and relevant variables affecting the activity (traffic, weather conditions, sea conditions, etc.).



4 PRESENT EUROPEAN LOGISTICS INDUSTRY SCENARIO

This section describes the trends in the logistics industry in the cities where this project is being carried out. This section has been developed mainly thanks to the information provided by partner organizations and the data they have contributed. The objective is to be able to describe how the region is doing in economic terms and what its main logistics hubs are.

4.1. Netherlands

With 646,000 jobs and an added value of 53 EUR billion annually, according to Savills (2017), the Dutch transport and logistics industry plays an important role in the national economy in concrete this value was 7.7% of their GDP in 2020.

The main infrastructures of the logistics hub in the Netherlands are as follows:

Main ports of Netherlands:

- The port of Rotterdam is the largest container port in Europe, with a cargo volume of approximately 437,000 thousand tonnes (dry bulk, liquid bulk, containers, and loose bulk).
- The port of Amsterdam is the seventh largest port in Europe, with a cargo volume of approximately 91,800 thousand tonnes.

Main logistics zones:

- Logistics zones with inland ports, terminals, and hubs (25 x barge, 5 x rail, 3 x trimodal) are mainly located near the East-West logistics corridors.
- Near the Hoogeveen-Hardenberg region there is the Dryport Emmen-Coevorden logistics hotspot.

Schiphol airport:

- Schiphol is Europe's third-largest cargo gateway. In 2020, 1,441,522 tonnes of cargo were transported, 754,361 tonnes inbound and 687,161 tonnes outbound.
- In 2020 Schiphol had 227,304 air transport movements; 10.5% of these flights were carried out with a full-freighter aircraft. These aircraft transported around 71% of all cargo to and from Schiphol. Schiphol's freight facilities include five main

runways, parking and handling for the largest of cargo planes, 400,000 m² of cargo warehouses (60% with direct airside access, two livestock handling centres, extensive temperature-controlled handling facilities and scheduled RFS to/from every European airfreight centre.

Railway network:

- In the Netherlands, international freight trains run on fixed routes. One of the most important routes is the Betuwe, a fast, direct link between the port of Rotterdam and Zevenaar on the German border. Many international freight trains use this line.
- The total tonnage of goods transported by freight train is approximately 42,000,000 tonnes (3,000,000 tonnes domestically and 39,000,000 tonnes internationally). There are 60,000 freight trains a year, 15,000 of which go to Belgium and 45,000 to Germany. The railways account for half the national flow of goods.

Waterways:

- Inland waterway vessels transport more than 17% of the domestic flow of goods

Road network:

- The Netherlands has a total of 141,242 kilometres of roads. Trucks transported a total of 686,000 thousands of tonnes of goods in 2020, of which 82 per cent were domestic and 18 per cent international.

Cycling network:

- The Netherlands has 37,000 kilometres of cycle paths. There are 4,700 kilometres of roads with cycle lanes. As it is an almost completely flat country, the Netherlands has developed a strong cycling tradition. There is a total of 22,800,000

bicycles, of which approximately 1,800,000 are e-bikes (2% of these are cargo e-bikes).

- Cargo and e-cargo bikes and cycle logistics are becoming more and more common. A growing number of entrepreneurs (e.g. courier and food delivery) are considering switching from diesel cars and vans to cargo bikes (possibly with trailers), especially in

heavily congested cities with clean air restrictions coming in. This transition is facilitated by the development of logistics city hubs.

Regarding employment and VET offers in the logistics industry, it should be stressed that:



In 2021 the logistics sector employed around 391,000 people

- The most common profile of employees in the Dutch logistics sector are men between 36 and 55 with VET level education EQ2, EQ3 and EQ4.
 - The main Courses offered in 2021 were:
 - EQ 2 Road Transport Driver
 - EQ2 Logisticians



4.2. Estonia

As the easternmost trading city of the Hanseatic League, Estonia was the leading salt trade hub between Western Europe and the East. The tradition of trading between the East and the West has always been held in high regard here, as the transit industry recently still formed approximately 16% of the country's GDP.

Salt plays a lesser part in today's economy. However, Estonia has maintained its role as the link between West and East, being responsible for the increasing e-commerce trade and flow of natural mineral resources. The country's geopolitical position has become one of its greatest assets, complemented by its drive for efficient e-solutions in the field of logistics.

At the moment, Estonia is the most effective supply chain hub for the Nordic, Baltic, and northwest Russian regions thanks to its strategic location, modern infrastructure, multi-modal capabilities, and reliable but flexible approach.

The main infrastructures of the logistics HUB in Estonia are as follows:

Airport:

- Estonia's main airport is in Tallinn, local airports are in Tartu, Pärnu, Kuressaare, and Kärdla. In 2013, 1.9 million passengers were handled at Tallinn Airport. Over 98% of the passengers travelled on international flights and 87.4% on scheduled services. The airport handled 37,856 aircraft movements and 20,941 tonnes of cargo.

Waterways:

- Estonia has 45 ports entered in the State Register. All of them, with a few exceptions, are in the Baltic Sea. Muuga Harbour is the largest cargo port in Estonia and is one of the most modern ports in Europe with its depth, and terminals using modern technology. The depth of the water area of Muuga Harbour reaches 18 metres, which allows it to service all ships passing through the Danish straits. The throughput of Muuga Container Terminal (Muuga CT) in 2010 was 150,700 TEU. The cargo throughput of Muuga Port makes up about 80% of the total cargo volume passing through Estonian ports.

Railway:

- The total length of Estonian railways is 1,219 kilometres. The main connections are with Russia through Narva and with Latvia through Valga. The volume of local transport was around 1.8 million tonnes and, in international shipments 10.9 million tonnes in 2021.

Road transport

- In 2020, 23.3 million tonnes of goods, of which 19.31% were international transport were shipped by road.

The majority of cargo is transported by road from Estonia to the neighbouring countries: Russia, Latvia, and Finland. The majority of cargo to Estonia comes from Finland, Latvia, and Russia.

Regarding employment and VET offers in the logistics industry, it should be stressed that:



In 2020 the logistics industry employed around 38,700 people

- The most common profile of employees in the Estonian logistics sector are men between 36 and 55 years of age with VET-level education (34%) EQ2, EQ3 and EQ4.
 - The main Courses offered in 2021 were:
 - Warehouse worker EQF level 4
 - Transport/logistics manager EQF level 4
 - Warehousing specialist EQF level 4
 - Truck driver EQF level 4
 - Logisticians EQF level 5
 - Transport manager EQF level 5
 - Warehouse Manager EQF level 5

4.3. Spain

Spain has a privileged position in southern Europe, where the main freight traffic routes converge. Connectivity promotes the development of the Trans-European Transport Network (TEN-T) which in Spain includes two of the nine multimodal European corridors considered priorities by the European Union: the Atlantic Corridor and the Mediterranean Corridor. These are the main arteries on which the principal flows of goods and people are concentrated (Spanish Ministry of Industry, Trade and Tourism, 2021). Catalonia is a territory connected by land, sea, and air with Europe, Latin America, and North Africa. The Catalan economy is one of the fastest growing in Europe, representing 19% of Spain's GDP and 10% of GDP in the logistics industry.

The main infrastructures of the logistics hub in Catalonia are as follows:

Rail:

- In 2018, it represented 2.4% of freight traffic in Catalonia (312.766 million tonnes).

Harbour:

- In 2018, the Barcelona port trade amounted to 65.895 million tonnes, mainly involving Asia (19%), Europe (18%), and Near and Middle East (16%).
- Barcelona port is pioneering the development of the concept of a dry port. It works with ten inland terminals.

- The port also constitutes a Logistic Activity Zone.
- Barcelona port is working on the Nextgen project, which aims to electrify the mills at Port of Barcelona by 2030 (Onshore Power Supply) in a project that includes the wiring and generation of an electrical substation in the Port of Barcelona, aiming to reduce the CO2 emissions generated by port activity in Barcelona by 38%.

Airport:

- Barcelona-El Prat Josep Tarradellas airport is the main freight traffic airport in the region of Catalonia, involving 177,271 tonnes in 2019.
- Freight traffic mainly involves Europe (39%), the Middle East (25%), and North America (16%).

Road network:

- In 2018, it represented 74% of the goods trade in Catalonia (312.766 million tonnes).

Logistic hubs:

- The Metropolitan Region of Barcelona has the following transport centres or logistic parks: CIM Vallès, CIM Llobregat (in the project), Prologis Park Les Franqueses, Prologis Park Sant Boi de Llobregat, and Prologis Park Granada.

Regarding employment and VET opportunities in the logistics industry, it should be highlighted that:



In 2020 the logistics sector employed 127,307 people

- The most common profile of employees in the Catalan logistics sector are men aged between 36 and 55 with VET-level education (22.1%) EQ2, EQ3 and EQ4.

- The main Courses offered in 2021 were:

Commercial activities

Commercial activities, logistics professional profile

Food marketing

International trade

Transport and logisticians

Sales and commercial

Driving road transport vehicles

4.4. Portugal

Portugal is well placed to boost its trade with other continents such as North America, South America, and North Africa. Its on the list of five European countries that attract more investment to the logistics sector (European Real Estate Logistics Census analysis, by the international real estate consultant Savills, 12.01.2022) highlighting the role that COVID-19 pandemic played in increasing the dynamics of demand for this asset class. The imbalance in global supply chains has led many economic operators to question and review the geographic location of their production sources. In the Portuguese context there is a "high mobility rate of professionals within the sector, being the challenge of retaining talent mostly relevant. The quality and competitiveness of transport and infrastructure are one of the key variables for the decision to relocate the economic operators." (Nuno Rangel, Rangel's Group CEO, Interview in Jornal Economico, Feb 4th 2022).

The main infrastructures of the logistics hub in Lisbon are as follows:

Railway:

- In the European space, the Iberian Peninsula occupies a position of confluence between the Atlantic and the Mediterranean in which Lisbon constitutes a platform for the Atlantic logistics corridor. In terms of employment, Lisbon's importance is slightly accentuated: it is responsible for 5.3% of jobs on the Iberian Peninsula.

Airport:

- The Lisbon Humberto Delgado airport is the main cargo and goods traffic airport in Lisbon city region and during the year it moves 12.1 million passengers. The organization Groundforce operates in the airport, handling 400 tonnes of freight every day.

- Lisbon airport covers 640 hectares. 141.7 million tonnes were transported in 2021, putting it in 16th position in the EU ranking.

Harbour:

- As the port is integrated into the city and has a strong presence throughout the territory, it includes important national logistical axes. It had a general throughput of 9,352,584 tonnes of goods in 2020, mainly to Brazil, Spain, Ukraine and the UK.
- The Port of Lisbon is in the most important geographical area for production and consumption in the country.

Road network:

- In 2020, 8.7 million tonnes of goods nationwide were transported by rail, a reduction of 10.6% (-8.4% on 2019). In terms of national traffic, 6.6 million tonnes of goods (10.0% down after -11.3% in 2019) were moved, equivalent to 76.9% of total traffic (76.4% in 2019).
- Internationally, 2.0 million tonnes of goods were transported, a reduction of 12.5% compared to 2019, after growth of 5.3%, 10.2%, and 4.1% in the previous three years. The origin and destination of all international transport was Spain.

Logistics hub:

- The Lisbon Metropolitan Area (AML) has the Plataforma Logística Lisboa Norte (PLN), lying on the Lisbon-Porto axis.
- The MARL – Mercado Abastecedor da Região de Lisboa, the Bobadela Logistics Complex (ongoing project); Polo Industrial Alverca/Vialonga and Zona Industrial da Póvoa de St. Iria are among the main logistics/industrial centres.



In 2020 the logistics industry employed around 38,700 people

- The most common profile of employees in the Estonian logistics sector are men between 36 and 55 years of age with VET-level education (34%) EQ2, EQ3 and EQ4.
 - The main Courses offered in 2021 were:
 - Warehouse worker EQF level 4
 - Transport/logistics manager EQF level 4
 - Warehousing specialist EQF level 4
 - Truck driver EQF level 4
 - Logisticians EQF level 5
 - Transport manager EQF level 5
 - Warehouse Manager EQF level 5

4.5. Sweden

Sweden has the largest logistics market in the Scandinavian region. Recent infrastructure investments have made the country one of the leading logistics markets in the whole of Europe; in the Logistics Performance Index (LPI) it was ranked second in the world, behind Germany in first position (Linker Report, 2019). The contribution of logistics to the national GDP was 7.80% in 2021. Skellefteå is the second largest municipality in the county of Västerbotten, with an area of 9,956 km² and a population of about 74,000 inhabitants.

The main industries for the development of the Skellefteå region are:

Forestry industry:

- Skellefteå is a modern wooden city that drives technical development in wood. The timber industry in the region is a leader in this change in construction.
- The forestry industry is Sweden's largest transport buyer.
- Trucks are the main means of transport for timber from the forest to the factories. Trucks are often

the only option for transport from ports and railway terminals to customers.

- The timber industry companies in the county of Västerbotten have a turnover of approximately SEK 8 billion per year and a total of 2,700 employees.

Mining industry:

- The metal company Boliden AB is now the industry leader in the Scandinavian region when it comes to sustainable metal production, from prospection to recycling of used metal.
- Today, about 6,000 people work at Boliden AB, and the business is active in Sweden, Finland, Norway, and Ireland. The company's turnover in 2020 was SEK 16,718,000.
- Boliden currently has 650 employees.

Battery industry:

- Skellefteå is a growing place for sustainable industry with a low climate impact.
- Bergsbyn's industrial area is as large as 40 football pitches and Northvolt's establishment will generate between 3,500–4,000 jobs in Skellefteå when the factory is fully developed in 2025.



In 2020 Skellefteå had 46.6% of the population employed in industries including agriculture, forestry, the fishing industry, hunting and reindeer, 10.4% of employees in manufacturing industry and 42.9% service industries.

▪ [Adult education in Västerbotten offers vocational training within the following national programmes \(at upper secondary level SeQF 4\):](#)

- Building and construction programme
- Electricity and energy programme
- Vehicle and transport programme
- Trade and administration programme
- Industrial engineering programme
- Use of nature program
- Plumbing and property program

4.6. Finland

Northern Finland is characterized by having few transport networks and long distances both within the region and from the markets of Southern Finland and Central Europe.

The main infrastructures of the logistics hub are:

Road transport:

- Road transport is the most important part of the transport system and the most common form of freight transport. About 90% of the goods are transported by truck.

Train:

- 1,600 kilometres of train lines. The main line of the Finnish railway network runs from Helsinki via Tampere and Oulu to Tornio. It connects the Helsinki Metropolitan Area, Satakunta, Häme, Pirkanmaa, Ostrobothnia, and Central and Northern Finland for passenger and freight traffic. The railways are the

main drivers of the Finnish export industry, with a particular focus on the forestry industry. In heavy industry transport, especially in the forestry industry, the division of roles is clear; domestic transport is on the roads, and export transport to ports is on trains.

Ports:

- There are seven ports including seaports in the municipalities of Tornio, Kemi, Keminmaa, and Simo. There is about 760 kilometres of coastline (the number includes all coves and island beaches). The maritime area is used for ports, industry, tourism, fishing, energy production, etc.

Airport:

- There are five airports in the Lapland region. During 2018–2020, Finavia implemented an extensive investment programme of EUR 60 million at Kittilä, Rovaniemi, and Ivalo airports. In terms of air freight, there is only one real operational airport: Helsinki-Vantaa.



In 2020 Lapland region had 4.6% of the population employed in sector such as industry, whole- and retail sale, repair of motor vehicles and motorcycles, construction, health and social care, administration and support, transports and warehousing.

- The main VET offer in the region:

Transport and maintenance of vehicles
Intermediate degrees
Driving road transport vehicles

Kuopio is a Finnish city and municipality in the region of Northern Savonia and one of the most dynamic cities in Finland in terms of residential construction, attractiveness, job opportunities and population growth. Kuopio combines a great business environment, a wide range of education and research expertise, cultural services and the opportunity to live amid natural surroundings. Because of its versatility, Kuopio, a city of 120,000 inhabitants, is like a compact metropolis. Kuopio ranks in top two in studies of the largest cities in Finland in terms of image and willingness to recommend, and entrepreneur positiveness (Kuopio Mayor, 2022).

The business ecosystem in Kuopio region is active and undergoing continuous development. Newer Water and Energy Clusters are also growing fast in the area, together with the establishment of an extensive energy cluster in support of machine and metal industry, the key industrial sector and a major smart specialization focus in the region, with the aim of improving the international growth potential of businesses in the energy industry through innovation, research institute services, and product development.

The cluster was established during 2020–2021. The main players in the project are Savonia University of Applied Sciences, University of Eastern Finland, Navitas Business Services, and about 20 businesses in energy industry (Business Kuopio, 2022).



5 FUTURE SCENARIO FOR THE LOGISTICS INDUSTRY IN EUROPE

This section is a description of the near and mid/long-term future of the logistics industry in Europe, according to the various interviews and documents reviewed. For this purpose, the main problems that the industry suffers today, the strategies being followed and the future scenarios that could appear are presented.

5.1 Future challenges for the industry derived from the current scenario

Since the outbreak of the COVID-19, the global logistics industry has been facing several major changes.

The first is the development of consumption and customer expectations. Individual consumers no longer travel to a physical store, but shop online and expect to receive shipments faster, more flexibly and more transparently at a lower price. This has put the entire industry and the operating models under pressure, forcing them to restructure their business and production model. Secondly, the logistics industry is directly confronted by technological advances. Many companies have suddenly seen their business models become obsolete, forcing them to quickly define a digital strategy for their value chain. The third aspect is the advent of platform technology, which has led to the emergence of new business models, often driven by start-ups entering the logistics industry. This creates new competitors in today's market and forces companies to be constantly changing and innovating so they can be the most attractive company in the market. The fourth aspect is environmental: the public image of industries based on irresponsible and polluting production suffers significantly, and the shift towards sustainable industry has led to a restructuring of business thinking, as well as infrastructures (PwC, 2022).

Fifthly, rising energy prices and inflation resulting from the war in Ukraine, new regulations in China, container congestion at ports, and staff shortag-

es have caused companies around the world to encounter various problems in their supply chains. Factories have paralysed their production chains because raw materials and supplies are not reaching them, resulting in layoffs and affecting growth in some sectors; for example, the annual growth in shift trade from 2022 onwards is expected to slow to 2.4%, down from 2.9% in the last two decades (UNCTAD, 2021).

Moreover, in countries such as Finland the Russia sanctions has reduced containers transit traffic. In this way, the scarcity of containers will increase costs. Although empty containers are still available, the decline in transit traffic will reduce their availability and increase prices for other countries placed in the north of Europe (Port of Helsinki Magazine, 2022).

Despite all this uncertainty, the near-term outlook for the global economy is positive; real GDP growth is expected to continue above 3.9% year-on-year in 2022, driven by continued expansions in the United States and Asia (Fticonsulting, 2022). Table 5 shows growth forecasts by region, as well as the recovery from 2019 to the present. In addition, the logistics industry has already begun to prepare for the consequences of the above points and to anticipate possible difficulties in the future. The following section explains the main trends that will affect the industry in the coming years.



Table 5. Forecast and growth of the logistics industry by regions

	Growth (2021)	Short-term Recovery (2021 Vs 2019 levels)	Compound annual growth rate (2021–2025, CAGR%)
Global	19%	2.3%	5.1%
North America	22.6%	9.2%	4.9%
Asia Pacific	21.8%	3.6%	6%
Europe	15.7%	1.8%	4.3%

5.2 Future trends and actions (short-term < 2030)

Innovation is one of the most important factors stimulating the economy. It plays a special role in the transport and logistics industry, as it accelerates the process of meeting customer needs, reducing costs and boosting competitiveness. In this regard, the logistics industry has described the future trends in the industry and the potential benefits of its application.

■ **Green transition and reduction of footprint:** Europe has developed the strategy Trans-European transport network (TEN-T) strategy, aiming to reduce CO₂ emissions. This fact has powered the updating and reconversion of some sectors such as maritime transport. Specifically in this industry the following measures are being implemented:

- Development of green energy-generating infrastructures at or near port facilities, such as green hydrogen production plants, installation of wind turbines or solar panels.
- Electrification of shore power so that the ships that dock can be supplied with net energy instead of having their combustion engines running in order to generate their own energy.
- Promotion of green methanol as fuel for container ships with the aim of decarbonizing freight transport by sea.
- Reduction of particles in the atmosphere. An example of linked measurements of the loading and unloading of certain goods is the installation of "trap-pole" displays to reduce emissions caused by this specific activity.

These actions, and others linked to improving air quality, water quality, waste collection and mitigating the acoustic impact, are part of the "Green Port" idea or concept, with which many ports work internationally.

Outside the main hubs, logistics companies are also trying to carry out actions to reduce their footprint.

These include:

- **Eco-friendly packaging:** Green packaging refers to any packaging that is easy to recycle, safe for people and the environment, and made from recycled materials. Their main function is to promote the use of renewable/reusable materials and materials and manufacturing practices with minimal impact on energy consumption and natural resources.
- **Green supply chain:** Use of environmentally friendly transportation for its goods and raw materials through the decarbonization of transport initiatives, promoting carbon-neutral mobility to help curb climate change.
- **Creating green warehouses:** Given the vast surface area available, warehouses are ideal locations to produce low-carbon energy using solar panels. The warehouses can produce enough power to meet their own needs and still have enough energy spare to distribute for other uses.
- **Digitization, robotization and blockchains:** Blockchain allows smooth, integrated communication across complex supply chains. It provides end-to-end transparency and increases real-time visibility, ensuring security, immutability and authenticity (PwC, 2022).
- **E-commerce:** With the increase of legal regulations governing privacy, brands are turning to first-party

data to fill the void third-party cookies will leave. This is the data a brand collects directly from their customer, with the customer's consent. Companies are trying to personalize the customer experience and leave behind the general information collected from cookies.

▪ **Last-mile delivery:** This is a term used for transporting goods from the nearest distribution centre to the final destination, such as a home or business. In this context, companies are developing strategies to become more efficient and faster by using drones, multichannel delivery and address intelligence.

▪ **3D technology:** 3D technology will enable industries to produce products on demand. It can change their business model from mass production to just-in-time production and customization. Warehouse floor space can be reduced and product customization can be greater, reducing costs and improving profits.

▪ **Autonomous vehicles:** The logistics industry is looking to implement autonomous vehicles to reduce operating costs and make the roads safer. This allow vehicle operators to find new, higher-level positions in their respective companies. The use of drones, or unmanned aerial vehicles, for shipping goods is rising and many companies are investing in the purchase of drones and autonomous robots. For example, in parts of Africa, medicines are delivered by these means.

▪ **Robots:** Robots are currently being used in commissioning, for example, to reduce the workload of warehouse staff. They are used particularly in e-commerce and in warehouses for consumer goods. Robots gather the goods for incoming orders and transport heavy loads

through the warehouses. They calculate the fastest routes beforehand, efficiently prepare the consignments, and bringing the goods to the handover point, where the next robot takes over. Collisions with other robots and humans are avoided using sensors (DHL, 2022).

▪ **The outerweb, edge computing:** The Internet of Things (IoT) and 5G wireless networks will connect the disconnected linear world of logistics, allowing visibility and efficiency. Every item within the smart logistics network will be enabled to exchange information about the whereabouts, condition and handling of goods (Cognizant, 2020).

In addition to technological changes, the industry will implement another set of activities to soften the blows of the current materials crisis, encouraging more efficient and competitive management.

• **Working together:** With the growth of cities and environmental policies aimed at new forms of mobility, companies must start working and acting together to readjust their business models. In this sense, companies are expected to implement shared access to mobility and logistics, sharing warehouses and assuming joint transportation costs. Most car makers are already adapting to these new business models so they can remain relevant in the future of urban mobility (Cognizant, 2020).

• **Supply chain localization:** To streamline fulfilment options, supply chains must move to the local level. Whereas in the past inventory and shipping were managed at regional level, today's supply chain managers fulfil orders from local stores.



Table 6. Summary of the main strategies faced by the logistics industry in the short term

Challenges of the logistics industry	Trends	Actions
COVID-19		
Development of consumption and customer expectations	Promotion of green methanol as fuel	Electrification of shore power
Technological advances	Reduction of particles in the atmosphere	Eco-friendly packaging
New competitors	Digitization, robotization and blockchains	Creation of green warehouses
Being sustainable at lower prices	3D technology	
War in Ukraine	Autonomous vehicles	Cooperation between companies
New regulations in China	New ways to do business	
Container congestion		
Inflation		

5.3 Future trends and strategies (mid/long term > 2030)

This section of the report is based primarily on desk studies and is based on possible economic scenarios and their impact on global logistics. Logistics may be targeted in one direction or another, depending on the possible scenarios. The scenarios and the development of the logistics industry depending on these scenarios are summarized in Figure 1 and presented in more detail below.



SCENARIO 1

Imminent economic collapse envisioning a world characterized by unbridled materialism and consumption, fuelled by the paradigm of quantitative growth and the rejection of sustainable development.

The implications for the logistics industry include a massive increase in the demand for logistics and transport services. Low-cost production has shifted to regions that were previously less economically important e.g. Africa.

Based on the premise that climate change will influence the world, several Arctic sea routes have become navigable, while increasingly extreme weather events affect traditional routes and threaten to do so even more in the future. Long-distance global transport systems are particularly efficient. A "supergrid" covers the whole world: Every economic region has a hub with spokes for global logistics optimized for inter-modal transport. Port design allows adaptation to new generations of ships and carriers: cargo

ships for global transport are much larger. In addition, ports are optimized for continuous flows of large volumes of goods, with ring transport, ring management and highly automated container management.

The internet has permeated the infrastructure in major urban areas around the world. Goods, vehicles and infrastructure are equipped with enhanced RFID tags (including sensor and memory functions) and can thus be identified and located in real time. In addition to tracking and tracing, sensors provide various types of information about the status of goods on the road and in all stages of the supply chain. Contactless user interfaces and 3D video conferencing in combination with augmented reality technology guide and inform people, resulting in highly efficient work processes. Moreover, manufacturers increasingly outsource their logistics needs, as logistics providers are capable of planning and controlling the respective processes more efficiently (Deutsche Post, 2012).



SCENARIO 2

Megalopolises, where, worldwide, the majority of the population lives in urban areas, which is also where most economic activity takes place. In this way, all developments occur in the big cities. Most freight for manufacturing sites and for shops is delivered and dispatched via underground cargo transporters. Daily deliveries within city regions are carried out by electric vehicles with fuel cells or battery packs. To meet the growing demand

for international and intercontinental transport, megatransports will be created with multiple capacities, larger aeroplanes, giga-liner trucks, freight trains, etc. The driving and control of the vehicles is assisted, similar to autopilot systems. The machine-to-machine conversation between these transports will enable safe and efficient driving of, for example, road trains running in a self-directed convoy (Deutsche Post, 2012).



SCENARIO 3

By 2050, individualization will have become a ubiquitous phenomenon worldwide due to increasing levels of education globally, the spread of powerful digital devices and growing global affluence. Personalized consumption patterns dominate (Deutsche Post, 2012). In this scenario, logistics are based on online and an offline element. The offline segment integrates raw material transportation with manufacturing and reverse logistics. The online segment, based on a secure internet infrastructure, includes secure data transfer and data retail in online shops. Logistics planning becomes a sophisticated service industry deeply integrated

into industrial production planning. For the production of complex and sophisticated goods, logistics providers organize the entire physical value chain and act as system integrators between asset-poor product design firms, asset-rich but flexible contract manufacturers and local transport providers. They also handle the encrypted data flows required for transmitting construction and design drawings. However, in this area, logistics providers face intense competition with ICT companies. 3D technology is fully integrated and people produce their own goods in home (Deutsche Post, 2012).

5.4 Examples of companies which are changing their current logistic models:

The following section shows companies in the logistics industry that have already started to implement future technologies in their business models with the aim of being industry leaders.



- **Skycart** is focused on revolutionizing the way goods are shipped. Through its network of autonomous drones, the company aims to offer instant delivery and location-independent shipping, 24 hours a day. Using fast, seamless, peer-to-peer delivery by air, the service can deliver packages in 30 minutes or less.
www.skycart.net

CONVOY

- **Convoy** focuses on ensuring that cargo trucks are fully optimized and has succeeded in eliminating carbon waste.
www.convoy.com



- **Mobotiq** wants to completely change personal mobility by introducing a new type of vehicle that's fully modular and designed specifically for rental.
www.mobotiq.com



- **Fetch Robotics** is the pioneer of on-demand automation. Its FetchCore cloud robotics platform offers the only autonomous mobile robot, or AMR, solution that is deployed in hours rather than days or weeks and addresses multiple applications.
www.fetchrobotics.com

appian

- **Appian** offers a world-class, low-code application development platform that enables companies to rapidly develop powerful and unique software applications with flexible visual models instead of slower custom code.
www.appian.com/es.html



6 PROFESSIONAL PROFILES AND SKILLS

With the continuous evolution of technology and Industry 4.0 involving automation, robotization and the constant increase of e-commerce, logistics companies have started to need different skill profiles than they used to in the past. This has led to a shortage in several professional profiles the logistics industry needs to carry out its activity. In addition to this new need for personnel, there is also a need to update the workforce's knowledge as a result of internationalization and the introduction of new technological competencies.

The following section is a description of the difficulties the various partners raise in the interviews carried out regarding the search for new staff, the difficulties of the current employees in the industry, the competences and skills these professionals must have, the most in-demand professional profiles at present, and the future professionals the industry will need, together with their future competences and skills.

6.1 Reasons for not finding employees

From the interviews conducted by the partners, it was possible to extract different reasons for the difficulty in finding employees to meet the industry's needs. The main problems are described below.

- **Lack of staff:** All countries without exception point out that there is a huge lack of personnel with certain profiles such as warehouse workers, truck drivers and drivers in general. This issue is not new, in the case of truck drivers. It was a serious cause for concern in the industry before the pandemic, and the shortage of drivers in the road transport industry was at an all-time high, with many of its underlying issues being long-term challenges (Keckarovska, 2021). Factors such as an ageing workforce and working conditions have been plaguing the industry for many years (Keckarovska, 2021). For warehouse staff, working conditions, low wages, and lack of career progression in the industry are the main reason for this personnel shortage.
- **Lack of training in some jobs:** The process of training and qualification of some technical profiles required in the industry involves a very high cost because they include the use of complex and expensive machinery and are jobs in which specific knowledge is very important. This is the case with forestry machinery, Northern countries pointed out the need to find people who want to work in the forestry industry and the lack of training to teach those who want to, due to the high cost related to the machines.
- **Increase in legislation related to occupational safety:** In recent years, the EU has increased action on occupational health and safety at work. For example, in June 2021, the European Commission issued the EU Strategic Framework on Health and Safety at Work 2021-2027. This includes, among other issues, the obligation to take specific courses to perform certain jobs that result in higher costs for workers and companies. Sometimes the courses are so specialized and expensive that it is not profitable for any of the parties to carry them out.
- **Increased technological skills:** In some cases, the requirements are so specific and tailored to new technologies, big data and the cloud that finding people with those specific qualifications is very difficult. For example, there is a great need for people with software development skills, but the technical knowledge requirements are so specific that they are not included in training courses.

6.2 Difficulties with the current employees

The professional trends affecting people working in the industry found in the interviews are as follows:

- **Low qualifications at lower levels:** Some of the most basic, mechanical tasks of the industry are performed by low-qualified staff. There is a need to generate internal training for this subsector of the workforce in specific areas (safety, packaging, orders, etc.) and, in general, there are no major difficulties in finding this profile, which could be called warehouse operative or worker.
- **Internal promotion cut short:** Normally staff enter the company via lower-level positions and rise through the company through internal training and promotion, changing their professional profile as the complexity of their duties increases. Sometimes this promotion process is complicated by a lack of resources at companies or by an increase in the complexity of the tasks of a worker who remains outside this process.
- **Lack of knowledge of languages:** The increase in international trade makes language skills essential in the industry, but many people who have been working in the industry for many years do not speak any international language. Becoming proficient in languages at a certain age is an additional cost that not all workers can afford.
- **Custom services:** Employees are expected to have multiple skills and the ability to adopt new systems and methods. Today this issue is still difficult, as many people are not yet adapted to new technologies and the customization of services.
- **Environmental awareness:** With increased environmental awareness, employees must adapt to new ways of doing their jobs. For example, in packing, the use of recycled elements is becoming increasingly common. However, despite all efforts, this awareness has not yet been integrated into all companies in the industry and their employees. Workers need to be more conscious about plants, forest and green environment.

6.3 Skills demanded in the logistics industry

In the previous sections we have described the main problems in finding new profiles in the labour market and the current situation of the labour force in the industry. In this section we focus more specifically on

the necessary skills requested by the industry and collected in the in-depth interviews. In general, all the interviews conducted in the project areas pointed to three main areas of competences, IT, languages and personnel. The specific needs within each skill block are presented below.



IT skills

- **Computing skills³:** The improvement of information transparency and management has made it necessary to have knowledge of computer tools. In particular, a basic understanding of Excel or management software such as Ecofleet is essential. In addition, advanced knowledge of machine learning simulation is welcome in storage centres and in the forestry industry.
- **Digital literacy:** Digitization, robotization and blockchain have become part of the lexicon of professionals in this industry. It is therefore necessary to be aware of the new technologies used in the industry and to retrain accordingly. Interviewees indicate that workers should be knowledgeable about industry trends and about digital skills in their workplaces.



Languages and communication

- **Languages at low, intermediate and high levels:** Internationalization and e-commerce have increased the reach of markets and, as a result, the number of customers and companies dealing with them. Languages have therefore become an essential skill in the industry. All countries reported English as an essential language, however in countries such as Estonia, Finland or Sweden, the need for staff with Russian and knowledge of local languages is noted.



Personal skills

- **Customer service:** The personalization of the product or experience is nowadays taken on by many companies as a symbol of differentiation and quality compared to the competition. Interviewees indicate that they have problems finding people who can handle the stress and deal with several customers at the same time with the quality they demand. For this purpose, people and customer service skills are in high demand.
- **Social skills:** The interviewees note that teamwork

³ The skills highlighted in red are common to all areas of the project and are indicated in the interviews as fundamental and necessary.

Table 7. Main problems with personnel in the logistics industry.

and communication skills are very important for improving a good environment. Specifically they highlighted inter- and intra-personal skills, sense of responsibility, teamwork and communication with colleagues to improve the environment and do a great job.

- Multi-skills and adaptation:** The partners consulted state that the diversification of tasks and functions within the logistics activity is fundamental, as new mid-level positions are being created for new processes such as online sales, management of new procedures, reverse logistics and new technologies. Many of these positions could be filled by vocational training graduates. These people therefore need to be versatile and open to doing several tasks at the same time.

In short, the industry is facing several simultaneous problems: lack of staff on the one hand and a deficit in updating the skills of current staff on the other. These difficulties are shown schematically in Table 7 below.



Table 7. Main problems with personnel in the logistics industry

Reasons for not finding employees	Difficulties with current employees	Skills demanded in the logistics sector
Lack of personnel with specific profiles	Low qualifications in lower levels	Computational skills
High cost of training people with technical profiles	Internal promotions cut short	Digital literacy
Increase in legislation related to occupational safety	Lack of knowledge of languages	English
Increase in very specific technological skills	Failure to adapt to new technologies	Teamwork and communication skills
	Environmental awareness	Multi-skills and adaptation to different type of jobs
	Adaptation to multi-purpose jobs	

6.4 Most in-demand profiles: present and future

The content of this section is mainly based on describing the profiles most needed in the logistics industry at present and in the future. It should be noted that the profiles indicated come from the information extracted from the interviews. There may therefore be profiles in the logistics industry for which there are staff shortages, but in the specific case of the countries that make up the project there is no such need and, as a result, they are not included in this section.

At present, three profiles are identified as necessary in all areas. These profiles are in high demand in the industry and very difficult to find.



Truck drivers: There is a shortage of qualified professional drivers, as drivers leave the industry

seeking jobs offering better wages, benefits and working conditions. At the same time, the pandemic has also led to a shortage of trucks and trailers. The tremendous increase in demand has led to a reduction in supply. The conditions, coupled with the shortage of personnel, make finding people to work as truck drivers very difficult.



Drivers (bus, crane drivers and operators):

Professional drivers are in charge of transporting orders and distributing them to the end customer. This profile requires a mechanically-orientated person, with good sense of direction, determination and problem-solving skills. It is a job that requires a great deal of commitment due to the long hours spent away from home, many of them on the road. The logistics industry has been warning of driver shortages for many years, but the combi-

nation of COVID-19, Brexit and ongoing structural issues restricting driver supply has brought us to a crisis point, especially in the UK, with recent research from Transport Intelligence showing a shortfall of at least 76,000 drivers. Factors such as an ageing workforce and insufficient numbers of new recruits, due to working conditions and image issues concerning the profession, have been plaguing the industry for many years (Foundation for Future Supply Chain, 2022).



Warehouse (handler, assistant, employee):

Warehouse staff are responsible for handling, storage, stock replenishment and ordering. The automation of certain processes has contributed to improving and completing the responsibilities of this professional profile, so workers need to be familiar with new technologies.

In addition to these three profiles highlighted by all partners, there are other profiles needed in specific locations. For instance:

Barcelona:

- **International trade:** The main function of this profile is the purchase and sale of goods and services by companies in different countries. For instance, raw materials, food and others products. All purchases and sales are made international marketplace. Their objective is to expand companies' markets and access goods and services.
- **Transport operator:** Person responsible for the maintenance and management of the transport service of the goods and products.

Skellefteå:

- **Industrial cleaners:** Industrial cleaning deals specifically with the maintenance of storage spaces, power plants, and manufacturing facilities. Industrial janitorial work consists of cleaning services such as asbestos removal, lead removal, and the wearing of safety equipment in high-risk settings (<https://www.lucoffice.sg/blog-article/what-is-industrial-cleaning-services>).
- **Forestry machine operators:** Forestry equipment operators carry out operations with specialized equipment in the forest to maintain, harvest, extract and forward wood for the manufacturing of consumer goods and industrial products.

Rovaniemi and Kuopio:

- **Heavy equipment installers:** Their duties are to op-

erate or control construction equipment, such as bulldozers, forklifts, backhoes, dump trucks, and hydraulic truck cranes. They operate this equipment to assist with the construction of structures, including bridges, roads and buildings.

Hardenberg & Hoogeveen:

- **Logistics and production workers:** They monitor the efficiency of the production line to ensure timely load and shipment, as well as assembling and preparing goods for shipment. They also complete quality assurance testing on goods and products and maintain proper storage for material and product inventory in warehouses.

Lisbon:

- **Docker operators:** Docker is an open platform for developing, shipping, and running applications. It makes it possible to separate applications from infrastructure and run deliveries faster. The person in charge must manage the platform and cover the required functions.

Tartu:

- **Warehouse operators:** They sort and place materials or items on shelves and racks, pick items from throughout the warehouse, prepare and complete warehouse orders for delivery or pick according to a schedule. They perform warehouse inventory checks via scanner viand/or computer.

As for the future, the profiles most in-demand and most difficult to find will be those related to new technologies and, as in the present, drivers and truck drivers. These profiles are described below and in Table 8 in red.

- **Software developers.** A software developer is a professional responsible for designing and coding software for businesses and consumers. They work closely with clients to determine what they need, then use programming languages like Java or C++ to create programs. They must have critical thinking skills, as well as strong problem-solving abilities. The introduction of technology and machine learning in the industry has increased the demand for this specialist profile.
- **IT technician:** An IT technician is a professional responsible for installing, maintaining and repairing hardware and software components of an organization's computers. They also support these systems through remote access or site visits, as needed by management teams within the company.

- **E-commerce:** With the increasing use and popularity of the internet among customers in all segments, most companies now sell their products and services online. The e-commerce function is to update the supply chain, increasing planning and organization and improving marketing, all carried out electronically.

Specifically, the following profiles are the most in-demand by the partners in each area

Barcelona:

- **Robot operator:** Their main duties are programming the motion of robots to perform specific tasks, using computer software. They also carry out tasks such as welding, painting and assembly.
- **E-commerce sales:** As described above, the inclusion of technology is increasing the demands of this profession.

Skellefteå:

- **Professional groups with forestry skills:** People with forestry knowledge and management abilities, who can also handle forestry machinery. They need environmental awareness.
- **IT (information technology):** General profile for the management of new technologies in the industry.

Rovaniemi and Kuopio:

- **Financial software operators:** Financial software work with online financial platforms to identify the current economic situation of the company.
- **Transport planners:** Transport planners assess public, private, and commercial transport needs and analyse and devise new road/transportation plans.

Hardenberg & Hoogeveen:

- **IT technicians:** General profile to manage the new technologies in the industry.
- **IT/SAP specialists:** This profession combines a software specialist with specific knowledge of SAP (System Applications and Products) in data processing.

Lisbon:

- **Software specialist:** A software specialist is a computer specialist skilled in the use of specific computer software. The job duties include developing training on software systems, performing systems tests to identify software failure points and working with clients.

- **Digital marketing:** Their main task is to manage marketing campaigns, promoting a brand as well as its products.

Tartu:

- **Analytical-minded procurement manager's job:** A procurement manager is someone responsible for sourcing all the products and services for an organization. This profile is specialist in analysing data provided by the cloud and big data.
- **Technological engineers:** Software engineers design and create computer systems and applications to solve real-world problems. Software engineers are sometimes called software developers.

For more details of the future profiles needed by partners, please see Table 8.





Table 8: Profiles most in-demand and difficult to find now and in the future

		Most-needed profiles	
		PRESENT	FUTURE
	Barcelona	<ol style="list-style-type: none"> (Truck) Drivers Software developers Transport and logistics manager International trade Transport operators 	<ol style="list-style-type: none"> Relational managers Sales logistics in e-commerce Robotic operators
	Sellefteå	<ol style="list-style-type: none"> Crane trucks IT machine operators Truck drivers Industrial cleaners, electricians, Mechanics Forest machine operators 	<ol style="list-style-type: none"> Professional groups with forestry skills IT (information technology) technician
	Rovaniemi	<ol style="list-style-type: none"> Logistics experts Drivers Heavy equipment installers Transport supervisor 	<ol style="list-style-type: none"> Software financiers Transport planners Analyst managers
	Kuopio	<ol style="list-style-type: none"> Warehouse workers Truck drivers 	<ol style="list-style-type: none"> E-commerce and IT technicians
	Hardenberg & Hoogeveen	<ol style="list-style-type: none"> (Truck) drivers Warehouse employees Logistics and production workers Crane operators 	<ol style="list-style-type: none"> IT technicians IT/SAP specialists Robot operators
	Lisbon	<ol style="list-style-type: none"> Operational administrative workers Senior technicians Warehouse assistants Docker operators (Truck) drivers 	<ol style="list-style-type: none"> Warehouse operators E-commerce and IT technicians Logistics operators Mechanical engineers Machine maintenance Software specialists Digital marketing
	Tartu	<ol style="list-style-type: none"> (Truck) Drivers Warehouse operators 	<ol style="list-style-type: none"> Dispatchers Analytically-minded procurement managers Technological engineers Software developers Supply chain managers
Most demanded in all areas		<ol style="list-style-type: none"> Warehouse Drivers Crane operators 	<ol style="list-style-type: none"> Software developers E-commerce Informatic technician

7 GOOD PRACTICES

Throughout this report, we have seen the difficulties faced by the industry in finding qualified staff to meet demand. Many organizations and companies have already found ways to improve their engagement with individual solutions, which have the potential to become good practices. Their experience is the source of good practice models that benefit others and encourage them to do the same.

In other words, in this report we are not trying to reinvent the wheel, we are trying to publicize the good practices we have managed to collect from different partners and companies and make them available to others, whether they are logistics service providers or VET centres, to evaluate, apply and use.

It should be noted that this section has been developed thanks to partners who have collected key information on good practices, understood as key initiatives, methodologies, projects or processes developed in the different metropolitan areas with a good potential for learning and inspiration for other partners.

For this reason, this section includes the descriptions and references to the different good practices experienced and reported by the partners. It is divided into four different sections: good practices related to training in a company; good practices including a new educational approach to bring the industry closer to the VET college; good practices to cover staff shortages in specific jobs and good practices to promote the logistics industry. Table 9 shows a summary of all the practices described in more detail.





Table 9. Good practices by Type, Title and Area-Country

Type	Title	Area - Country
Training in a company	• Logistics for all, attracting young talent	• Barcelona - Spain
	• Improving skills through training	• Barcelona - Spain
	• Practices to enhance the experience	• Tartu - Estonia
	• Training periods for students	• Rovaniemi - Finland
	• Career guidance and vocational training to find employment	• Rovaniemi - Finland
	• Internship in a company	• Lisbon - Portugal
	• Learning experience in a company	• Hoogeveen - Netherlands
	• Entry-level workspace for students	• Hardenberg - Netherlands
New educational approaches to bring the industry closer to VET colleges	• Learning by doing	• Barcelona - Spain
	• Mobility opportunities	• Barcelona - Spain
	• Real challenges to find solutions	• Barcelona - Spain
	• New skills in vocational education	• Entire country - Estonia
	• Logistics seminars	• Tallinn - Estonia
	• Combining basic professional education and goal-oriented sports	• Rovaniemi - Finland
	• Practical training in logistics in your own training environment	• Rovaniemi - Finland
	• Acquiring more skills and abilities for working life	• Rovaniemi - Finland
	• Professional activity in passenger and freight transport companies	• Lisbon - Portugal
	• Professional qualification of young people in various technical areas	• Lisbon - Portugal
	• Training courses	• Hoogeveen - Netherlands
• Exchange of classes in different locations	• Hoogeveen - Netherlands	
• Collaboration between colleges	• Hardenberg - Netherlands	
Actions to meet the shortage of specific profiles in the logistics industry	• Forestry machine operator education	• Skellefteå - Sweden
	• Adult vocational education: mining mechanic	• Skellefteå - Sweden
	• Adult vocational education: professional driver training, freight traffic	• Skellefteå - Sweden
	• Adult vocational education: bus driver training, freight traffic	• Skellefteå - Sweden
	• Railway maintenance and operation	• Lisbon - Portugal
	• Transport and logistics management	• Lisbon - Portugal
Activities to publicize VET in logistics as a career option among young people/parents to society	• SIL congress: Leading exhibition for logistic, transport and supply chains in southern Europe	• Barcelona - Spain
	• Virtual logistics job	• Barcelona - Spain
	• Open Doors	• Tartu - Estonia
	• The year of choosing a profession	• Tartu - Estonia
	• Young Champion/ Trade School Heroes	• Entire country - Estonia
	• Competence Foresight Forum	• Rovaniemi - Finland
	• InnoFuture event	• Hardenberg - Netherlands



7.1 Training in a company


This section includes all the good practices that aim to promote the presence of students in companies through training programmes to encourage their subsequent incorporation into the labour market and give them experience.

I. Logistics for all, attracting young talent

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Logistics Cluster of Catalonia

2. General information on the good practice

Practice image:	
Title of practice:	Logistic for all, attracting young talent
Thematic objective of the practice:	Education centres adjusting the training according to market needs
Geographical scope of the practice:	• Metropolitan
Website of the practice	https://www.catalonialogistics.com/serveis/

3. Detailed description

Short summary of the practice:	The Logistics Cluster of Catalonia provides information on training in the industry, the design of training programmes and courses, and contact with job boards of training organizations.
Detailed information on the practice:	<p>The Logistics Cluster of Catalonia is a private non-profit association formed by all types of companies related to the value chain of the logistics, freight transport and distribution industry.</p> <p>Its objective is to encourage the development and improvement of the coepitivity (competitiveness and cooperation) of its members, businesses, companies, agents and stakeholders of Catalonia related to the freight transport and logistics industry, through networking, training, representation and personalized/group assistance.</p>
Resources needed:	Data not available
Timescale (start/end date):	2015-present
Evidence of success (results achieved):	Data not available
Challenges encountered:	Data not available
Potential for learning or transfer:	Allows the transmission of knowledge between the companies in the sector and potential candidates as well as the establishment of connections between the different stakeholders in the sector.

**Further information:**

<https://catalonialogistics.com/noticias/ca-la-ue-selecciona-un-proyecto-para-impulsar-el-/?lang=en>

II. Improving skills through training

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Empresa d'Inserció CODEC

2. General information on the good practice

Practice image:	
Title of practice:	Improving skills through training
Thematic objective of the practice:	Companies considering VET for meeting their needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Metropolitan
Website of the practice	https://www.eicodec.org/compromis

3. Detailed description

Short summary of the practice:	CODEC provides training and teaching resources to people interested in logistics in a situation of social exclusion. The main aim is to give them an opportunity in the logistics industry.
Detailed information on the practice:	<p>CODEC is a social organization that works to provide decent work for people in a situation or at risk of social exclusion who, by having a paid job, escape from the situation of marginalization in which they find themselves. It was promoted by Fundació CARES in 2003 and is governed by the principles contained in the Code of Good Governance and Good Management Practices and Quality and Occupational Health and Safety Policies.</p> <p>The main aim is that people learn on the job placements while receiving specific training to increase their skills. Through training, work and support, they acquire the necessary skills to carry out tasks related to production and logistics.</p>
Resources needed:	Data not available
Timescale (start/end date):	2003- present
Evidence of success (results achieved):	In 2022, of the 12 people at risk of exclusion who participated in the event, eight were selected as warehouse and industrial maintenance operators.
Challenges encountered:	Data not available
Potential for learning or transfer:	While they work at the insertion company they will follow the industrial maintenance pathway, which includes specific training in electromechanics, welding, electricity, water installations, maintenance and assembly of industrial equipment, together with cross-disciplinary training in occupational risk prevention, and social, labour and digital skills.



Further information:


<https://www.eicodec.org/contactans>

III. Practices to enhance the experience

1. Basic information

City:	Tartu
Country:	Estonia
Organization name:	Tartu Vocational College

2. General information on the good practice

Practice image:	
Title of practice:	Practices to enhance the experience
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting the training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:	The internship is a part of the curriculum during which the student performs work and study tasks with specific learning objectives in a work environment under the supervision of a tutor. The college, student and the relationship between the person or institution carrying out the training will be regulated before the start of the traineeship with a contract specifying the rights and obligations of the parties to the traineeship agreement.
Detailed information on the practice:	<ol style="list-style-type: none"> 1. Internships are the most important part of vocational training, which must benefit the learner and the college, as well as the company and the state. 2. The internship takes place in environments recognized by the school, which allows the setting of learning objectives and achievement of the learning outcomes described in the curriculum. 3. The register of recognized traineeships is available in the school's information system. 4. At the beginning of each academic year, the head of the department organizes the register of internships provides information in line with the curriculum. 5. An evaluation form must be completed for a new placement 6. Depending on the specialist area of study, a student may be referred for an internship outside college hours. The time difference is set in the internship agreement. 7. The assessment of the learning outcomes achieved during the internship is carried out in accordance with the curriculum evaluation criteria. <p>The main beneficiaries are vocational education students as well as companies and schools.</p>
Resources needed:	Data not available
Timescale (start/end date):	Throughout the academic year
Evidence of success (results achieved):	The internship is an important step in acquiring professional skills and provides initial work experience in a field related to future professional activities. Applying theoretical knowledge in a real work environment helps a young person to be more professionally able and provides a competitive advantage in the labour market, as work experience is one of the most important criteria for recruiting new employees.
Challenges encountered:	Sometimes greater cooperation between the company and the college would be needed to match the skills required in practice with what is being taught in college.
Potential for learning or transfer:	Implementing this good practice can be difficult as it depends on the legislation and the education system.

**Further information:**


Data not available

IV. Training periods for students

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Lapland Education Centre REDU

2. General information on the good practice

Practice image:	
Title of practice:	Training periods for students
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:	Logistics students spend at least 1/3 of their studies training in logistics companies. After and even during these periods companies can hire students to become their employees.
Detailed information on the practice:	<p>During the holiday season companies need to hire temporary staff. They have to start recruiting processes few months earlier in order to get enough employees and they also need time to properly induct new employees. This requires a great deal of time and effort if it is to be done correctly.</p> <p>VET periods offer companies a way to recruit enough staff for this purpose without separate recruiting processes. During VET periods, companies can evaluate candidates who match their needs, they are able to give proper induction to new employees and can get enough labour this way. Students benefit from this as they get to know the job and its requirements beforehand, so they are able to decide whether this job is the one they are willing to apply for. These periods of employment can be taken into account in studies as an apprenticeship period, which may speed up students' graduation.</p> <p>The main stakeholders and beneficiaries of this practice are logistics companies, students and VET organizations.</p>
Resources needed:	VET periods are part of the education and guidance of the students and are part of the teacher's job. While working at companies, students are working with an experienced employee who teaches students alongside their normal work. This is cost efficient, also minimizing the extra human resources required.
Timescale (start/end date):	Ongoing
Evidence of success (results achieved):	Success is not easily measurable. The best evidence of success is measured by our VET effectiveness which shows high percentages of our students get jobs. Other evidence shows that our students find it relatively easy to access training positions with the delivery companies.
Challenges encountered:	One challenge in this practice is to train the staff at the companies to guide students to meet the expected goals of the courses as a specific part of the training.
Potential for learning or transfer:	This practice is widely accepted by the companies and it is normally a win-win situation for all parties involved in this process.

**Further information:**

Data not available

V. Career guidance and vocational training to find employment.

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Lapland Education Centre REDU

2. General information on the good practice

Practice image:	
Title of practice:	Career guidance and vocational training to find employment
Thematic objective of the practice:	Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Regional (province, state, other)
Website of the practice	REDU - Avoin ammatinpisto

3. Detailed description

Short summary of the practice:	The training is intended for people who need career guidance and vocational training to find employment. The student may have studied previously and been interrupted or could be planning an exchange or applying for education.
Detailed information on the practice:	<p>The target group for Open VET is people whose studies have been interrupted earlier or students who want to change their field of study but are not sure which field of study would be suitable for them. The aim is to prevent exclusion by bringing students into working life or VET. Open VET guides career planning, conducts a personal survey and finds out about training in various fields in VET organizations or working life. The aim is that during Open VET, students find professions that interest them and are directed to apply for studies in the field. A personal follow-up plan is prepared for the student, which includes milestones and alternative measures to get on to the career path. There is no degree in Open VET, but the courses and skills acquired during it can count as credits later on degree courses.</p> <p>The main stakeholders and beneficiaries are students, VET organizations and the ELY centre (Centre for Economic Development, Transport and the Environment), which is funding this practice on behalf of the government.</p>
Resources needed:	The activities are funded by the ELY centre. The training ties up one teacher full-time, and, in addition, during the introductory periods, the teachers in the degree programmes guide the students, alongside the guidance from other students.
Timescale (start/end date):	2015-present
Evidence of success (results achieved):	30-35 students take part in the training every year starting continuously at different stages of the year. Approximately 85% of the students participating in and completing the education continue their studies in degree education or find employment in an internship found during the training.
Challenges encountered:	The biggest challenge and reason for dropping out of courses at Open VET are problems related to life management (e.g. mental health problems). For example, the student is not in condition to study. In this case, too, the Open VET has fulfilled its purpose as it shows that it is not the time for the person to apply for a degree programme.
Potential for learning or transfer:	The aim is to prevent exclusion by bringing students into working life or to VET degree education. Students entering degree programmes through the Open VET know where they are going, which will prevent further interruptions that might be due to choosing the wrong field of study.

**Further information:**

Data not available

VI. Internship in a Company.

1. Basic information

City:	Lisbon
Country:	Portugal
Organization name:	Lisbon City Council

2. General information on the good practice

Practice image:	
Title of practice:	Internship in a company
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting training to market needs • Promoting logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:

To contextualize both the theoretical and practical knowledge acquired by the VET students, internship is a crucial part of the students' path. In a real work context, students have the opportunity to have a real experience of work and performing tasks in a work environment under the observation of a tutor with specific learning purposes and skills goal achievement. The school, the student and the liaison between the municipal department of reference to carry out the traineeship are regulated before the start of the traineeship in a contract or learning agreement specifying the rights and obligations of all those involved in the traineeship.

Detailed information on the practice:

1. Internships are regulated by the "Regulamento de Estágios do Município de Lisboa" (REML) which defines the type of internships that can be provided in the city.
2. The REML establishes three categories of internship: VET; Curricular; Qualifying internships for the exercise of a regulated profession.
3. The VET (EFP) internships aim to support the transition between the qualification system and the labour market, helping to improve, complete and perfect the skills previously acquired by the trainees, through training and practical experience in a work context, and to promote the integration of young people or retraining unemployed professional.
4. The Curricular (EC) internship aims to provide the completion of mandatory curricular internships for completion of the VET course or a higher one.
5. Qualifying internships for the exercise of a regulated profession (EH) aim to fulfil additional and specific requirements for access to the professional title of a profession regulated by a professional public order or association.
6. The internships are carried out in accordance with the municipal strategic objectives and the availability of the municipality's services to welcome the interns. The internships are integrated in cooperation with the college, which learning objectives to be set and the learning outcomes described in the curriculum to be met, meeting the students' needs and interests.
7. An application form is filled in the beginning of the internship and an evaluation form must be completed by the mentor/tutor when it has been completed.

The main beneficiaries are the students of vocational education, the schools of origin and the receiving organization by sharing innovation, benefiting from new ideas and knowledge. The internships must benefit the learner's interests, the school and the organization itself.

Resources needed:

A place for the students, computers and other equipment. The financial resources come from the IEFP, the employment institute and funding.

Timescale (start/end date):

Throughout the year.

Evidence of success (results achieved):

Every internship is very important for acquiring new professional skills, aptitudes, abilities and knowledge, as well as languages, as well as first contact with the real work context. This could help a great deal with job-seeking opportunities in the future. The young people who are accepted as interns gain an advantage in preparing their CVs and may even enjoy opportunities to be employed within the organization.

Challenges encountered:

Some VET (e.g. EFP) is scarce because of lack of funding. Many departments cannot receive interns because they do not have a physical place for the students to be.

Potential for learning or transfer:

Implementing this good practice can be difficult, as it depends on the legislation and the school system.



Further information:

<https://www.lisboa.pt/municipio/organizacao-municipal/recursos-humanos/estagios>

VII. Learning experience in a company

1. Basic information

City:	Hoogeveen
Country:	The Netherlands
Organization name:	Alfa-college / Distrivers

2. General information on the good practice

Practice image:	
Title of practice:	Learning experience in a company
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:

Distrivers is a training company that has set up a carousel of workplaces as a learning environment for students. All students are given the opportunity to become acquainted with and gain experience at various workplaces. In this way, they can find guidance about the opportunities within the industry and gain broad experience which promotes their development.

Detailed information on the practice:

Distrivers is a total supplier of food and beverages and related items to healthcare institutions and hospitals throughout the Netherlands, as well as consumers living at home who want to enjoy good food every day.

The company offers an extensive range of fresh, chilled and frozen products, convenience meals from its own kitchen and dry groceries, as well as a wide range of non-food products. The aim is to provide the best possible meal experience, which is why Distrivers, together with its partners, offers kitchen equipment, restaurant layout and staff training options.

The head office and distribution centre are in Hoogeveen. With a second distribution centre in Wormerveer, Distrivers can supply all care institutions throughout the Netherlands. The Distrilicious convenience meals are cooked in our kitchens in Hoogeveen and Almelo. The kitchen in Hoogeveen prepares meal components in 1/2, 1/3, 1/4 and 1/6 gastronomy trays. The cooks in Almelo prepare diets, soups and one-person meals. From these outlets, we can also supply a large proportion of home-dwelling consumers in the Netherlands with chilled meals and groceries.

In 2019, Distrivers was voted the best learning company of Drenthe out of 1,250 companies in the mobility, transport and logistics industry. Alfa-college Hoogeveen nominated Distrivers.

The reason Distrivers won is the optimal connection between college and company and between student, theory and practice. At Distrivers, approximately 35 students, who are following a BOL (full time) or BBL (part time) course, are at work every day. The fact that Distrivers and Alfa-college are located next to each other makes communication easy and promotes cooperation.

A characteristic of learning in transport and logistics at Distrivers is that students rotate between various workplaces in the company. This way they get to know all aspects of the company and its management. Students get to know their colleagues and gain experience as a driver, as a warehouse employee or in the shipping department, but also in the office staff, in the planning department and more.

The company believes it is important that students experience what is possible within the industry. Some students go to work for Distrivers after completing their vocational training, or come back later for further training, which is offered and carried out in cooperation with Alfa-college.

Resources needed:

Data not available

Timescale (start/end date):

The good practice started 15 years ago.

Evidence of success (results achieved):

Quality: optimal connection between school and company and between student, theory and practice.

Quantity: approx. 35 students, following a BOL (full-time) or BBL (part-time) training, are at work at Distrivers every day. Over the years, hundreds of students have undergone professional development at Distrivers.

Challenges encountered:

When there are heavy workloads and understaffing (due to a tight labour market), there is pressure on production. There is a risk that production will then take precedence over learning and there is no guarantee that backlogs can be caught up quickly.

Potential for learning or transfer:

The idea of a carousel of workplaces as a learning environment has been well developed within Distrivers and can be adopted by other companies (also in some other sectors).



Further information: <https://www.distrivers.nl/distrivers-beste-leerbedrijf-van-drenthe-in-sector-mobiliteit-transport-en-logistiek/>

VIII. Entry-level workspace for students

1. Basic information

City:	Hardenberg
Country:	The Netherlands
Organization name:	Larcom

2. General information on the good practice

Practice image:	
Title of practice:	Entry-level workspace for student
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting the training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://larcom.nl/

3. Detailed description

Short summary of the practice:	A company that is able to create a safe work environment for all its workers, Larcom is capable of employing people who need just some extra attention and still making money for the company.
Detailed information on the practice:	During our search for companies that were capable of offering a safe place to learn the job we concluded that most companies do not find it in their best interests to invest in interns who take up too much time. They all get a chance to learn, but the students also must contribute to getting through the daily workload a company needs to address. During a work experience event we met the managing director who shared his experience and the amount of guidance he offered as a company with his workers. After a few meetings, we decided to set up shop in the company, creating an easy-entry workspace for our students with mental, physical or another type of disability and a place where college and work mix, with teachers and team leaders. The lessons we provide for our students are also available for the company's workers. The students really benefit from this situation because they get more attention, learning in an environment where there is not such a need to perform.
Resources needed:	The extra time required for student guidance involves two teachers who participate for 0.1 FTE over a year
Timescale (start/end date):	1-9-2018 / 31-08-2019
Evidence of success (results achieved):	The students learn to deal as a full time worker, mostly after a year with some extra guidance. This experience makes them capable to cope with all the demands a company can make.
Challenges encountered:	The greatest challenge was the difference between the normal workers from the company and our students. Most of our students can exceed the level they start at, while the workers will mostly remain at this level.
Potential for learning or transfer:	In a hybrid learning society where there is more attention for the interns, they can take a giant step along their career path, enabling them to access the job market.

**Further information:**

Data not available



7.2 New educational approaches to bring the industry closer to VET colleges:

This part includes all the good practices that educational centres at all levels are carrying out to adapt the training they provide to their students to the needs of the market and promote their employment and integration into the labour market.

I. Learning by Doing.

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	La Salle Gracia

2. General information on the good practice

Practice image:	
Title of practice:	Learning by doing
Thematic objective of the practice:	Education centres adjusting their training to market needs
Geographical scope of the practice:	• Metropolitan
Website of the practice	https://www.lasallegracia.cat/es/cfgs/empresa/comerc-internacional/

3. Detailed description

Short summary of the practice:	They adapt the theoretical part of the courses with practice, In this way, students face real problems at companies and offer solutions. There are also talks by different professionals from the industry, visits to companies, organizations, other bodies, etc...
Detailed information on the practice:	<p>The learning method is student-based, with hands-on classes and learning from experience – Learning by Doing. The system is full of resources to maximize and personalize learning. Other active learning methodologies used include flipped learning, gamification, role play, project work, cooperative and collaborative work, etc.</p> <p>Other practices include:</p> <ul style="list-style-type: none"> • Directed workshops. • Career guidance talks. • University orientation talks. • Visits to business accelerators and incubators. • Talks from former students.
Resources needed:	Data not available
Timescale (start/end date):	2011-present
Evidence of success (results achieved):	A huge percentage of students found a job after the VET.
Challenges encountered:	Data not available
Potential for learning or transfer:	The company environment is adapted in college, increasing the students' skills and their knowledge of the logistics industry.



Further information:

Data not available

II. Mobility opportunities.

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Joint collaboration between Barcelona Education Catalonia and the Port of Barcelona

2. General information on the good practice

Practice image:	 Institut de Logística de Barcelona
Title of practice:	Mobility opportunities
Thematic objective of the practice:	Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Metropolitan
Website of the practice	www.ilb.cat

3. Detailed description

Short summary of the practice:

The ILB is a public vocational training centre specializing in logistics and business internationalization serving Industry 4.0. It began its activities in the 2022-2023 academic year at the Port of Barcelona. It offers international mobility opportunities for the entire educational community and training at work centres in dual mode (50% classes and 50% work centres) for most of the courses.

Detailed information on the practice:

A new training centre specializing in the commercial, logistics and management fields is being launched to expand the range of education and promote qualifications for professional profiles linked to the city's industry. The new facility, created in cooperation with the Port of Barcelona, will open its doors in the 2022-2023 academic year, with 345 places.

The creation of the Barcelona Logistics Institute follows the line of work in recent years of promoting educational centres specializing in professional fields, beginning with the creation of the Bonanova Institute at the Parc Salut Mar, and continued with the Barcelona Institute of Technology, the Barcelona Sports Institute and the Barcelona Food Institute at Mercabarna.

The aim is to concentrate the talent of teachers and students to generate quality training, with a more direct relationship with companies promoting employment and work placements.

The training offer of the new Barcelona Logistics Institute will include 165 newly created places, offering the following degrees:

- Product marketing and logistics assistant (PFI)
- Administrative management technician
- Senior administration and finance technician
- Commercial activities technician (logistics professional profile)
- Senior international trade technician
- Transport and logistics management expert
- Higher-level network computer systems administration technician (cybersecurity profile)

Resources needed:

Data not available

Timescale (start/end date):

Started this year (2022)

Evidence of success (results achieved):

Some students have gone to do their training in the Netherlands. Theory courses can also be done in France.

Challenges encountered:

The programme is very new and has not been around for a long time.

Potential for learning or transfer:

Connecting the real environment of the logistics world with young people. Students also learn and practice at the same time, including international experiences in their knowledge.



Further information: https://www.barcelona.cat/infobarcelona/es/tema/educacion-y-estudios/se-pone-en-marcha-el-instituto-de-logistica-de-barcelona_1165417.html

III. Real challenges to find solutions.

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Metropolitan Area of Barcelona and BCN VET Foundation

2. General information on the good practice

Practice image:	
Title of practice:	Real challenges to find solutions
Thematic objective of the practice:	Companies considering VET for meeting their needs
Geographical scope of the practice:	• Metropolitan
Website of the practice	https://www.fundaciobcncfp.cat/innovacio/metropolisfplab/ https://blogs.amb.cat/innoamb/ca/metropolisfplab/

3. Detailed description

Short summary of the practice:	The Metropolis FPLab is an open innovation project. Companies explain real challenges and VET students propose solutions. The main aim is to boost VET cross-disciplinary competences through real innovation projects. This contributes to strengthening the quality of VET students employment and companies' access to the creative talent in the institutes.
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Detailed information on the practice:

The main objective is to promote the improvement and the quality of the VET through open innovative projects between the VET institutes and the businesses participating in the project.

The specific objectives are:

- To become a meeting point for companies and VET institutes in order to generate economic, social and cultural value in the metropolitan territory.
- Students have to build innovative projects based on their own ideas, linking the demands of the business world and the territory to their improvement proposals.
- To highlight the potential of the students, helping improve their employability and personal skills.

The project follows the open innovation methodology. That means, the participating businesses set out challenges for the next year and the VET students respond with solutions.

The methodology allows entrepreneurship, teamwork, the development of key skills, and experimentation, promoting open innovation as a methodological process with high added value for its applicability to VET.

The basic participation rules are:

- Maximum of four students per team
- One challenge to be addressed per team
- One responsible mentor per team
- Minimum of one company representative per challenge
- Physical and digital hybridization
- One winning team per challenge
- One scholarship for each winner

The winning teams will be awarded a scholarship in order to develop their idea in the company or institution that proposed the challenge. It will last for the equivalent of two months working 25 hours/week.

These are the phases for developing the team projects:

- Challenges and exploration phase: studying the challenges in more detail and beginning the exploration of solutions. Students and teachers analyse the challenges together with the companies.
- Creativity phase: Creativity techniques are developed in order to generate ideas. From those ideas, one will be selected for creating a concept.
- Prototype phase: Each team has defined the concept and they start to think how the prototype will be created, defining the project.
- Project accelerator: One week for working on the business model of the selected projects, their design, corporate image and oral presentation.
- Final event: public presentation where the selected teams that have passed the innovation cycle present their project. The jury deliberates and the awards are delivered.

These would be the resources needed each year:

- The cost of the innovation consultancy hired for developing the project. Its role is to energize the workshops that take place during the year and the project's interactive software platform, to work with all the VET students.
- The cost of the scholarships for the winners: about 1,000 euros per student (2 months). The Barcelona Metropolitan Area funds 50% and the company the remaining 50%. So, if a winning team consists of four members, the cost would be 4,000 Euros, 2,000 financed by the Barcelona Metropolitan Area and 2,000 by the company.
- Two workers of the BCN VET Foundation are mainly dedicated to the project.

<p>Resources needed:</p>	<p>These would be the resources needed each year:</p> <ul style="list-style-type: none"> • The cost of the innovation consultancy hired for developing the project. Its role is to energize the workshops that take place during the year and the project's interactive software platform, to work with all the VET students. • The cost of the scholarships for the winners: about 1,000 euros per student (2 months). The Barcelona Metropolitan Area funds 50% and the company the remaining 50%. So, if a winning team consists of four members, the cost would be 4,000 Euros, 2,000 financed by the Barcelona Metropolitan Area and 2,000 by the company. • Two workers of the BCN VET Foundation are mainly dedicated to the project.
<p>Timescale (start/end date):</p>	<p>First edition: 2018-2019. Second edition: 2019-2020. Third edition: 2020-2021. Fourth edition: 2021-2022.</p> <p>This is the calendar for the fourth edition, in the 2021/22 academic year:</p> <ul style="list-style-type: none"> • 15 October 2021: Publication of the call for applications • 27 October 2021: Information session with companies and VET centres • 1-30 November 2021: mentor registration • 1-17 December 2021: registration in the platform and teams formation • 10 January-6 February 2022: Challenges and exploration phase • 6 February 2022: Submit exploration tasks • 14-27 February 2022: Creativity workshop (in-person) • 7 March-18 April 2022: Prototype phase • 18 April 2022: Prototype submission • 29 April 2022: Notification of selected prototypes • From 2-15 May 2022: projects accelerator (in-person) • From 16-20 May 2022: Selection of participants • 23 May 2022: Announcement of finalists • 23-29 May 2022: Improvement of the finalist projects • 1 June 2022: Final presentations • 3 June 2022: Announcement of winning teams
<p>Evidence of success (results achieved):</p>	<p>All participants agree that the first four schemes have been a big success. In total, 38 winner teams have developed their scholarships in the companies that proposed the challenges. More than 500 students, more than 25 VET institutes and around ten companies have participated in each of the four schemes. The latest one involved 700 students from 30 VET institutes located in nine different metropolitan municipalities.</p> <p>The winning projects are themselves an example of the success of the learning process based on challenges, generating innovative and valuable solutions to real problems.</p> <p>The strengthening of the ties between the VET centres and the business sector is also very important. The city promoting the project has a considerable impact in the territory.</p>

Challenges encountered:

Data not available

Potential for learning or transfer:

This practice is a great opportunity to establish a bridge connecting the needs of the logistics industry and the VET centres and students. The Metropolis FPLab is aimed at all VET courses, including logistics. A similar project, perhaps only focused on the logistics industry, could easily be developed in other cities or regions. It would have an important and direct effect on the companies suggesting challenges and on the students finding the solutions and helping implement them through the scholarship. But there would also be an important effect, establishing and strengthening links between companies, VET institutes and all the institutions involved in the project.

**Further information:**

<https://www.fundaciobcnfp.cat/innovacio/metropolisfplab/>

<https://blogs.amb.cat/innoamb/ca/metropolisfplab/>

IV. New skills in vocational education.

1. Basic information

City:	Data not available
Country:	Estonia
Organization name:	Eesti Töötukassa (Estonian Unemployment Insurance Fund)

2. General information on the good practice

Practice image:	
Title of practice:	New Skills in vocational education
Thematic objective of the practice:	<ul style="list-style-type: none"> • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • National
Website of the practice	https://www.tootukassa.ee/et ; https://www.tootukassa.ee/en

3. Detailed description

Short summary of the practice:	Courses funded by the Estonian Unemployment Insurance Fund for people who have been away from the labour market or want to change their career. The courses are held in cooperation with vocational or higher education institutions.
Detailed information on the practice:	<p>When designing the training, the recommendations of the reports prepared within the framework of OSKA and the regional training needs have been taken into account in the forecasting system for labour needs and skills in Estonia.</p> <p>Adults without professional education, secondary education or with outdated skills at the age of 50+ can acquire new skills in vocational education institutions and professional higher education institutions offering vocational education all over Estonia. The choice of learning opportunities is very diverse, including training from almost 30 different fields of study, as well as the development of general skills.</p>
Resources needed:	This practice is funded by the European Social Fund and Estonian State. Funding for the whole project in this year is 2,063,745.30 euros but this amount is shared between the different service providers.
Timescale (start/end date):	01.01.2021-31.12.2023.
Evidence of success (results achieved):	The proportion of dropouts is very low (1.9%) in transport, maritime, logistics and vehicles sector training (average 7.26% in all areas).
Challenges encountered:	<p>If there have been dropouts, the main reasons were:</p> <ul style="list-style-type: none"> • Health reasons (own or child's illness); • Family reasons (e.g. death of a loved one or serious illness); • Getting a job (despite the opportunity to continue and finish school); • Disciplinary issues (not bothering to attend, alcohol problems).
Potential for learning or transfer:	This practice is a great opportunity to match the needs of the companies and the job seekers in different sectors of the economy, developing and training new skills in accordance with the labour market situation. It is an opportunity to establish a bridge between the educational organizations, companies and the labour market. The training system is very flexible. Some training courses are free of charge for unemployed people.

**Further information:**

<https://www.tootukassa.ee/en/services/career-and-training/training>

V. Logistics seminars

1. Basic information

City:	Tallinn
Country:	Estonia
Organization name:	Tallinn University of Applied Sciences

2. General information on the good practice

Practice image:	
Title of practice:	Logistics seminar
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:	<p>A logistics seminar will be organized as part of the course work for 3rd-year transport and logistics students at Tallinn University of Applied Sciences.</p> <p>The seminar covers the most topical logistics topics, the success stories of various logistics companies and the resulting changes in the world around us. The aim of the organizers of the logistics seminar is to highlight the direction in which the field of logistics is going and to inspire all participants to think about how to be successful in the resulting society.</p>
Detailed information on the practice:	<p>The main goals of the logistics seminar are to develop a holistic way of thinking, to provide an overview of intermodal logistics solutions and to obtain and exchange up-to-date business and logistics information.</p> <p>The aim of the seminar is also to create useful contacts between students and entrepreneurs and to introduce more topical topics in the field of business and logistics.</p> <ol style="list-style-type: none"> 1. Bringing together students, faculty and entrepreneurs 2. Receiving and exchanging up-to-date business and logistics information 3. Shaping global and systemic thinking 4. Creating useful contacts between students, teachers and entrepreneurs 5. Motivating Estonian logistics students and unlocking skills potential 6. Enabling various forms of personal development and self-fulfilment by providing experience in the real management of an international project 7. Strengthening motivation to learn 8. Expanding external contacts to create new learning opportunities 9. Expanding internship opportunities 10. Bringing together vacancies and logistics students 11. Promoting regional logistics development.
Resources needed:	<p>Students begin organizing the seminar with no budget, so both long-term and new partners are important, for example, ABB AS, APL Agencies Estonia OÜ, DSV Estonia OÜ, Gunvor Services AS, Itella Estonia OÜ, Ace Logistics Estonia AS, Logistika Pluss OÜ, DPD Eesti AS, Via3L Spedition OÜ, DHL Estonia AS and several other logistics companies.</p>
Timescale (start/end date):	<p>This is a two-semester process for students, with a volume of 3 ECTS.</p>
Evidence of success (results achieved):	<p>This is a very successful student project, which started in 2000 and has become one of the biggest and most important events in its field.</p>
Challenges encountered:	<p>Data not available</p>
Potential for learning or transfer:	<p>As the seminar is organized as part of their coursework and organizing a logistics seminar is an optional subject, there is no reason why a similar thing could not be organized elsewhere.</p>


Further information:
<https://www.logistikaseminar.ee/en/>

VI. Combining basic professional education and goal-oriented sports

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Lapland Education Centre (REDU) and others

2. General information on the good practice

Practice image:	
Title of practice:	Lapland Sports Academy
Thematic objective of the practice:	<ul style="list-style-type: none"> • Education centres adjusting their training to market needs. • Promotion of logistics VET as a career option among young people/parents.
Geographical scope of the practice:	<ul style="list-style-type: none"> • Regional (province, state, other)
Website of the practice	https://www.redu.fi/fi/hakijalle/polkuvaihtoehdot/urheilukaatemia

3. Detailed description

Short summary of the practice:

As the student develops as athletes heading for the top, they acquire a profession and improve their postgraduate study opportunities.

Detailed information on the practice:

The student has the opportunity to combine basic professional education and goal-oriented sports training as an academic athlete at the Lapland Sports Academy. Athletes studying sports can complete VET degrees. They complete all study units in their field of study. Sports coaching can be used in the optional parts of the degree and in the optional parts of the common parts of the degree.

The most important task of the Lapland Sports Academy is to provide comprehensive support for the training and education of young athletes. Athletes study at local colleges and train at the sports academy.

Resources needed:

Data not available

Timescale (start/end date):

Ongoing

Evidence of success (results achieved):

The sports academy is a widespread and well-established form of combining goal-oriented training and studying in all over Finland.

Challenges encountered:

Combining studies and sports training poses challenges to planning the progress of studies and this often leads to an extension of study time. Overall, this combination requires a commitment from the student, but also, from teachers, an understanding of the student's goal-oriented internship.

Potential for learning or transfer:

A sports career for a top-achieving athlete can end unexpectedly and in this situation it is extremely important that the athlete has something to fall back on. Target orientated athletes are also usually determined students who set themselves goals and achieve them.

**Further information:**

Data not available

VII. Practical training in logistics in your own training environment.

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Lapland Education Centre (REDU) and others

2. General information on the good practice

Practice image:	
Title of practice:	Practical training in logistics in your own training environment
Thematic objective of the practice:	<ul style="list-style-type: none"> • Carrying out practical exercises in logistics training in your own training environment
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Regional (province, state, other)
Website of the practice	https://www.redu.fi/fi/hakijalle/polkuvaihtoehdot/urheilukaatemia

3. Detailed description

Short summary of the practice:	<p>Implementing practical exercises in logistics training in their own training environment. Logistics students carry out a variety of transportation and mechanical work, serving other training, such as forestry education, construction and vehicle mechanics.</p>
Detailed information on the practice:	<p>In practical exercises, students can do exercises in a safe educational environment. Teachers and instructors are present while work tasks are being done and possible problems can be addressed immediately. Different industries offer a wide variety of jobs. For example, the forestry and construction sectors have a lot of machinery that is transferred to different construction sites. For vehicle installation, spare parts are required for repairs and must be picked up at the store. The internal mail of the educational institution is run between different offices by the students. In winter, the snow on the school property is loaded onto vehicles and driven to a snow dump site. The waste generated in the educational institution is further processed by the students.</p>
Resources needed:	<p>Sufficient active teachers and instructors are needed to carry out the activities, and vehicles and machines have to be monitored. There is one teacher and tutor per 18 students.</p>
Timescale (start/end date):	<p>Always implemented but operations are being developed and expanded all the time.</p>
Evidence of success (results achieved):	<p>This implementation model can be considered good in the sense that it is not in direct contact with external customers or operations. This means time can be spent on learning while work tasks remain varied. Teachers in different fields are also present to provide monitoring and assistance during the work assignments. The challenge is to ensure that there is adequate, modern equipment. The commitment of students to the tasks assigned to them is sometimes a challenge because tasks are not always taken with the same seriousness as in working life. Equipment is also sometimes treated inappropriately.</p>
Challenges encountered:	<p>The challenge is having adequate modern equipment. Pupils' commitment to the tasks assigned is sometimes challenging they are not always taken with the same seriousness as in working life. Equipment is also sometimes treated inappropriately.</p>
Potential for learning or transfer:	<p>Organizing instruction and guidance in that way provides a safe and peaceful learning environment for students.</p>


Further information:


Data not available

VIII. Acquiring more skills and abilities for working life.

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Lapland Education Centre (REDU) and others

2. General information on the good practice

Practice image:	
Title of practice:	Acquiring more skills and abilities for working life.
Thematic objective of the practice:	Vocational high school
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Regional (province, state, other)
Website of the practice	https://www.redu.fi/fi/hakijalle/polkuvaihtoehdot/urheilukaatemia

3. Detailed description

Short summary of the practice:	<p>At the vocational high school, you can study upper secondary school courses alongside vocational courses and acquire more skills and abilities for working life and postgraduate studies.</p>
Detailed information on the practice:	<p>Applications for vocational high school are made in a joint application with a vocational bachelor's degree and answering the question "yes" related to the high school studies/ / matriculation examination. The student is first selected for a vocational undergraduate degree depending on the selection criteria for the vocational degree.</p> <p>The average cut-off mark for entering high school was 7.0 in the spring 2022 joint application. In Rovaniemi, the number of vocational high school places is limited. Those who want to go to vocational high school are expected to have the interest and motivation to complete high school studies and a high school diploma.</p> <p>A personal competence development plan is drawn up with each student, in which the curriculum for the vocational degree, the matriculation examination and the upper secondary school courses are planned.</p> <p>As a rule, vocational high school students take courses in high school in the subjects they intend to write in their student transcripts. The extent of high school studies and the progress of professional studies affect the duration of courses, to a maximum of four years.</p>
Resources needed:	<p>Combining high school and vocational training requires careful planning and periodization in the planning of studies. Attendance at two schools is arranged in such a way that a vocational high school student studies periodically in either upper secondary school or vocational training.</p>
Timescale (start/end date):	<p>Always implemented but operations are being developed and expanded all the time</p>
Evidence of success (results achieved):	<p>You can get at least two certificates at a vocational high school: a certificate of professional bachelor's degree and a matriculation diploma. Rovaniemi also has the opportunity to complete the so-called a triple degree, which means, in addition to a vocational undergraduate degree and a high school diploma, the completion of the high school curriculum following the adult curriculum. This option is slightly more general and requires more high school studies than a double degree. From 2020 onwards, high school graduates will increasingly be selected for universities and polytechnics on the basis of their grades in student examinations.</p>
Challenges encountered:	<p>This system is suitable for those who have not had problems attending school in middle school. And for those who like reading. On the other hand, a double degree is by no means suitable for those whose average was not enough for high school and who are not self-motivated to go to high school.</p> <p>A double degree is much more demanding than just a vocational school and even as demanding as a high school.</p>
Potential for learning or transfer:	<p>A hard-working student will be rewarded with a professional undergraduate degree and a matriculation examination. With the help of a vocational high school, you will be well prepared to apply for postgraduate studies at universities. The matriculation examination is also valued in working life. It is worthwhile to take different courses in such a way that you have a good chance of succeeding in student examinations and postgraduate studies. The matriculation examination emphasize a wide range of competences that transcend subject boundaries.</p>



Further information:

Data not available

IX. Professional activity in passenger and freight transport companies.

1. Basic information

City:	Lisbon
Country:	Portugal
Organization name:	DUAL –Qualificação Profissional

2. General information on the good practice

Practice image:	Data not available
Title of practice:	Professional activity in passenger and freight transport companies
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://www.dual.pt/courseactions/show/8064.html?alias=courses-all-young-7

3. Detailed description

Short summary of the practice:	The transport diploma allows young students allow carry out professional activity at passenger and cargo transport companies, as well as in traffic engineering and logistics companies. The transport diploma holders can work in road network, air, sea or rail transport companies and manage the transport of passengers, cargo and all associated logistical issues.
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<p>Detailed information on the practice:</p>	<p>In order to adapt VET to more recent market needs in terms of the logistics industry, the DUAL VET College provides courses free of charges, offering several advantages to make it more attractive to enrol on a VET course. The practice is aimed at young VET students interested in the logistics industry, is free of charge and provides a meal subsidy (like the ones given by the civil service), as well as a transport allowance (to the value of a pass). Benefits: the importance of a qualification scholarship bursary and scholarship allowance to buy course materials (at the beginning of each academic year).</p> <p>This is a way of promoting and encouraging VET in a nationwide context, to make VET more attractive to young students.</p> <p>The practice is supported by the IEFP, the National Institute of Employment in Portugal. The apprenticeship courses make it possible to obtain academic and professional certification, encouraging inclusion in the labour market, boosted by a strong component of training carried out at a company, and the continuation of higher education studies.</p> <p>The responsibility for tasks like transport control and management; development of routes around the world; Customs; Customs authorities; processing information in computer systems; freight and passenger transport routes, combining various types of transport; budgets; invoicing; logistics and supply chains. Classroom operation: two days a week of theoretical qualification; three days of practical qualification at German and/or Portuguese companies;</p> <p>Intensive class block.</p> <p>The main beneficiaries are VET students and the companies.</p> <p>It gives equivalence to the 12th year, IEFP, EQF level 4, professional qualification certificate and German professional diploma from the German Chambers of Commerce (D.I.H.K).</p>
<p>Resources needed:</p>	<p>The financial resources both in terms of HR and equipment are also supported by IEFP employment institute, funding and the DUAL resources.</p>
<p>Timescale (start/end date):</p>	<p>3,175 hours, starting on 5.09.2022 – DUAL Porto.</p>
<p>Evidence of success (results achieved):</p>	<p>Every internship is very important for the acquisition of new professional skills, aptitudes, abilities, knowledge and language, as well as the first contact with the real work context. It can help a great deal with job-seeking opportunities in the future. The young people who have the chance of being accepted as interns gain an advantage for writing their CVs and may even receive professional opportunities inside the organization.</p>
<p>Challenges encountered:</p>	<p>Some VET (e.g. EFP) is currently in short supply for funding reasons. Many departments are not available to receive interns because they do not have a physical place for the students to be.</p>
<p>Potential for learning or transfer:</p>	<p>Implementing this good practice is very interesting to other regions for it boosts the interest and the eventual VET demand by the logistics industry.</p>



Further information:

<https://www.dual.pt/courseactions/show/8064.html?alias=courses-all-young-7>

X. Professional qualification for young people in various technical areas

1. Basic information

City:	Lisbon
Country:	Portugal
Organization name:	ATEC – Training Academy

2. General information on the good practice

Practice image:	
Title of practice:	Professional qualification for young people in various technical areas
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://www.atec.pt/cursos-empresas-particulares/melhoria-continua-e-logistica/logistica/logistica-e-a-competitividade-das-empresas.html

3. Detailed description

Short summary of the practice:

Tailor-made company courses and intervention projects within the operational scope of areas such as industrial organization and optimization. The organization acts in the areas of productivity and quality, through lean management philosophies and in the context of production systems. Some diversity in its areas of intervention has been created and it is now carrying out activities including areas linked to methods, quality and logistics, lean tools and MTM.

The academy has a very high employment rate, actively helping reduce unemployment and create professional skills, key factors in raising Portugal's competitiveness in Europe. The target consists of all young people under the age of 29 who have completed the 9th grade of schooling.

Detailed information on the practice:

ATEC's core business is providing professional qualifications for youngsters in several technical areas. Under German standards, ATEC's training methodology combines theory and practice, allowing trainees to experience the routine of a normal worker and acquire a set of values and attitudes that help them grow professionally and individually.

The courses make it possible to obtain academic and professional certification, helping them get jobs, enhanced by a strong component of training carried out in a real context of work at a company, but also allowing the continuation of higher education. The learning courses follow the DUAL training principle, combining theoretical-practical training in ATEC's laboratories and workshops with long periods of practical training in a real work context at partner companies.

ATEC's pedagogical project complies both with its mission and values, as well as with the pursuit of the premises that were the basis of its foundation, namely, expanding practice-oriented training and providing qualifications for the market in line with companies' needs.

Resources needed:

Academy resources + funding from POCH, IEFP, Portugal 2020, European Commission.

Timescale (start/end date):

Starting September 2022

Evidence of success (results achieved):

In the tailored training, along with a strong theoretical component, the trainees have long periods of practical experience – around 70% – training in a real working context, at several partner companies, SME's and other, where they apply and expand their knowledge. Most of these SME's end up integrating the trainees into their staff.

Challenges encountered:

Data not available

Potential for learning or transfer:

The potential for transfer relies on the fact that in addition to the development of specific technical skills inherent to the chosen training course, the teaching team also focuses on the development of social and behavioural skills such as problem-solving, creativity, critical thinking, emotional intelligence, flexibility, negotiation skills, tasks management, rigour and professional ethics.

The apprenticeship courses' modality allows to obtain school and professional certification, helping the young people get jobs, but also making it possible to proceed to higher education or to a technological specialization course. They follow the principle of DUAL training, combining theoretical and practical training in ATEC's laboratories and workshops with long periods of internship at partner companies. They consist of four training components: Sociocultural, Scientific, Technological, and Practical Training in a Work Context (Internship).



Further information:

<https://www.atec.pt/geral/atec-training-academy.html>

XI. Training courses

1. Basic information

City:	Hoogeveen
Country:	The Netherlands
Organization name:	Alfa-college Voedselbanken/ Foodbanks Zuidwest-Drenthe

2. General information on the good practice

Practice image:	
Title of practice:	Food bank
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://voedselbankennederland.nl

3. Detailed description

Short summary
of the practice:

The food bank contacted our logistics supervisor training course, with the question of whether we could help design and furnish new accommodation and offer a new approach.

Detailed information
on the practice:

- The problem was the illogical, inefficient layout of the warehouse, where it took a long time to collect the products.

It was also an old-fashioned concept, in which it was decided what customers were to be offered. This had to change.

- Because new accommodation became available, our students were able to put into practice all their ideas about more efficient handling there.

It was also possible to meet the desire to let the customer choose what could be collected.

- The most important stakeholders are the customers who can obtain food in a pleasant and effective way; the volunteers who can use the new approach and adapted layout of the warehouse and the store; and the suppliers, administrators and external partners who support the proper functioning of the food bank.

And, of course, our students who can offer their services in a socially responsible way and who gain a great deal of practical experience themselves.

Resources needed:

The food bank received a subsidy from the municipality of Hoogeveen and made use of various donations from the community and companies.

The team of volunteers took care of the implementation.

The students spent a number of lessons on the design, consultation and advice. Their teachers guided the process.

Timescale
(start/end date):

In the 2020–21 academic year, it took place in periods 3 and 4. That was not a continuous period, but a few scattered parts of the day.

Evidence of success
(results achieved):

Due to the outbreak of COVID-19, the planned approach was only partially implemented.

The free shopping section has yet to be completed.




Further information:

XII. Exchange of classes in different locations.

1. Basic information

City:	Hoogeveen and Emmen
Country:	The Netherlands
Organization name:	Alfa-College and NHL Stenden

2. General information on the good practice

Practice image:	
Title of practice:	Exchange of classes in different locations
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:

The HBO (University of Applied Sciences/UAS) optional subject is taught at the NHL Stenden location and the classes and explanations are also given by teachers from the UAS and the VET school. That way, students from VET colleges get to know the teachers at the UAS. This makes their choice easier. And they can already see if UAS is a good educational option for them.

Detailed information on the practice:

NHL Stenden Hogeschool (international name NHL Stenden University of Applied Sciences) is a higher education institution with campuses in the Netherlands and abroad. NHL Stenden University of Applied Sciences was created in 2018 by the merger of NHL University of Applied Sciences and Stenden University of Applied Sciences. The university has 24,000 students and 2,000 staff.

NHL Stenden University of Applied Sciences offers education in accordance with the Design Based Education concept. This educational concept is based on design thinking. The education is based on co-creation with the professional field and the social environment. Students, teachers and researchers work in multidisciplinary teams to resolve assignments from the field.

The education locations in the Netherlands are in Assen, Emmen, Groningen, Leeuwarden, Meppel, West-Terschelling, Amsterdam and Zwolle. In addition, students can take part in Grand Tours in Indonesia (Bali), Qatar (Doha), Thailand (Bangkok) and South Africa (Port Alfred).

By watching and working at a UAS, the VET students immediately get a good idea how a UAS works. Sometimes they decide to continue studying when they otherwise might not have done so. They also learn to work in project groups and to look at an assignment from a different angle.

During the optional subject, which is studied with lecturers from the institutes of higher professional education – students become acquainted with college subjects and learn college study skills. The optional subject also helps students who are not yet sure whether they want to go to UAS and to choose a UAS course that suits them.

Resources needed:

It will require 0.2 FTEs from Alfa-college and 0.2 FTEs from NHL Stenden for a period of 15 weeks.

Timescale (start/end date):

The periods of 15 weeks always start in period two of the school year.

Evidence of success (results achieved):

Quality: optimum connections and links between VET and UAS. Motivation, ability, work exploration and career development. In addition, a network is built up immediately.

Challenges encountered:

Travelling between the two locations.
Allowing different target groups to work together.

Potential for learning or transfer:

Working together on the UAS optional subject is already well developed and can be adopted by other UAS institutions. Or this could be extended to several VET and UAS institutions. This would allow students to visit different locations each time, which would allow them to develop their skills even further.

**Further information:**


www.alfa-college.nl
www.nhlstenden.com

XIII. Collaboration between colleges.

1. Basic information

City:	Hardenberg
Country:	The Netherlands
Organization name:	Alfa-college

2. General information on the good practice

Practice image:	 <p>The logo for Vechtdal College features a stylized red book icon above the text 'Vechtdal College' in a bold, sans-serif font.</p>
Title of practice:	Collaboration between college
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistics VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://www.vechtdalcollege.nl/hardenberg

3. Detailed description

Short summary of the practice:	<p>We have cooperation with the Vechtdal college, a secondary (VMBO) school, where students from the Alfa-college receive practical training. Alfa-college allows us to use Vechtdal College's workshop and, in return, we give students from Vechtdal College forklift lessons.</p>
Detailed information on the practice:	<p>During our search for a good practice area we contacted the Vechtdal college, which had just opened a new practice area for our practical lessons. At the moment, Alfa-college teachers give forklift and reach truck lessons to logistics students at Alfa-college.</p> <p>We would like to expand our practical training further, so that other logistics work processes can be practised in this practice area. The logistics students do their work placements at different companies and some of them cannot do all the work processes in these companies.</p> <p>The students from Vechtdal College have to deal with the same work processes to a lesser extent, which is why we would like to investigate which work processes can be carried out at this location in addition to practising with forklift and reach trucks.</p> <p>In this way, we can better prepare students for their practical exams and the students of the Vechtdal college can be better prepared for their further education.</p>
Required funds:	<p>To give more and even better service to the students, we need more staff. At the moment, all our colleagues who can give practical lessons have their work timetables fully booked. We would therefore like to keep some space free in our timetable to be able to react to possible requests. We are thinking of keeping 0.1 FTE/ 4 hours (that means one afternoon a week) free in order to better prepare students for their futures in the practice area.</p>
Timescale (start/end date):	<p>01-09-2022/31-7-2023.</p>
Evidence of success (results achieved):	<p>There are already many successes to report in the past two years. Students are better prepared for the job and, in particular, working safely with forklift/reach trucks is something companies do not emphasize as much as school does. Because of this cooperation, students can work more safely on the transport equipment throughout their lives.</p>
Challenges encountered:	<p>It was quite a challenge to coordinate the different teaching schedules of Vechtdal College and Alfa-college. It is also necessary to make good agreements with each other in terms of the materials and equipment to be used.</p>
Potential for learning or transfer:	<p>Working together with a secondary/VMBO school has many advantages. In the way we are currently working, by also giving forklift classes to students from the secondary school/VMBO school, potential new students at Alfa-college learn how classes are taught at the VET, and by obtaining a forklift certificate they have an advantage over students from other schools or who have not participated.</p>

**Further information:**

Data not available



7.3 Actions to fill the lack of specific profiles in the logistics industry:

This set of good practices focuses on the training of profiles specifically demanded by the industry and with serious staff shortages. The aim is to cover these profiles and obtain the greatest benefit for students and companies.

I. Forestry machine operator education.

1. Basic information

City:	Skellefteå
Country:	Sweden
Organization name:	Skellefteå kommun

2. General information on the good practice

Practice image:	 Skellefteå kommun
Title of practice:	Forest machine operator: Adult vocational education
Thematic objective of the practice:	<ul style="list-style-type: none"> • Training centres adjusting their training to market needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Regional (province, state, other)
Website of the practice	www.skelleftea.se/vux

3. Detailed description

Short summary of the practice:

Skellefteå municipality VUX (adult education) is carrying out a forestry machine operator education in close cooperation with the forestry companies Holmen skog, Norra and Svea skog. The main goal for this cooperation is to supply forestry machine operations to the industry.

Detailed information on the practice:

Education of forestry machine operators in VET adult education is not common in Sweden because the cost of the education exceeds state subsidies for Yrkesvux (national education form and subsidies for adults). Since the training for forestry machine operators is conducted in a forestry machine in a felling area there is a high cost for machines, fuel, and infrastructure.

At the same time the industry has a recruitment issue because its workforce is ageing and new competition is needed. Moreover, in northern Sweden there is strong economic development in other industries (mining, steel and batteries) that concerns the forestry industry in terms of workforce recruitment.

In this context, the forestry industry and Skellefteå kommun VUX came together to form a model for a short intensive training course for adults and the training was slimmed down to the absolute necessities so the individuals attending could join the forestry industry as machine operators. Then, the industry contributed economically to the training by sending instructors and handling the work-based part of the education. 10-12 students a year attend the training.

Resources needed:

The economic resources that are used are machines and fuel for them is needed at a cost of approximately 30,000 euros for the training. The staff cost is approximately 12,000 euros.

Timescale (start/end date):

First edition: 2019-2020. 22 weeks
Second edition: 2020-2021 22 weeks
Third edition: 2021-2022 22 weeks.

Evidence of success (results achieved):

Over the three years, approximately 85% have gone straight from the training into work in the forestry industry as machine operators. In evaluations, students have described our training as "relevant and interesting". (Source: Ellinor Berglund VUX).

Challenges encountered:

The main challenge is to find students who are ready to attend and complete this intensive 22-week training course. Another challenge is to maintain a high level of quality when the training course is short and intensive. This question has been discussed by VUX and the industry.

Potential for learning or transfer:

An interesting point is the collaboration between VUX and the forestry industry required to find common ground and plan ways of delivering high-quality but economical training. Other relevant factors include the short, intensive timescale which means it is easier to recruit students considering changing jobs. They can quickly move from one job to a new job in forestry.

**Further information:**

Data not available

II. Adult vocational education: Mining Mechanic.

1. Basic information

City:	Skellefteå
Country:	Sweden
Organization name:	Skellefteå kommun

2. General information on the good practice

Practice image:	 Skellefteå kommun
Title of practice:	Adult vocational education: Mining Mechanic
Thematic objective of the practice:	<ul style="list-style-type: none"> • Education centres adjusting their training to market needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Regional (province, state, other)
Website of the practice	www.skelleftea.se/yrkesutbildning

3. Detailed description

Short summary of the practice:	<p>As an important part of a functioning logistics chain, Skellefteå Municipality/ Adult Education holds mining machine mechanic training in close cooperation with the industry. The goal of the training is to be a part of the supplying skills for the region and to meet the needs the industry demands for current mechanics for large and heavy vehicles.</p>
Detailed information on the practice:	<p>The first training group was started in 2020.</p> <p>A working group with representatives from the mining industry and companies linked to the mining industry as subcontractors, responsible for adult education, teachers from the upper secondary school vehicle programme and trade union representatives, was formed in 2019. The working group mostly consists of company representatives.</p> <p>The group's work resulted in a 44-week training with a curriculum adapted to the skills the industry was looking for.</p> <p>The training starts once a year. It consists of 50% of workplace-based learning (APL), where the companies that are part of the working group provide APL places</p> <p>The remaining 50% of the education consists of teacher-led lessons in the classroom and in a workshop environment + a few days of home study. The teacher-led lessons take place on the upper secondary school premises.</p> <p>During the training (a total of four times), the workgroup meets and discuss the progress of the training. Current issues are discussed and adjustments are made in the educational structure.</p>
Resources needed:	<p>For the education, there is a teacher employed at 60% of full time. Classrooms and workshop facilities are needed. This education has a financial agreement on costs for teachers and classrooms financed by a state subsidy. A condition for the education is also that the student group consists of, at least six participants to make it financially sustainable.</p> <p>What makes the training possible is also that the companies participating in the collaboration for the training carry out shorter (2-5 day) company-specific training without financial compensation.</p>
Timescale (start/end date):	2020- present
Evidence of success (results achieved):	<p>Approximately 85% of the students who complete the entire training course get a job in the industry after they graduate.</p> <p>That a large part of the training is workplace based learning (APL) is a great advantage. The students are in the right environment, for future employment.</p> <p>Alongside their education, they get to experience work in real life and create valuable industry contacts.</p>
Challenges encountered:	<p>From 2022, we are seeing fewer applicants for the training, as northern Sweden is undergoing great industrial expansion with low unemployment. It is easy to get a job without training.</p>
Potential for learning or transfer:	<p>Teachers who have worked for a long time with high-school students get a competence development and other challenges when they work with adult students. It is experienced very positively.</p> <p>Close cooperation and a close dialogue with the industry is valuable. It provides an understanding of the opportunities that each business has to contribute to society's skills needs in different areas.</p> <p>More narrowly, industry collaboration is a success factor for high-quality vocational training.</p>

**Further information:**

Data not available

III. Adult vocational education: Professional driver training, freight traffic.

1. Basic information

City:	Skellefteå
Country:	Sweden
Organization name:	Skellefteå kommun

2. General information on the good practice

Practice image:	 Skellefteå kommun
Title of practice:	Vocational education, Professional driver training, freight traffic
Thematic objective of the practice:	<ul style="list-style-type: none"> • Education centres adjusting their training to market needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Regional (province, state, other)
Website of the practice	www.skelleftea.se/yrkesutbildning

3. Detailed description

Short summary of the practice:	Skellefteå Municipality/Vux, in close cooperation with Skellefteå Municipality's upper secondary school and an outside agency, professional goods traffic driver training. The main aim of the education is to meet the existing industry demand for truck drivers.
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<p>Detailed information on the practice:</p>	<p>The professional driving industry requires approximately 5,000 "new" truck drivers/year over the next five years. The high school's training of truck drivers does not meet that need.</p> <p>With the conditions in northern Sweden, such as the long distances, the drivers most in demand are those with a licence to drive a heavy trailer.</p> <p>The training follows the syllabus developed by the National Agency for Education and the Swedish Transport Agency.</p> <p>It is popular and 100% of the participants who complete the training with good results get a job in the industry area afterwards.</p> <p>There are many female applicants for the training and the industry also demands more women in the profession.</p> <p>Within Västerbotten County, there are three municipalities conducting professional goods traffic driver training, which means there are participants from other municipalities in the county in all the groups Skellefteå runs.</p> <p>All theory and practical driving tests are done at the Swedish Transport Safety Agency and the students pay for themselves.</p> <p>A financial agreement for the training has been made with the upper secondary school. Government grants for Vocational Driver Training cover the cost for premises, practice area and vehicles and teachers can be paid for by the upper secondary school. This means the adult education teaching is partly conducted in the evening based on access to vehicles and the practice area.</p> <p>The collaboration has been going on for many years and works very well.</p>
<p>Resources needed:</p>	<p>For the adult group, which consists of 12 participants, there is 1.75% teaching positions. In addition, vehicles (trucks and wheel loaders) are shared, as well as a practice area and classroom, with the upper secondary school.</p>
<p>Timescale (start/end date):</p>	<p>Since 2018, one group per year has been trained and the course is ongoing. From 2022, there will be an increase to two groups per year.</p>
<p>Evidence of success (results achieved):</p>	<p>Since 2018, two students have dropped out of the course but all the others have completed it. Approximately 85% of those who have completed the course have been examined for both C and E licences.</p> <p>100% of graduates have been offered jobs in the industry.</p>
<p>Challenges encountered:</p>	<p>From 2022, the number of applicants for the training has fallen, as there is great industrial expansion in northern Sweden and low unemployment. It is easy to get a job. Increased diesel prices can be a challenge from a financial point of view.</p>
<p>Potential for learning or transfer:</p>	<p>Collaborating with the upper secondary school and being able to share resources is entirely positive. It provides maximum use of expensive vehicles, practice areas and classrooms.</p> <p>Teachers who have worked for a long time with upper secondary school students receive competence development and enjoy other challenges when they work with adults. It is experienced very positively.</p> <p>Young students and adult students who meet are positive about the experience and learn from each other. Different ages and cultures meet.</p>



Further information:

Data not available

IV. Adult vocational education: Bus driver training, freight traffic.

1. Basic information

City:	Skellefteå
Country:	Sweden
Organization name:	Skellefteå kommun

2. General information on the good practice

Practice image:	 Skellefteå kommun
Title of practice:	Adult vocational education Professional driver training, passenger traffic
Thematic objective of the practice:	<ul style="list-style-type: none"> • Education centres adjusting their training to market needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Regional (province, state, other)
Website of the practice	www.skelleftea.se/yrkesutbildning

3. Detailed description

Short summary of the practice:	<p>Based on a regional industry need for bus drivers and a local need for bus drivers for the municipal bus company, Skellefteå Buss, adult education in close collaboration with Skellefteå Buss conducts a bus driver training.</p>
Detailed information on the practice:	<p>There is always an industry need for bus drivers locally, regionally and nationally. Since 2017, Skellefteå municipality has collaborated with Skellefteå Buss and completed a bus driver education. We have started two groups per year. The number of participants in the groups has varied between 7-16 participants, based on current employment needs.</p> <p>In recent years, two groups are educated per year with ten participants in each group. The education follows the study plan developed by the National Agency for Education and the Swedish Transport Agency.</p>
Resources needed:	<p>The costs for the education are covered by the state subsidy and the advantageous agreement and cooperation with Skellefteå Buss.</p>
Timescale (start/end date):	<p>Two groups per year since 2017 and they are still ongoing.</p>
Evidence of success (results achieved):	<p>The fact that the education is located outside the school in Skellefteå Buss premises is a great advantage. The students are in the right environment, where many of them then get employment. Alongside their education, they experience working life in reality and creates valuable industry contacts.</p> <p>Approximately 65% of the students who complete the education with good results get an employment as a bus driver after the education.</p>
Challenges encountered:	<p>In the bus driver groups, 98% of the participants are foreign born and do not have Swedish as their mother language. It is a challenge for many to pass the theory tests, as some of them can only be done in Swedish and for a limited time.</p>
Potential for learning or transfer:	<p>From 2022, we will add a preparatory course of 4 weeks, when driving licence theory is studied in teacher-led lessons.</p> <p>We hope that the students will be able to master their theory more easily and that more time in the education can be spent on driving training.</p>

**Further information:**

Data not available

V. Railway Maintenance and Operation.

1. Basic information

City:	Lisbon
Country:	Portugal
Organization name:	Portugal

2. General information on the good practice

Practice image:	
Title of practice:	Railway Maintenance and Operation
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	www.skelleftea.se/yrkesutbildning

3. Detailed description

Short summary of the practice:	<p>VET to train professionals in the railway maintenance sector for maintaining and repairing of railway infrastructure, rolling stock and managing railway operations, including metalworking, electronics and automations, leading to an increase in quality and productivity. Secondary education courses lasting three academic years and with a strong connection to the professional world. VET allows the continuation of studies on a technological specialization course, higher VET diploma course or higher education.</p>
Detailed information on the practice:	<p>The need to maintain the transport and distribution infrastructure is crucial meeting to meeting the needs of the logistics chain, as the railway has a huge impact on the logistics industry nationwide, so there is good demand in the employment market.</p> <p>Secondary education courses have a strong connection to the professional world. VET develops personal and professional skills for careers, contributing to making economy stronger and to future job opportunities for young people, meeting local, national and international needs</p>

<p>Detailed information on the practice:</p>	<p>Vocational training courses develop personal and professional skills for the exercise of a profession meeting local, national and international work needs and allowing the students the chance to proceed to higher education paths if they so wish after completing them.</p> <p>The main beneficiaries are students who have not followed the standard school path, could be at risk of exclusion and who want more qualification and the chance to have a job – a desire to have a sustainable profession to build up their own future in society. The possibility of getting several hours of experience in the work context is a plus and makes VET more attractive, as it could create the opportunities for connections and professional relationships, making it easier to find a work placement.</p>
<p>Resources needed:</p>	<p>These VET courses are cofinanced by several entities, the Human Capital Programme (POCH) and by the Portuguese government Portugal 2020, European Commission, DGEstE and free of charge to the VET students. The co-financing of these organizations guarantees free attendance on Gustave Eiffel's courses, contributing to an increase in qualifications among the Portuguese population.</p>
<p>Timescale (start/end date):</p>	<p>Academic year 2021-2022.</p>
<p>Evidence of success (results achieved):</p>	<p>The EPGE teaching model, called Modular Teaching is followed. Courses are organized into subjects and these form modules. Certification is given for all teaching units and not just some of them. This is why it is considered that the quality of training is different from the traditional model. However, it depends on the organizational capacity, motivation and commitment of all those involved. Young people's academic and professional success depends on the student's objectives, teaching staff, non-teaching staff, and management and the efforts of parents and guardians. It necessarily implies a change in attitude from students.</p> <p>The practice has a success rate of 64.1% in terms of employability, the placement rate is 85.4%, according to the school's published data for 2016-2019. The proportion of students who have successfully completed the course is 48.5%.</p>
<p>Challenges encountered:</p>	<p>In most cases it is not easy to change behaviour arising from the students previous school experience, and it is essential that they are offered conditions to integrate into a system which, as it is different, offers them a new challenge as students and as people. Students need to internalize this new attitude gradually and understand that the proposed training model requires an active, responsible learning attitude and, above all, the recognition that this system requires great capacity to manage the path itself. This new attitude is progressively developing as the student continues to participate in the life of the school, in a relationship of mutual assistance with other school agents.</p>
<p>Potential for learning or transfer:</p>	<p>With the competitiveness of the various business sectors increasingly based on specifics, the importance of a good logistics network has been growing worldwide. Logistics is one of the sectors that has become more important in national economies and globally. The commitment to technologies integrated in VET helps to support expansion plans, even with obstacles such as agility, speed and flexibility to be overcome. VET is undoubtedly crucial to providing a set of skills, updating and/or reskilling abilities that are a valuable contribution to the job market and to a more sustainable economy of any country. The professional, by being more up-to-date, with specific expertise in the various areas of the logistics industry and in matters concerning their career, has more knowledge and is more efficient in the specific tasks to be carried out. Companies will therefore be more predisposed to hire them. With the increasing numbers distribution centres in several countries, like Portugal, the VET offer in all areas of the logistics chain, is intended not only to support companies with their expansion plans, but also to facilitate their decisions in this field. Any contribution to training professionals is therefore creating economic value and the expanding logistics industry is a benefit for the sustainability of any society.</p>



Further information:

Data not available

VI. Transport and Logistics Management.

1. Basic information

City:	Lisbon
Country:	Portugal
Organization name:	Escola Nautica Infante D. Henrique

2. General information on the good practice

Practice image:	
Title of practice:	Transport and Logistics Management
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://www.enautica.pt/pt/dia-aberto-1/licenciaturas-134/gestao-de-transportes-e-logistica-916

3. Detailed description

Short summary of the practice:	The Transport and Logistics Management Bachelor Course is an innovative approach to national logistics, at the forefront of the most recent educational processes, seeking to create highly qualified professionals for the transport and logistics industry in general and for the maritime and road freight sector in particular.
Detailed information on the practice:	<p>The degree in transport and logistics management is currently one of the most interesting academic and professional areas in terms of business management. Transport and logistics are among the biggest challenges facing the country in terms of competitiveness. At the management level, it is the area that has evolved the most in terms of importance, remuneration and employability level. Companies have realized that to be competitive they have to commit themselves to this important segment of the value chain that can represent 12 to 18% of their total production costs.</p> <p>This training offer devoted to transport management offers multiple career opportunities both in activities related to the maritime-port sector and in activities related to land distribution (road transport/rail transport).</p> <p>In the second course phase, logistics associated with land distribution are valued, including road freight transport companies, logistics operators, logistics platform managers, logistics distribution, etc.</p> <p>Special access competitions for adults aged up to 23, CteSP diploma holder, and holders of the CET or other, similar certificates</p> <p>https://www.a3es.pt/pt/resultados-acreditacao/gestao-de-transportes-e-logistica-1</p>
Resources needed:	School resources to implement the course
Timescale (start/end date):	School Accreditation from 06 May 2021 until 06 May 2027 – Accreditation A3ES
Evidence of success (results achieved):	With protocols established for the training of graduates in the largest transport and logistic service providers worldwide, the employment rate of graduates in Transport and Maritime Management is around 100%.
Challenges encountered:	Data not available
Potential for learning or transfer:	Data not available

**Further information:**

Data not available



7.4 Publicity activities to society to promote VET in logistics as a career option among young people/parents are collected here.

This section collected all the good practices that try to promote the logistics industry and make it attractive and visible to current and future students as well as to the society as a whole.

I. SIL conference: Leading Exhibition for Logistics, Transport, Intralogistics and Supply Chain Fair in Southern Europe

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Consorti de la Zona Franca de Barcelona

2. General information on the good practice

Practice image:	
Title of practice:	SIL conference: Leading Exhibition for Logistics, Transport, Intralogistics and Supply Chain Fair in Southern Europe
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Metropolitan
Website of the practice	https://www.silbcn.com/es/index.html

3. Detailed description

Short summary of the practice:	SIL is an event where student can find companies that are looking for workers. In this way, the event is the common connection between both parties.
Detailed information on the practice:	<p>They organize a Market Place where students are able to meet companies from the logistics industry such as Lore Logistics, Celsa, and Decathlon which are looking for professionals.</p> <p>In this space, students have the chance to introduce themselves to the companies directly. Students are also able to participate in a virtual preparatory session before the event to improve their presentation to the companies.</p>
Resources needed:	Data not available
Timescale (start/end date):	This year will be the 23rd event.
Evidence of success (results achieved):	SIL 2022 had 12,152 attendees from 81 countries (29 from Europe, 18 from Africa, 17 from America, 16 from Asia and one from Oceania) and 263 accredited journalists.
Challenges encountered:	The previous year was affected by COVID-19
Potential for learning or transfer:	The SIL is one of the most important international logistics trade fairs so there are very good chances of finding a job.

**Further information:**

https://www.silbcn.com/es/networking/job_market_place.html

II. Virtual logistic job.

1. Basic information

City:	Metropolitan Area of Barcelona
Country:	Spain
Organization name:	Barcelona Centre Logistic- Catalonia (BCL) with Federación Iberoamericana de Asociaciones Logísticas (FIALOG) and cooperation with other organizations such as ADL (Asociación para el Desarrollo de la Logística), Instituto ICIL, and Federación de Asociaciones de Carga y Operadores Logísticos de Latinoamérica y el Caribe (ALACAT)

2. General information on the good practice

Practice image:	
Title of practice:	II Feria de Empleo Logístico Virtual
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs
Geographical scope of the practice:	<ul style="list-style-type: none"> • Metropolitan
Website of the practice	https://forodetalentologistico.com/feria/

3. Detailed description

Short summary of the practice:	The aim of the virtual logistics job fair is for logistics companies to present their job offers and talent needs, and for training centres and universities to offer their applications or vacancies. The intention is to promote youth employment and find candidates who best meet companies' needs.
Detailed information on the practice:	<p>The main aim is to promote the youth employment and cover the business needs. In addition, the following topics were addressed:</p> <ul style="list-style-type: none"> • The Logistics Professional of the Future, • The new Dual Vocational Training law; • How to align higher education with the industry's needs; • How to adapt and readapt people to digitalization; • The need to improve employer branding in the industry; • How European 'Next Generation' funds can help in the development of talent.
Resources needed:	This event featured more than 25 professionals, included more than 50 companies and registered around 2,000 people related to the sector.
Timescale (start/end date):	Started in 2016 to present.
Evidence of success (results achieved):	This practice encourages dialogue between vocational training centres and companies and seeks to improve competencies and meet the needs of the industry and the skills of potential candidates.
Challenges encountered:	The main challenge of the last two weeks has been COVID-19. Now, the next event will be hybrid, which combines face-to-face and online events.
Potential for learning or transfer:	Thanks to the support of these entities and FDL's extensive experience, the event is positioned as the most relevant event for developing, finding, attracting and retaining talent in the industry.

**Further information:**


<https://bcncl.es/>

III. Open Doors.

1. Basic information

City:	Tartu
Country:	Estonia
Organization name:	Tartu Vocational College

2. General information on the good practice

Practice image:	
Title of practice:	Open Doors
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:	<p>Open Doors is an annual event that introduces learning opportunities in logistics, including the Tartu Vocational College. During the day, there are many different events for future learners. The fairs of the so-called thematic schools introduce learning opportunities. It is possible to assess career suitability and participate in various workshops. There will also be conference presentations where college students will talk about school and vocational education. Visitors can go to all the school's classrooms and workshops and take part in the lessons.</p>
Detailed information on the practice:	<p>Objectives:</p> <ul style="list-style-type: none"> • To increase the popularity of vocational education and professional competence • To value mastery and creativity • To motivate learners • To improve the content and quality of the tutorial • To promote cooperation • To publicize and implement innovation related to professional development • To gain greater attention to vocational training and professional work <p>Good practice aims to encourage students to come to vocational college. The tradition of Open Doors began in 2007 at our college.</p> <p>All open workshops, fairs and practical lessons prepare students under the guidance of their vocational teachers. Students also run the entire event.</p> <p>During the COVID-19 outbreak, when schools were closed to outsiders, the same event took place in the form of Open Windows. It was possible to make virtual tours of the school building and participate in various workshops through Zoom. The workshops took place in both live and pre-recorded formats.</p> <p>Over the years, the event and the number of visitors have grown steadily.</p> <p>The main beneficiaries of the programme are vocational students as well as potential students.</p>
Resources needed:	<p>The programme requires approximately EUR 10 000 for expenditure, plus the contribution of staff to the preparation of competitions and workshops (this is part of the work commitments, so a separate financial cost cannot be included).</p> <p>In time, it takes about a year to prepare – to conclude agreements with members of the jury (entrepreneurs from outside the school) and also to find sponsors and artists (there is always a programme with some celebrity). Substantive preparation (tasks, workshops, programme) will begin in November.</p>
Timescale (start/end date):	<p>First week in March.</p>
Evidence of success (results achieved):	<p>Over the years, the event has become more and more successful. More participants, more competitions, more visitors and more sponsors.</p> <p>This year (2022) there were approximately 500 visitors per day.</p>
Challenges encountered:	<p>Depending on the volume of events, this is a good logistical challenge. Open Doors has live broadcasts, different technical requirements for the introduction of specialities, being all the organizers in the right place at the right time, etc.</p> <p>As well, sometimes it's a little bit harder to find sponsors when economically there are tough times.</p>
Potential for learning or transfer:	<p>Very easy to perform when there is a school and students, role models are found in very many parts of the world.</p>


Further information:


<https://voco.ee/sisseastumine/avatud-uksed/>

IV. The year of choosing a profession.

1. Basic information

City:	Tartu
Country:	Estonia
Organization name:	Tartu Vocational College

2. General information on the good practice

Practice image:	
Title of practice:	The year of choosing a profession
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting the training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://en.voco.ee/development-projects/implementation-of-the-choice-of-profession-curriculum-in-tartu-vec/

3. Detailed description

<p>Short summary of the practice:</p>	<p>The aim is to support young people with a low level of education and who are at risk in continuing their educational path or developing their readiness to enter the labour market after basic school.</p>
<p>Detailed information on the practice:</p>	<p>The year of choosing a profession allows a young person who has come to vocational college to get acquainted with different specialities and decide on further education based on this.</p> <p>The volume of the study is approximately 5 months, its exact content and length depend on your skills, interests, needs and abilities.</p> <p>Teaching takes place from Monday to Friday, and practical and theoretical activities are constantly changing and balancing in terms of volume. During the course, students can get acquainted with the specialities of the school and also visit other vocational colleges. In addition to practical studies, students also complete the basics of careers education, communication, safety education, law and basic subjects (mathematics and Estonian).</p> <p>The target group for the project consists of young people with a low level of education who need additional training or counselling to choose a profession, young people who have dropped out of school, young people with special needs, young people from abroad and young people who need more time to adjust to vocational training.</p>
<p>Resources needed:</p>	<p>The year of choosing a profession is funded by EEA and Norwegian grants. The cost of the programme is 196,775 EUR.</p>
<p>Timescale (start/end date):</p>	<p>Through the school year (at the moment funding is provided to 01.02.2021-31.07.2023). The programme began in the school as a pilot in 2017.</p>
<p>Evidence of success (results achieved):</p>	<p>The number of students in the programme has increased. Almost all Estonian vocational schools are now implementing the year of choosing a profession.</p> <p>As a result of the project Tartu VOCO's cooperation with its partners increased, making it possible to offer more suitable options to young people. The proportion of students who have completed vocational training and continued their work-related studies or entered the labour market has also increased.</p>
<p>Challenges encountered:</p>	<p>Companies do not always want trainees for short periods, especially if these trainees have special educational needs. Traineeships therefore need to be chosen very carefully, finding a balance between study and internship at school. Even if a student stays at work, on the one hand, they may have a job but their education will be incomplete.</p>
<p>Potential for learning or transfer:</p>	<p>The year of choosing a profession needs funding and amendments to the law.</p>



Further information:

<https://en.voco.ee/development-projects/implementation-of-the-choice-of-profession-curriculum-in-tartu-vec/>

V. Young Champion/ Trade School Heroes

1. Basic information

City:	Various (all the cities in Estonia where are the vocational training centres)
Country:	Estonia
Organization name:	Education and Youth Board

2. General information on the good practice

Practice image:	
Title of practice:	Young Champion/ Trade School Heroes
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:	<p>Young Champion is an 8-10-part competition TV programme in which the best vocational students from all over Estonia enter.</p> <p>The TV programme gives viewers access to a variety of vocational professions and occupations. Competitions take place in vocational schools or at partners' facilities.</p>
Detailed information on the practice:	<p>Introducing vocational education and taking it home to people.</p> <p>The Education and Youth Board has been organizing professional championships with schools since 2006. It came up with an idea to make a show to bring the professional championship closer to the people. The first series of shows started in the spring of 2019.</p> <p>The public has heard less about professional championships, so one goal can still be achieved – to show the best future makers in their field in a competition situation.</p> <p>It is a pleasure when one of the viewers discovers a new profession, gets acquainted with vocational schools or gets young people to choose from a selection of professions.</p>
Resources needed:	<p>The show is currently mainly funded from European structural funds and in addition by local companies.</p>
Timescale (start/end date):	<p>November 2021-February 2022</p>
Evidence of success (results achieved):	<p>The number of viewers for the "Young Champion" TV show rose from 13,000 in 2019 to 90,000 in 2020.</p>
Challenges encountered:	<p>Finding competitors who dare to appear on TV. Long competition days. Finding additional funding and sponsors who are willing to support the competition.</p>
Potential for learning or transfer:	<p>The implementation of the programme will probably depend on agreements. It is probably possible to buy a TV programme licence and then produce a show in any country, adapting it to local viewers.</p>


Further information:


https://www.facebook.com/noormeister/?ref=page_internal

VI. Competence Foresight Forum.

1. Basic information

City:	Rovaniemi
Country:	Finland
Organization name:	Rovaniemi Municipal Federation of Education (REDU) and others

2. General information on the good practice

Practice image:	
Title of practice:	Competence Foresight Forum
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Metropolitan
Website of the practice	Data not available

3. Detailed description

Short summary of the practice:

In Finland, parties influencing the logistics industry cooperate extensively in development work related to the industry in various ways.

Detailed information on the practice:

Working life (employers, employees), VET organizers and relevant authorities are actively cooperating, for example in reforming the diploma criteria, reforming legislation in the field and evaluating educational needs.

The work on reforming the diploma criteria takes into account views of working life and various fields of study, but the work is carried out in close cooperation with the education providers and the National Board of Education. The result of this cooperation in the field is the widest possible common understanding and state of mind about the educational needs and the contents of the education.

There is also a wide range of cooperation in reforming legislation in this area, and industry is generally well placed to influence and comment on legislation at various stages of its preparation.

The Finnish Ministry of Education and Culture and the National Board of Education maintain a joint expert group on foresight – the Competence Foresight Forum (OEF). The Competence Foresight Forum is divided into industry-specific foresight groups, each with 15-25 members. The steering group and foresight groups of the Competence Foresight Forum are represented by employers, employees and entrepreneurs, vocational education and training providers and universities, teaching staff, representatives of research in the field and the education administration. The steering group also includes representatives of students in vocational education and higher education, experts in education research and evaluation, and regional foresight. The basic idea of the Competence Foresight Forum is to bring the various parties in education and working life into a common dialogue about the future. OEF produces, analyses and disseminates foresight information and raises training development needs based on foresight information.

Resources needed:

Data not available

Timescale (start/end date):

Ongoing

Evidence of success (results achieved):

VET organizations and industry have a shared view on the promotion of VET training in the field and skills that are needed in the field.

Challenges encountered:

Cooperation requires active participation and a genuine desire to cooperate with various parties. VET organizations and authorities often need to work together as initiators and maintainers of projects.

Potential for learning or transfer:

Extensive cooperation brings out the perspectives of the various players in the industry and in this way creates a consensus and a common will on how things should be done. A better understanding of the operating environment and realities of the various parties.

**Further information:**


Data not available

VII. InnoFuture event.

1. Basic information

City:	Hardenberg
Country:	The Netherlands
Organization name:	Vechtdal college, Alfa-college and InnoFuture

2. General information on the good practice

Practice image:	
Title of practice:	InnoFuture
Thematic objective of the practice:	<ul style="list-style-type: none"> • Companies considering VET for meeting their needs • Education centres adjusting their training to market needs • Promotion of logistic VET as a career option among young people/parents
Geographical scope of the practice:	<ul style="list-style-type: none"> • Local • Metropolitan • Regional (province, state, other) • National
Website of the practice	https://inno-future.nl/hardenberg/

3. Detailed description

Short summary of the practice:	An event to promote ICT, technical and transport and logistics training. The target group are children from group 7 and 8 of primary school in the Netherlands. The goal for these children is to experience technology, ICT and transport and logistics to help them choose a further education course when they are in the 3rd grade of VMBO (age approximately 13-14 years).
Detailed information on the practice:	<p>The problem is that young children have to choose a training in their interests and the kind of job they want to do when they are growing up. For these young children that is difficult because, at that young age, they do not know what they want to do when they are older. With this project we want to help them to give them a better view of all the different jobs and opportunities there are when they are older and they have to choose a career.</p> <p>On Friday 17 June, 2020, children from group 7 and 8 from the primary school (age 10-12) are going to the event hall in Hardenberg. There are a lot of different (technical) companies and schools to show all the different training there are to choose from when they go to the VMBO school. On Saturday it is a free event for everybody aged from 4-99. The idea is that the primary school children who have visited the event on the Friday will come back on Saturday with their friends, neighbours and family. In the city of Emmen, near Hardenberg, this event has been organized twice now with great success, and the free Saturday was a very busy day with lots of people.</p> <p>The main stakeholders are the regional government, schools and all the companies where these potential students could have future work placements.</p>
Resources needed:	Alfa-college is one of the partners and our input is mainly hours in kind by our students and teachers. The total budget for the project is €45,000.
Timescale (start/end date):	17 and 18 June 2022. This is the first time we have organized this event, which will be repeated for the next five years. After that we hope companies will take over the funding and will sponsor this event so we can organize it every year.
Evidence of success (results achieved):	It is the first time we have organized Innofuture with our partner school Vechtdal college. Approximately 40-50 primary schools will visit the event, with a total of 2,000 children and teachers, on Friday, making it a great success that exceeds our expectations. Also, the fact that many companies are taking part in the project makes it successful. However, it is difficult to measure the exact impact of a single event as this, and translate that to the process these children are going through when they have to choose training that matches the job they want to do when they are older.
Challenges encountered:	The biggest challenge was the COVID pandemic. The event has already been delayed by two years and we are looking forward to organizing it this year for the first time. Another challenge for the companies is to help them to have an attractive programme for children aged between 10 and 12. Normally at an exhibit for the companies the audience are all adults from the same industry. Organizing an exhibit for children is totally different and a challenge for them. However, the schools and Innofuture are helping the companies with this challenge.
Potential for learning or transfer:	This Innofuture event is an example how we are helping young children to choose a job and training to match it. Maybe other regions can also organize a similar project in their region to help children choose an occupation. When the partners from the VET transport and logistics project visit Hooerveen and Hardenberg on 16 and 17 June, they will go to this exhibit on Friday so all the visitors from our foreign partner schools can experience the event.

**Further information:**

https://www.youtube.com/watch?v=UK_6jjPT2y4

8 RECOMMENDATIONS

In this section we provide an overview of a total of 10 recommendations grouped into three main categories according to the project objectives and target groups. In some cases, however, recommendations are equally aimed at more than one target group.

🏢 Recommendations for the logistic sector: aimed at getting companies more involved in education by adapting port-related VET to companies' real needs and hiring more port-related VET graduates.

🏢 Recommendations for VET schools: aimed at adapting VET schools that offer logistic-related fields of specialisation to provide the skills most relevant by the evolution of the port and maritime sector, profiles and the competencies and skills required by this emerging sector.

🏢 Recommendations for society and decision makers or authorities: aimed at increasing the attractiveness of logistic-related fields VET for society, including youth, in order to increase port VET enrolment rates, and at encouraging authorities to develop effective mechanisms to better adapt VET systems to the trends of the labour market.

For maximum precision in the recommendations' future implementation, a common template was created to standardise the drafting process. The template includes the information below:

- ✓ **Organization:** name of project partner organisation responsible for drafting the recommendation.
- ✓ **Target group:** main group for which partners are making the recommendation.
- ✓ **Description:** summary of the recommendation.
- ✓ **Identification of the problem:** main problems in response to which partners are making the recommendation.
- ✓ **Requirements:** main requirements necessary to implement the recommendation effectively.

The recommendations have been prepared directly by the representatives of the partner organisations participating in the Logistics VET Hub project, based on their expertise in the subject, expert interviews and the knowledge exchanged during the project.



Establish a sector institute

Organization

Alfa-college

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

It's recommended to the social partners within the sector (employers' organizations, labor unions) to establish an institute that takes charge of and executes labor market policies for the Transport & Logistics industry. Additionally it's recommended to create an execution organization dedicated to the sector. The execution organization should aim to improve mobility by organizing the inflow of employees and enhancing sustainable employability in the sector.

Identification of the problem

Having a sufficient number of well-trained and employable personnel is crucial to the Transport & Logistics sector. The identified problem is that this is quite a challenge in these times of labor shortage. For efficient and effective inflow and mobility, it is important for social partners to collaborate in order to prevent the fragmentation of resources. Instead of acting separately, social partners should collectively address today's challenges in the sector.

Requirements

As a first step in implementation, an initiator will have to be found. If the social partners already have some sort of mobility or VET platform operational, this might be the place to start looking. Next, invite and inform the potentially interested parties and together try to create a common and shared vision. In line with this vision, formulate the objectives for the sector institute, e.g. 'Functioning as an institute in the field of work, education, and health for and on behalf of employers and employees in the transport and logistics sector, with a particular focus on road freight transport and logistics'.

This general goal has to be elaborated and detailed in various directions, e.g.:

- Serving as the knowledge, advisory, and innovation center for the sector;
- Contributing to achieve good working conditions in the sector and promoting the health of employees in the sector;
- Assisting employees and companies with advice, information, prevention, and absenteeism guidance to increase employee employability;
- Maintaining and managing the job classification system in the sector;
- Promoting employability, labor mobility, and participation, including the inflow and progression of employees, including (disabled) young people and (young) adults in the sector*;

* In The Netherlands everyone working in the road freight transport sector pays a quarterly contribution to the sector institute. Both the employer and the employee contribute a portion of the premium. The training and development fund for the industry, promotes the participation in education and training by current and future employees in the sector and accomplishes this by providing subsidies.

- Limiting outflow from the sector;
- Promoting education and increasing the expertise of future and current personnel in the sector;
- Recruiting, selecting, and guiding young people in the form of secondment in the sector;
- Advising organizations on labor conditions, job classification, education, labor market policies, and other related and relevant topics;
- Advising employees on work, job classification, working conditions, health at work, education, employability, and other related and relevant topics;
- Shaping and (having) a professional procedure in the field of job classification and salary scale classification as referred to in the applicable collective labor agreement for road freight transport;
- Administering social security and advising and providing information on social security, especially unemployment benefits;
- Etcetera**.

Depending on the outcome of the discussion on priorities, cost-benefit calculations and estimates, etc. the partners will have to agree on the design of the sector institute and on how to sustainably finance it.



** (Source: articles of association, published in the Annual Report 2021 of the Stichting Sectorinstituut Transport en Logistiek (STL), The Netherlands)

Supervisors' training

Organization

Tartu Vocational College

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies

Description of the recommendation

Invite company representatives to the schools to introduce and teach the apprenticeship programs and procedures to assist them to succeed in managing students during their enterprise practice.

Studying process consists of two parts.

The first meeting takes place at school introducing school premises and practice bases and opportunities (4 academic hours), which is followed by an online studying course (10 academic hours) in LMS (Learning Methods System).

LMS environment course and materials become a support for the enterprise apprenticeship managers for the future use as well.

The course consists of the following:

- Training schedule

- Introduction of the VET curricula in the logistics area
- Specific goals and objectives of the students' apprenticeship at the workplace
- Practice documentation and assessment system
- Introduction of the school intranet
- Safety and healthy rules and requirements taking into consideration the students' age (under 18 especially)
- Legislation acts and apprenticeship contracts
- Problem solving methods
- Teaching the young students the work life and rules at the workplace.

At the end of course the certificate is provided.

Identification of the problem

Raise awareness of the workplace practice specific rules, objectives, management and assessment of the students among the enterprise employees in order to help them to successfully supervise the students and deal with them during their apprenticeship in the company.

Requirements

For the logistics companies:

- To motivate the employees to take part in the course and compensate the time devoted to the course and the students supervision during their workplace practice
- To cooperate with the educational institutions and authorities to receive the funding to support the future and already existing apprenticeship supervisors in the company.

For the VET schools:

- Compile and conduct the course based on the local logistics companies needs
- Promote the course among the local companies and enterprises.

Create events for young people

Organization

Alfa-college

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

Create events where young people aged 8-12 can experience the logistics sector in a fun and attractive way. Make sure the event is barrier-free and admission is free. Anyone who wants to can come. Make sure that the event is varied and that it is mainly an event in which the young people themselves are actively involved. This can be done by using virtual and argumentative reality, simulators, accompanied driving in a truck, forklift, tractor, etc. Doing logistics games, logistics competitions, putting together a model truck, etc.

Identification of the problem

Young children often do not yet know what they want to become and parents often play a decisive role in their child's choice of education. Showing the young people, but also their parents, and especially letting them experience that the logistics sector is a great sector with many opportunities and good working conditions can help. Young people who come into contact with the sector for the first time in a fun, positive and attractive way will remember that and that can also determine their career choice when they are a bit older.

Requirements

The logistics companies and logistics educational institutions will have to want to sponsor such an event. In Hardenberg, such an event is organized annually under the name Innofuture, which is broader than just logistics since ICT and technology are also part of the event. It is important that a party takes on the organization and that the stakeholders are prepared to support the event financially. It is also important to work with primary schools. In Hardenberg, almost all primary schools in the area participate and the event is visited by over 2000 children aged 9-12 during a school day. The children are picked up by buses during a teaching day. (for detailed information see the best practice Innofuture in the final report).



Special needs internship placements

Organization

Alfa-college

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

Pay attention to students with special needs and distance to the labor market (for example students with autism). The logistics sector offers opportunities for active participation in employment at every level. Due to the pressing labor shortage, companies should be willing to hire and invest in these individuals as well.

Identification of the problem

Because there is a shortage of personnel in the logistics sector, we cannot ignore the potential that is certainly there among students with special needs. Often companies do not have the patience or sufficient knowledge to deal with interns with special needs and who are distanced from the labor market. These students find it difficult to find a place, but with the right guidance and more space and time, they can certainly be of added value to the logistics sector.

Not all activities in the logistics sector can be performed by students with a distance to the labor market, but simple repetitive activities such as order picking, loading, unloading and stock replenishment can often be performed by these students very well.

Requirements

Work together with companies in the logistics sector and vocational education to create internships for students with a distance to the labor market. Provide supervisors in the company with sufficient skills and knowledge of how to deal with this specific group of students. Companies can also enlist the help of the school where the student comes from. Furthermore, ensure that the student also receives extra guidance from the school. With the right guidance, extra time, an individual program that fits the specific need for the student they can learn and get hands-on experience. Also try to rotate students as much as

possible within the different workplaces that exist in a company. In this way, the company can see which activities best suit the individual student and the student can gain success experience in different places. This allows them to enter a normal workplace at a later stage with less supervision and eventually move on to a paid job in the logistics sector.

In the Netherlands, the Alfa college is doing this successfully with the company Distrivers in Hoogeveen and Larcom in Hardenberg. (for detailed information see the best practices Distrivers and Larcom in the final report).

Enhancing English Language Instruction in Logistics-related VET Schools

Organization

Fundació BCN Formació Professional

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

The recommendation aims to improve English language instruction in VET schools that offer logistic-related studies. It proposes specific measures to enhance language learning opportunities and proficiency among students, ultimately equipping them with the necessary English language skills for success in the logistics industry.

Incorporate English for Specific Purposes (ESP): Integrate logistics-specific English language content into the curriculum, focusing on vocabulary, terminology, and communication skills relevant to the logistics field. This will enable students to develop industry-specific language proficiency and better understand the language used in logistics operations. Specifically, destinate some hours of the cv to this task, it could be one or several modules of the itinerary.

Engage qualified English language instructors: Ensure that VET schools have dedicated English language instructors with expertise in teaching English for specific purposes. These instructors should have a solid understanding of logistics terminology and industry practices. Their expertise will help students develop language skills in a context that aligns with their future careers. Specifically, VET school can hire "techician teachers" who works in industries with an international perspective.

Provide language learning resources: Equip VET schools with appropriate resources, such as textbooks, online learning platforms, and audiovisual materials, to support English language instruction.

These resources should be tailored to the logistics context and cover various language skills, including listening, speaking, reading, and writing. Specifically, provide accessible and engaging materials will improve the effective language learning and the level of the class.

Promote language immersion opportunities: Facilitate opportunities for students to engage in English language immersion activities, such as internships or exchange programs with international logistics organizations. This will provide practical exposure to English language usage in professional settings and enhance students' confidence and proficiency. Maybe with the dual new law doing more efforts to do the practise outside of the country.

Establish partnerships with industry stakeholders: Collaborate with logistics companies, freight forwarders, and other relevant organizations to create language learning opportunities. These partnerships can include guest lectures, industry-specific workshops, or mentorship programs, enabling students to interact with professionals and practice their English skills in real-world logistics scenarios.

Foster a language-rich environment: Create an immersive language-learning environment within the VET schools by encouraging the use of English in various contexts. This can be achieved through activities such as English language clubs, debates, group discussions, and language-focused events. Maybe, Fridays after lective classes.

Implement technology-enabled language learning: Leverage technology to support English language instruction in logistics-related VET schools. Integrate interactive language learning software, online resources, and language learning apps into the curriculum. These tools can offer self-paced learning modules, interactive exercises, and mul-

timedia content to enhance language acquisition. Additionally, online communication platforms can be utilized to facilitate language exchange programs with English-speaking students or professionals from other countries. It could be a good idea to develop a project with others VET outside the country.

Identification of the problem

The main problem is the inadequate English language proficiency among students in logistic-related VET schools. In today's globalized world, effective communication and comprehension of English are essential for professionals in the logistics field. Insufficient English skills can hinder students' ability to engage in international collaborations, understand industry best practices, and effectively communicate with clients and partners. This limitation restricts their career prospects and hampers the development of the logistics industry as a whole.

Requirements

Financing: Allocate funding to recruit qualified English language instructors and provide necessary language learning resources. Additionally, consider budgeting for language immersion programs or collaborations with international partners to facilitate experiential learning opportunities.

Resources: Ensure availability of appropriate teaching materials, technology, and multimedia resources to support effective English language instruction. Create a language learning environment that stimulates student engagement and participation.

Training: Conduct professional development programs for English language instructors, focusing on

ESP methodologies and logistics-specific language training. This will enhance their pedagogical skills and ensure they remain up-to-date with industry terminology and trends. This can include workshops, professional development sessions, and technical assistance to maximize the benefits of technology-enabled instruction.

Infrastructure: Ensure access to technology and internet connectivity in VET schools to support technology-enabled language learning initiatives. Provide computer labs or access to devices for students to engage with online resources effectively.

Improving Accessibility to the Truck Driver License

Organization

Fundació BCN Formacio Professional

Target group

- Recommendations for logistics companies
- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

Involve companies in reducing the cost of obtaining a truck driver license for young individuals and generate innovative measures to facilitate access to this type of license.

Identification of the problem

The lack of truck drivers across Europe is a common issue. The competition to attract and retain these professionals is becoming increasingly aggressive. This problem arises due to the gap between supply and demand. Often, the cost of licenses required to drive a truck serves as a barrier for the younger generation to enter the transport sector, which, among other factors, creates difficulties for them to join the industry.

Requirements

Dual VET (Vocational Education and Training) programs often offer an apprenticeship wage. A small portion of this wage could be allocated to cover a part of the license cost, while the remaining amount can be covered by the company or the public sector, or a combination of both.

Opportunity to an academic and professional certification/qualification

Organization

Câmara Municipal de Lisboa

Target group

- Recommendations for VET schools with logistic-related studies

Description of the recommendation

- Engages companies to provide VET to their workforce: Provides an academic and professional certification. Enables a Qualification scholarship. Better insertion at the labour market.
- Opportunity to access the recent market demands to innovative practices in the sector.
- Provides VET free of charge to the students.

- Sensitizes to the importance of better qualification in enterprises.
- Opportunity to boost training in a company context. Tackles early school leaving.
- Possibility to continue to high studies.
- It gives the chance to develop and improve an inclusive, receptive, attractive and innovative VET that promotes education through life.

Identification of the problem

Europe faces a shortage of skills. Early school leaving is growing and social and economical problems are emerging. The need to have better prepared people to the labour market is crucial. The logistics VET sector can help to improve economical conditions in Europe, close the gap between the supply and the demand of the labour market by providing best tools to young students. The chance to have a professional certificate as well as a school one, free of charge to the families and students is a chance that conducts to job opportunities in this industry.

Requirements

- Targeted to young people
- Combines theoretical-practical training
- Dual VET facilitates labour market integration.
- Scholarship allowance supported by the Instituto do Emprego e Formação Profissional.
- It is a way to promote and favour VET in a national wide context, to make VET more attractive to young students.

Incentives for logistics students

Organization

Rovaniemi Municipal Federation of Education (REDU)

Target group

- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

Professional driver's license training as an incentive for logistics students.
The driver's license and professional competence education included in the vocational logistics studies are free of charge for students. This alone increases the attractiveness of education and increases the workforce applying to the field.

Identification of the problem

There is a shortage of qualified drivers in the logistics sector across Europe. A driver's license for a truck, bus or combination vehicle and the professional competence training required in the field cost a total of thousands of euros. Especially in bigger cities, young people no longer even get a driver's license for a private car. Costs of driving licence and professional competence education have formed an entry barrier to the field on transportation.

Requirements

The national competence requirements describe that the training must include driver's license and professional competence education, in which case the vocational education providers must organise it. This special education must be taken into account nationally in the funding of vocational education providers.

Proudly Professional – LogFest

Organization

Savon Vocational College

Target group

- Recommendations for VET schools with logistic-related studies
- Recommendations for youngsters/society to improve the promotion and attractiveness of logistics as a career option

Description of the recommendation

A small-scale marketing event for improving the attractiveness of logistics profession in the region and development of cooperation between VET schools and companies.

LogFest is a annual requitment event promoting various work opportunities within logistics sector. Regional companies are presenting their services and career oportunitites to the logistics students, e.g.

- Bus, taxi, funeral service cars
- Timber trucks
- Transport of goods
- Crane services
- Warehouse services

Identification of the problem

There is a challenge is to get young people interested in the field of logistics. During the studies the students have opportunities to meet several companies and get a picture of work opportunities. Companies meet potential new drivers and staff.

Identification of the problem

VET school

- Nominated persons taking care of contacting companies
- Premises for the event (outdoors / indoors)
- Quick response to companies' needs
- Cooperation with school's marketing team (social media)

Companies

- Companies are willing to cooperate with the local school
- Contact persons taking care of communication with the local school
- Patience and time (goodwill)

Collaboration with business life

Organization

Skellefteå kommun Vux

Target group

Recommendation for adult vocational training that should meet the skills needs of companies and be attractive to those seeking the training.

Description of the recommendation

Enables students to work while studying

- Enables full-time, part-time studies.
- Enables individual study pace
- Study opportunities during the day and evening
- Provide opportunities for school-based education and distance education
- Develop the content and design of vocational training in collaboration with the industry.

Potential areas to test and develop vocational training exist in many areas, for example:

- Development of short courses and modules.
- APL environments.
- Recruitment, new ways of reaching out to students, collaborating with business around recruitment.
- Competence development for employees, that companies are given the opportunity to fill up with participants if there are empty training places.
- Assignment training.
- Make the profession attractive, open house
- The construction of lab environments
- Combination courses (language courses + professional courses)

Identification of the problem

- Student recruitment
- All helpers must cooperate and help with student recruitment
- New ways of student recruitment (national recruitment, international recruitment.....)



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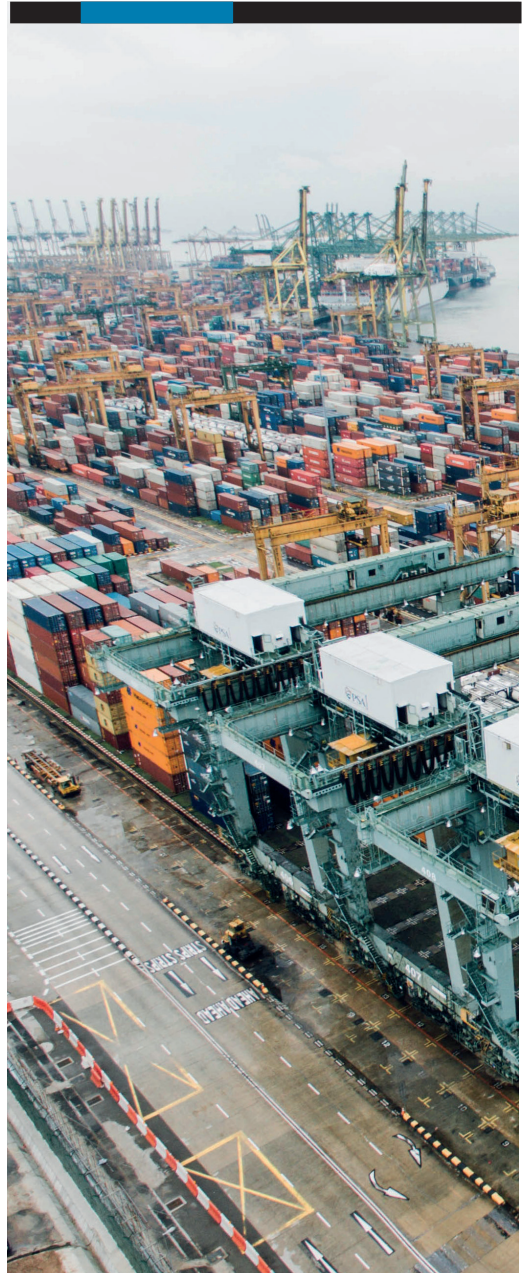
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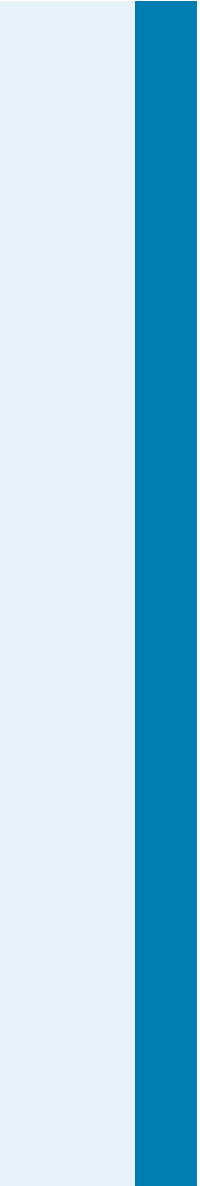
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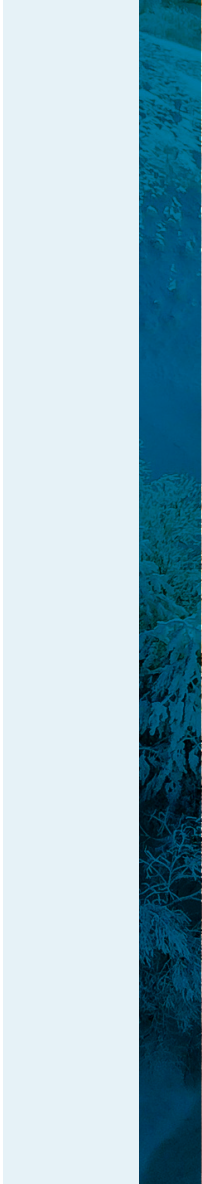
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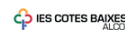


The main aim of the Logistics VET Hub is to build a sustainable strategic partnership based on the cooperation among international logistics and VET experts in Europe to exchange good practices on VET logistics specializations in line with the professional profiles, skills, needs and trends of the logistic sector in Europe. Besides, it contributes with recommendations to address the improvement of quality and innovation of the EU VET systems for logistics field of specialization.

This publication was created by



With the collaboration of:



Co-funded by the Erasmus+ Programme of the European Union

