

SUSTAIN E+

TRAINING

SUSTAIN E+ PROJECT

MODULE N° 6 – TRANSPORT AND MOBILITY



Erasmus+

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1. Introduction to the topic

All European projects, whose purpose is to achieve the best possible cooperation and results, include international or domestic travels. All partners should travel to another country for transnational meetings, multiplier events or Learning, Teaching, and Training Activities. It is considered that; it is very important for the partners to know each other personally and discuss the development and the progress of the project. For this reason, they must travel a lot and it has a significant impact on the environment, especially on international travels where the partners are mainly using the airplane. On the other hand, the appearance of Covid-19 made these travels impossible and taught us to cooperate at a distance, but in the best and most effective ways.

The term "Transport and Mobility" refers to the way travel becomes more sustainable, reducing economic and environmental costs and ensuring social needs. The purpose of this module is to capture the environmental impact of transport, within the framework of the European projects, as well as to provide alternatives and better proposals. The most effective way to mitigate travel is to make the necessary ones in an environmentally friendly way. Of course, travel does not only concern transportation from one country to another but also domestic travel as well as the movement of partners during their accommodation.

This is particularly important because the increased number of transports leads to increased air pollution. There are no projects which have ensured that they are implemented as more environmentally friendly, which makes this project more necessary.

This module contains learning objectives, learning content, and assessment. The learning content includes a chapter on international transfers, a chapter on local commuting, references, and instructions for trainers. Each chapter has practical activities for a better understanding of the theoretical part.

2. Learning objectives

Competencies

In this module, we will develop a set of competencies that are addressed to Transport and Mobility. It is considered a measure of expertise a traveller needs in order to use a transport system. This ability to make informed choices can lead to a more sustainable way of traveling as the organizer is more aware of the impact their actions will have on the environment.

A travel competency is defined as (Sharples, 2010):

- The combination of knowledge, skills, and possessions required in order to use the available modes of transport.
- Trip planning competencies where there is the only information used for the trip schedule and physical possession of a vehicle is not required.
- Trip execution competencies. Those are the physical requirements – ability to drive, cycle, walk; actual possession of a vehicle, skills in using public transport etc.

The competence profile a worker should achieve consists of different aspects and depends on the mode of transportation an individual chooses to use.

Mode	Planning competencies	Execution Competencies
Motorists	<p>Need to be able to plan their route by:</p> <ol style="list-style-type: none"> 1. likely delays 2. likely tolls en route 3. parking options at the destination 	<ol style="list-style-type: none"> 1. personal knowledge 2. following an electronic navigation system 3. ability to drive 4. license to operate a vehicle 5. access to toll payment method

		and credit 6. ability to use additional equipment for the vehicle (e.g., navigation systems)
Bus tram, subway, light rail, passengers	Should have: 1. knowledge of destinations 2. knowledge of available services 3. knowledge of scheduling 4. knowledge of bus stop locations	1. knowledge of fares, concessions, and payment methods 2. ability to indicate a wish to board/alight from the bus 3. ability to obtain and read timetables/ use automated journey planners 4. knowledge of appropriate travelling locations within the vehicles
Flights	Should: 1. have knowledge of the services 2. know about likely delays 3. have knowledge about stopovers	1. ability to indicate a wish to board/alight from the plane 2. knowledge about booking a flight and payment methods 3. knowledge about making check-in and security checks 4. knowledge about having an ID or passport

Skills Acquired

To carry out the act of travelling:

1. We need to both use the basic skills of movement on how:
 - to steer on the road
 - walk or

- and use the brake
2. and the Cognitive skills that help us understand:
 - one's positions static and relative in a space while finding routes,
 - and detecting and foreseeing the movement of others in space (Flamm & Kaufmann, 2006).

Three groups of competencies that comprise the skills dimension of motility that are related to utilizing mobility possibilities are (Flamm & Kaufmann, 2006):

1. The group that involves an individual's physical ability and capacities
2. The skills that are acquired for learning and applying rules and regulations of movement (owning a driving license, knowledge on how to use public transport, or even the knowledge of the different geographical areas.
3. The third group consists of the organizational skills that are helpful for individuals while planning and synchronizing activities; how to decide on which route to take, and the ability to keep up with different schedules or adapt to changes (Viry & Kaufmann, 2015).

How do these skills answer a training need?

The training need that is evident in this topic is the realization that transport and mobility should harbour a sustainable spirit within their implementation. By having the trainers realize the importance of sustainability and how we impact the environment in our everyday work lives we can be sure that they, in their training, will be more empathetic towards the environment and its needs. The trainers by achieving the aforementioned competencies and skills are equipped with the tools to make the new state of sustainability needs more easily understood by the trainees.

3. Learning contents

Chapter 1- Introduction to European Initiatives

1.1. Green Deal

Climate change has a significant impact on weather events, influencing people's lives. Global warming, extreme rainfall, or lack of it, uncontrolled floods, and wildfires, melting ice, rising sea levels, and more acidic seawater will be the results of climate change. Of course, this will have dire consequences for the mass extinction of species and the existence of uninhabitable areas.

At the end of 2019, the Parliament proclaimed a climate emergency, requesting the European Commission to align all its proposals in order to mitigate global warming. In 2020 the European Commission, in order to answer to the ongoing climate crisis, approved the European Green Deal. Essentially, the Green Deal is a set of policy initiatives or a roadmap aiming to achieve the reduction of gas emissions by at least 55 % by 2030 and climate neutrality by 2050. More specifically, it addresses many sectors, including transport, which is described in "Sustainable and Smart Mobility Strategy" and will be analyzed in detail in the next unit. ¹

¹ https://www.europarl.europa.eu/news/en/headlines/society/20200618STO81513/green-deal-key-to-a-climate-neutral-and-sustainable-eu?&at_campaign=20234-Green&at_medium=Google_Ads&at_platform=Search&at_creation=RSA&at_goal=TR_G&at_audience=green%20deal&at_topic=Green_Deal&at_location=GR&gclid=Cj0KCQjwu-KiBhCsARIsAPztUF02gCkfOShIBWfnggvPbuH8e6lI85E6BEw1sQvTp7RQsTAIUIXqhosAApiMEALw_wcB



Figure 1 Climate Crisis (Source: https://www.europarl.europa.eu/news/en/headlines/society/20200618STO81513/green-deal-key-to-a-climate-neutral-and-sustainable-eu?&at_campaign=20234-Green&at_medium=Google_Ads&at_platform=Search&at_creation=RSA&at_goal=TR_G&at_audience=green%20deal&at_topic=Green_Deal&at_location=GR&gclid=Cj0KCQjwu-KiBhCsARIsAPztUF02gCkfOSHIBWfnggvPbuH8e6lI85E6BEw1sQvTp7RQsTAIUIXqhosAApiMEALw_wcB)

1.2. Sustainable and Smart Mobility Strategy

According to the Sustainable and Smart Mobility Strategy², the transport sector covers a high proportion of total EU emissions, and it is a serious challenge to change and become more sustainable. This transformation requires the reduction and mitigation of emissions, widespread availability of all sustainable alternatives, and the creation of the proper incentives. The measures presented in this strategy will succeed in reducing by 90% the emissions generated by this sector.

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>

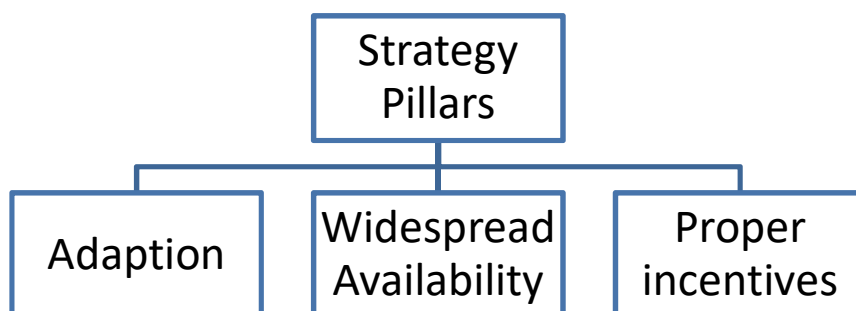


Figure 2: Strategy Pillars

The first pillar of this strategy concerns the encouragement of the use of low or zero-emission vehicles or renewable fuels for all transport. Concerning road transport, some zero-emission solutions have already been developed and electric vehicles have been adopted in people’s lives. Rail transport should be improved and become more electric. Finally, in the case of air and waterborne transport, whose emissions have risen by more than 90 % since 1990, a major effort will also be needed, given that zero-emission technologies have not yet been developed for these means of transport.

The second pillar concerns the availability of the most sustainable alternatives on a wide scale. The adaption of the mobility system is very necessary for the reduction of emissions and transformation. Furthermore, the EU should promote it properly by making it affordable, safe, and competitive. In this way, the people will adopt the use of more sustainable means of transport in their daily lives which will improve and benefit their well-being and health. At the same time, videoconferencing, and teleworking, which people have familiarized themselves with during the Covid-19 pandemic, will facilitate this transition. The massive use of public transport, cycling, and walking will also help to reduce and mitigate pollution.

Finally, the third pillar concerns the creation of the proper incentives that will lead people to choose more sustainable solutions. As mentioned above, the

economic factor, security, and competitiveness play an essential role in this part. At the same time, people need to be properly and fully informed about improvements and innovations related to more sustainable solutions in order to choose them. It is particularly important to be clear that the more sustainable alternatives provided to them are the best choice.

1.3. Best Practices

This chapter aims to introduce you to the European Initiatives. Here are good practices based on this unit:

- Stay up to date on EU strategies and initiatives
- Support Sustainable and Smart Mobility Strategy by proposing more sustainable transport alternatives in your proposal
- Stay up to date on new and innovative sustainable means of transport
- Provide encouragement to partners to use them
- Prefer videoconferencing and teleworking
- Promote the use of sustainable means for both international travel and local commuting during an event or a meeting

1.4. Practical activity

This unit will present three practical activities aimed at putting into practice everything you have learned. It includes a worksheet, one case study, and one exercise.

1.4.1. Worksheet: European Initiatives

Project: SUSTAIN E+

Planning Team: UTH

Management:

Worker engagement:

1. What has been done to make sure workers “buy in” to this project?
2. How many workers will be involved in the project?
3. Will they work: individually? Or in small groups? Or in large groups?

Service components

1. What are the key service objectives for the project?

Learning Components

1. What are the key learning objectives for the project?
2. Will students individually complete the Work-Based Learning Plan, or will the project group be evaluated together?
3. What academic subject area(s) will be tied to the service?
4. What kinds of reflection will be part of the project?

European Initiatives

1. Proposing some European Initiatives.
2. Preparing practical activities for workers.

1.4.2 Case study

Symetra company is located in Washington and is active in the insurance industry. Symetra's senior global travel and merchandise manager, Karen Beauchamp, has undertaken several initiatives related to the sustainability of the company. Regarding business travel, the company has adopted and is promoting video conferencing and virtual meetings, which the company implemented during covid 19. He analyses that face-to-face meetings are many important, but limiting travel should remain the most effective sustainability strategy. ³

1.4.3 Exercise

The exercise covers the theoretical part analysed in this chapter.

³ <https://www.businesstravelnewseurope.com/Sustainable-travel/Case-study-Symetra>

Watch the following two videos on the European Green Deal carefully and write down on a piece of paper what you have learned from them in combination with what you have read in the chapter. This exercise will take half an hour.

1. <https://www.youtube.com/watch?v=nEWiL7A9kIY>

2. <https://www.youtube.com/watch?v=eLlo125YYX8>

Chapter 2- International Travel

2.1. The impact of the international travels

Travel has a serious impact on climate change, which influence the average conditions of the weather. It is caused by oil, natural gas, and coal, which are also used to make transportation. These fuels, when burned, trap the Sun's heat, and lead to global warming.

All European projects require international travel for partners' meetings or LTTAs or multiplier events. The purpose is for the partners, to get to know each other, to better cooperate, and to promote the results of the project in the case of multiplier events, as well as the processing of training. Of course, the appearance of Covid-19 made these movements impossible. So, for two consecutive years since its outbreak, meetings, LTTAs, and multiplier events have been held online.

International travel, in general, is usually done by plane, due to the fact that it is the fastest, most comfortable, and easy transport compared to the other options, but also quite economical. Unfortunately, the environmental cost does not correspond to the prices of flights, although it is the most harmful travel option.

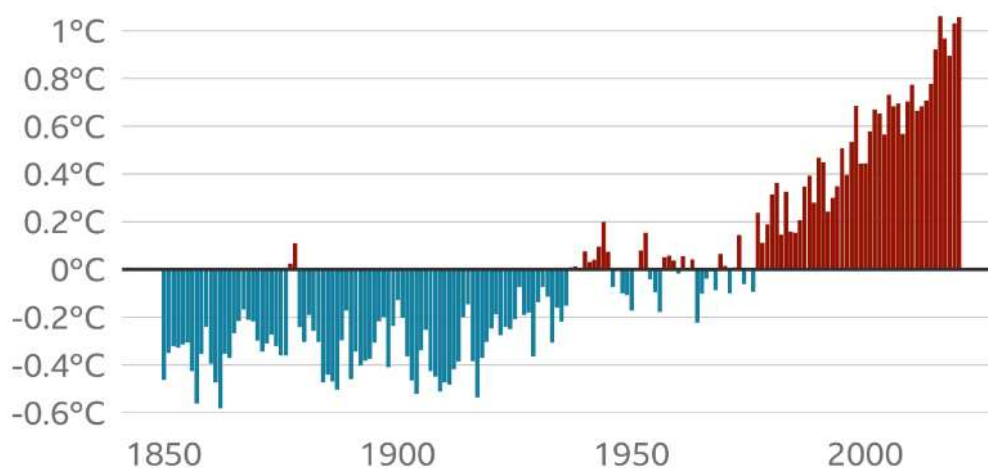
Flights seem to be increasing by 5% every year. Carbon emissions from air transport increased by 75% from 1990 to 2012, and if we continue to ignore the

impacts this rate will rise⁴. For a better understanding of the carbon footprint, imagine that a return flight from Montreal to London emits the same carbon footprint as a year of heating a European home. At the same time, 2022 was a very harmful year for the atmosphere.

The following figure represents the annual mean land and ocean temperature from 1850- 2020. As you can see, from a few years before 2000 the temperature has had a steady upward trend.

The world is getting warmer

Annual mean land and ocean temperature above or below average, 1850 to 2020



Note: Average calculated from 1951 to 1980 data

Source: University of California Berkeley



Figure 3: Annual mean land and ocean temperature (Source: <https://www.bbc.com/news/science-environment-24021772>)

According to the IPCC, if the increase of the temperature exceeds 1.5 C, then there is a possibility of:

- the UK and Europe to face severe flooding
- the Middle East and Australia to overheat and will have extreme dryness

⁴ <https://davidsuzuki.org/living-green/air-travel-climate-change/>

- islands in the Pacific region to disappear from rising sea levels
- the western U.S. and Africa to have severe droughts

According to NOAA Administrator Rick Spinrad "The science is irrefutable: humans are altering our climate in ways that our economy and our infrastructure must adapt to. We can see the impacts of climate change around us every day. The relentless increase of carbon dioxide measured at Mauna Loa is a stark reminder that we need to take urgent, serious steps to become a more Climate Ready Nation».

2.2. Alternatives to flights

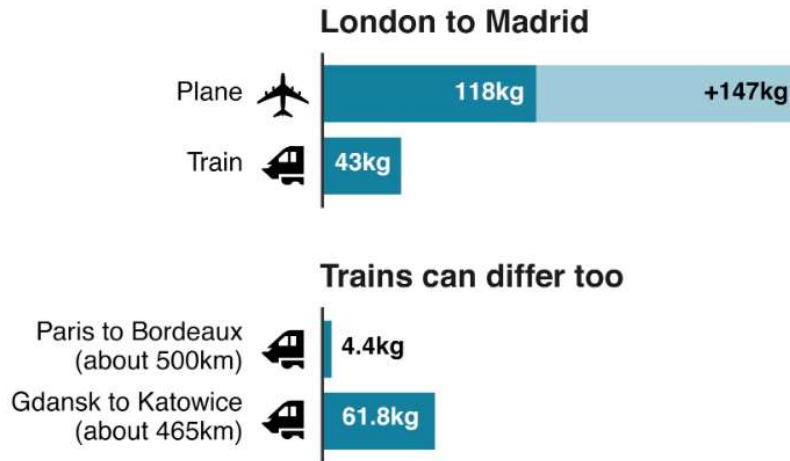
Now that we are aware of the serious consequences that can be caused by travelling by airplane, alternatives should be provided. Certainly, mass transportation is a more sustainable way compared to using a private vehicle, as it creates additional carbon emissions.

The train is a more sustainable option for your transport. Of course, carbon emissions depend on the type of the train, with a diesel train emitting twice rather than an electric one. For example, as you can see in Figure 2, a trip from London to Madrid emits 118 kg of carbon for one passenger, while the train 43 kg, and the plane also creates non-CO₂ emissions. At the same time, a 500 km train route emits 4.4 kg, while another type of train for a 465 km route emits 61.8 kg.

Emissions from different journeys

Emissions per passenger for journey

■ CO2 emissions ■ Secondary effects from high altitude, non-CO2 emissions



Source: EcoPassenger

BBC

Figure 4: Emissions from different journeys (Source: <https://www.bbc.com/news/science-environment-49349566>)

The car is also a better choice than the plane, in case it has more than two passengers. Again, of course, the type of car plays a significant role, and it would be preferable to travel with an electric one. Even an SUV car carrying four passengers emits less carbon than a plane.

The bus is an even better solution than the car as it emits less carbon than the plane and can carry a larger number of passengers. At the same time, ticket prices are quite economical.

In conclusion, considering that a bus has a maximum capacity of 55 people, train 286, car 5, and plane 204, the bus and the train are the best options for a more sustainable trip. Compared to these two means of transport, the train gains from the bus as it emits less carbon and actually burdens less the environment.

2.3. Best practices

The aim of this chapter is to mitigate the air services and carried out in cases, where they are necessary. Here are good practices for your eco-friendlier proposal:

- Schedule online meetings
- Select cities that are not too far from the partners' origin
- Combine different activities in one trip

Moreover, it is very important to adopt some of the following tips. Do not hesitate to share them with project's partners! So:

- Combine meetings or training or events in one trip
- Use Google Travel if you can't avoid the plane. With this tool, you will be able to choose the flight that is convenient for you with the least impact. Google Travel shows you the carbon emissions from each flight.
- Prefer direct flights. The landing and take-off of the plane emit a large percentage of carbon
- Choose a more eco-friendly airline
- Do not always look for the most economical solution, but the one that will not have such a big impact on the environment

- Choose flights with small capacity, so that they are all covered

- Travel in an economy seat rather than business class

- Prefer to travel during the day by plane

- Offset your travel emissions. You can use carbon credits to reduce carbon emissions.

- In nearby destinations, prefer the train or the bus rather than the car and the plane

- Prefer electric public transportation

Even if you choose a more environmentally friendly way to travel, don't forget to behave sustainably during the travel because it also plays an important role. So:

- Avoid printing tickets and use the electronic ticket

- In case you have to use the plane, your packages should be lighter. The heavier the plane is, the more carbon emissions are pumped into the atmosphere

- Use recycling bins during the travel

- Prefer to travel from the local airport, to avoid the extra carbon emissions

2.4. Practical Activity

This unit will present three practical activities aimed at putting into practice everything you have learned. It includes a worksheet, one case study, and one exercise.

2.4.1. Worksheet: International Travels

Project: SUSTAIN E+

Planning Team: UTH

Management:

Worker engagement:

4. What has been done to make sure workers “buy in” to this project?
5. Proposing new ways of sustainable international travelling that are energy cost efficient as well as money efficient.
6. How many workers will be involved in the project?
7. Will they work: individually? Or in small groups? Or in large groups?

Service components

2. What are the key service objectives for the project?

Learning Components

5. What are the key learning objectives for the project?
6. Will students individually complete the Work-Based Learning Plan, or will the project group be evaluated together?
7. What academic subject area(s) will be tied to the service?
8. What kinds of reflection will be part of the project?

International travel

3. Proposing sustainable alternatives to flights.
4. Proposing sustainable practices for international travel.

5. Preparing practical activities for workers.

2.4.2 Case study

Two departments of the U.S. Office of Personnel Management’s Chicago office were able to reduce airline miles by 30%. Especially the Oversight Group, which needs to travel a lot for the appropriate audits and, organise its work through conference calls and webinars. So, they learn to work successfully, using digital tools and reducing carbon emissions.⁵

2.4.3 Exercise

This section will present an exercise aimed at appropriating best practices. It will last 2 hours and concerns a virtual trip.

Suppose that you have to make a trip from your city of residence to another destination abroad. Follow the steps below to complete it.	1. Determine your destination and the days you will need to travel
	2. If you travel by plane, find the greenest flight through Google Travel, and choose the one with the most sustainable features
	3. What did you consider and choose this flight?
	4. If you do not have to travel by plane, which means of transport will you choose?
	5. What did you consider and choose it?
	List both possibilities

Chapter 3- Local Commuting

3.1. The impact of the Local Commuting

Although international travel is of great importance for the smooth development of a project, we should not forget the impact that our everyday local commuting to and from our place of work, has on the environment.

⁵ <https://www.epa.gov/sites/default/files/2015-05/documents/cs4-opm-air-miles.pdf>

Traffic congestion, air pollution, greenhouse gas emissions, and increasing energy and infrastructure costs are only a few of the transportation-related challenges of the twenty-first century (Abdallah κ.ά., 2020).

The EU’s domestic transport emissions increased steadily between 2013 and 2019 because of growth in passenger transport and inland freight volumes (which are closely related to economic growth trends). The emissions then decreased by 13.6% between 2019 and 2020, because of a drastic decrease in transport activity during the COVID-19 pandemic. According to preliminary estimates, emissions increased by 7.7% in 2021, following a rebound effect of the economy. For comparison, in the years following the economic crisis a decade ago, emissions decreased by 1-3% per year.

National projections indicate that Member States expect an increase in transport emissions in the coming years. Without the implementation of additional measures, an increase could be observed until 2025, while the subsequent projected reductions would still leave transport emissions in 2030 around 9% above 1990 levels. If Member States implement the additional measures planned to reduce transport emissions, these would peak in 2022 and be reduced thereafter. With these additional measures, 2030 emissions would reach a level of 6% below 1990 levels. Most planned policies and measures in the transport sector focus on promoting low-carbon fuels or electric cars, as well as encouraging a modal shift to public transport (European Environment Agency, 2022).

3.2. Sustainable alternatives to local commuting

To tackle the local commuting challenges that the workers face every day and consider the green skills and competencies a person should adopt, here are some tips and challenges that could assist us in creating a more sustainable commute.

Practical Activities	Details
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Work Flexible Hours	Shift your work schedule a bit. Go to and leave work earlier or later than the masses. You'll avoid sitting in rush-hour traffic, wasting gas, and emitting harmful CO2.
Share a Ride	Find someone heading your way for your daily commute as well.
Cycling bike/ e-bike	If you live close by a bike is an excellent idea
Join the Remote Workforce	Consider a hybrid remote schedule. Shaving a few days off your commute lowers your environmental impact while maintaining face-to-face interactions.
Green Up Your Errand-Running	Add errands to your commute to work Choose routes that avoid major traffic delays and with few lights or stop signs so you can drive at a steady speed.
Become a Public Transit Pro	try taking the bus, subway, or train to work
Keep Up With Your Car Maintenance	<ul style="list-style-type: none"> • Properly inflated tires • Routine tire rotation • Clean air filters • Extra weight removed from the vehicle • Rooftop cargo carriers removed • Routine oil changes
Drive Smarter to Lower Gas Consumption	According to the EPA, you can impact your commute simply by being a kinder driver. Don't accelerate and decelerate quickly, mind the speed limit. ⁶

3.3. Advantages of sustainable commuting

Behavioral changes can be a powerful instrument to reduce carbon emissions, inefficient modes of transport, and frequency of travel, and they can be achieved without any initial capital investment. Staff engagement incentivisation can include cycle-to-work days, cycling facilities, walking challenges, and greater mileage payment for sustainable modes of transport.

Practices	Advantages
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⁶ <https://www.flexjobs.com/blog/post/15-green-ways-to-commute-to-work/>

Public transport	<ul style="list-style-type: none"> • Monetary relief • Community Health • Improve Fuel Efficiency • Reduces air pollution
Cycling	

3.4. Practical activity

3.4.1. Worksheet:

Project: SUSTAIN E+

Planning Team: UTH

Management:

Key contact person for this project:

Management responsibility: UTH

Target group: Erasmus + workers / trainers

Worker engagement

1. What has been done to make sure workers "buy in" to this project?
2. Proposing new ways of sustainable commuting that are energy cost efficient as well as money efficient.

How many workers will be involved in the project?

Will they work: individually? Or in small groups? Or in large groups?

Service components

1. What are the key service objectives for the project?
 - addressing local commuting issues
 - proposing sustainable alternatives to local commuting
 - preparing practical activities for workers
2. Duration of the project:
3. Where will the work take place?

Learning Objectives of the Project:

- Knowledge of environmental sustainability
- Critical thinking
- Collaboration
- New attitudes towards nature/personal concern for environmental issues

Tasks and timelines

Task	Materials	Deadline	Budget
Commuting issues	1) questionnaire 2) ppt presentation		
Sustainable alternatives to local commuting	ppt presentation and video presentation		
Practical activity	questionnaires ppt presentation implementing alternative local commuting methods ⁷		

Evaluation

1. How will you know whether the project has been successful?

We will be in close contact with the trainers and at the end of the program we will ask for their feedback and see if it is practical.

2. What information do you need to gather before or during the project to assist you with your evaluation?

Questionnaires will be given at the start and the end of the practical activity for the assessment of the knowledge workers have towards local commuting and the environment as well as assessing whether or not the practical activity was successful.

3.4.2. Case study

For the case study, we will use the town of Volos and its Erasmus + workers. The town of Volos is characterized by being medium-sized and by having bus transit,

⁷ <https://davidsuzuki.org/living-green/how-to-green-your-commute/>

train transit, and being quite bike friendly. Although it's a medium-sized town there are a lot of workers that travel from nearby villages for work so every day in the peak hours, there is traffic congestion.

3.4.3. Practical activity

In a similar essence, our own practical activity will be organized around the means of sustainable local commuting.

Day 1	1	Questionnaires will be given to the participants prior to the presentation to find out about their commuting habits and their knowledge of sustainability.
	2	Afterwards, a ppt presentation will take place on the existing modes of local commuting and their alternatives for a more sustainable commute.
	3	A discussion will take place among the participants on how they feel about changing their everyday way of commuting and which way seems the most appealing to them.
Day 2	1	Based on the information collected from the first day, a commuting spreadsheet will be prepared, and based on that the participants are going to choose from the given sustainable means of commuting.
	2	After choosing an alternative mode of commuting (bike, bus, subway, train, carpool), the participants are going to register into apps (provided by EU, or commercial) to track their steps, carbon footprint, and overall health.
	3	A group text message thread, Facebook group, or email list is going to be created, so you can post announcements and share personal wins and insights during the challenge. In this way friendly competition is encouraged among group members, always maintaining a positive and encouraging attitude.
	4	Provide resources to your group by sharing transit schedules, cycling routes, nearby bike-sharing station locations, and carpooling sign-up sheets.
Day 3	1	The participants will be given questionnaires about their experience and whether they prefer it to their previous mode of commuting
	2	Wrap up your event by reporting on participation and, if possible, calculating the reduction in greenhouse gas emissions. Award the most

	committed individuals or groups. Share photos, stories, and successes from the challenge.
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Chapter 4- Training instructions for trainers

The trainers should follow some basic training instructions so that they will be able to make the experience of training and learning easier for both trainers and trainees.

4.1. Exploitation of the practical activities given in the module under the trainer perspective

<p>Target audience</p> <p>Have in mind who is your target audience, It is useful to reflect upon ideal Guidelines for the participant selection that should be based on the:</p>	<p>Authority (decision-making and implementation power)</p> <p>Resources (allocation of human and financial contributions)</p> <p>Expertise (Expertise or Experience, recognized competencies)</p> <p>Information or insight (knowledge of subject details)</p> <p>Need (directly affected by processes or subject outcomes)</p> <p>Diversity: This is an important element that you need to consider when delivering the training. Different learning styles, nationalities, backgrounds, preferences, and educational levels necessitate a need to integrate a diverse training approach that accommodates the different needs.</p>
<p>Assessing the participant's learning needs</p>	<p>Obtain more information on their prior knowledge of sustainability in mobility and transport.</p> <p>Explore what their specific needs and work-related</p>

	challenges are.
	Send a questionnaire to the participants three weeks before the workshop. In this way, you can still adjust your training based on the information you can extract from this questionnaire.
The Learning Objectives, Curriculum, and Workshop Agenda	<p>Introduction to environmental sustainability</p> <ul style="list-style-type: none"> • environmental impacts of transport • what is environmental sustainability • how to integrate it into our everyday lives
Overview of the curriculum and learning activities	<p>Introduction to alternative means of transport.</p> <p>Based on the learning needs analysis and the specific context of the training, the trainer can select specific modules from the training package.</p>
Structure of a Learning Activity	Description of the session in one sentence
Title of the learning session	What will participants be able to do at the end of the session?
The objective of the learning	Which specific training materials do I need for this session?
Learning materials	How much time will this session take?
Timing	
Important Checklists for the trainer	<ul style="list-style-type: none"> • Present/Explain/Make the point: The trainer will present and explain all the different steps of each session (learning objectives, methodology, presentations). The trainer is also asked to elaborate on his or her points with own examples and experiences. • Ask participants. They are experienced and bring along their professional contexts. The trainer asks questions on a regular basis to elicit specific examples from the participants.

- Work in groups. The trainer gives clear instructions when participants have to divide themselves into working groups. The instructions can be found in the different sessions. It is important to clarify the roles of group members and explain the procedure and objective of the session.
- Facilitate group feedback. The trainer asks one group to present their work and the others to add perspectives not already discussed by the first group to spur further thinking and explore the various approaches and perspectives of the different groups, i.e., through comparing the findings of the whole group.
- Display overhead/projector/power-point. It is important to use the visual materials in the TF Implementation Guide and the different presentations that are included in the training package. Have them at your disposal at all times.
- Distribute hand-outs. The trainer will give each participant a handout. Make sure the hand-out is clear, short, readable, and to the point.
- Refer to other material. The trainer will refer participants to additional reading and resources, i.e., specific sections in the TF Guide, website, and additional online resources.⁸

4.2. Other practical activities

Provide further instructions for the trainers to use the practical activity with an indication of the time needed, material, implementation in a classroom or online group activity, assessment criteria with regards to the learning objectives, etc.

4.2.1. Exercise 1

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https://unece.org/fileadmin/DAM/trade/workshop/2018_Kyrgyzstan/TrainingForTrainers_English.pdf

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This exercise can be done for both international travel and local commuting. It will last 2 hours and concerns a swot analysis. It aims to help trainees to recognize the present situation and improve their future behavior. Share the exercise with the trainees and ask them to answer the following questions in the figure.

The questions are:

Strengths

- What are the advantages of behaving eco-friendly in international travel/local commuting?
- What are the available choices that have the lowest environmental impact?

Weaknesses

- What could be improved?
- What should be avoided?

Opportunities

- Which are the good opportunities?

Threats

- What obstacles usually appear?
- What are the partners from other projects doing?
- Are there financial problems?
- Is any of your Weaknesses a real threat to your behavior?



Figure 5: SWOT Analysis

4.2.2. Exercise 2

See with the trainees the following video about “How to reduce your carbon footprint when you fly”. After you see it, discuss about it, and point out the best practices of the module. Which of them do they use?

This exercise will last 2 hours.

<https://www.youtube.com/watch?v= OBD2qNFXpl>

Chapter 2: Practical Activity Questionnaires

Pre- self-evaluation

1. What is your general knowledge about sustainability?

poor	basic	good
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2. What are in your opinion the impacts of local commuting on the environment?

3. What kind of mode do you use for your commute to work?

4. Do you know any sustainable ways of commuting?
5. Are you aware of the impact your choice of commuting has on the environment?

Post – **self-evaluation**

1. Did the training help you understand the impact of local commuting on the environment?
2. Are you willing to incorporate a new sustainable mode in your everyday commuting to work?
3. Which option are you more willing to follow?
 - a) Work Flexible Hours
 - b) Share a Ride
 - c) Cycling bike/ e-bike
 - d) Join the Remote Workforce
 - e) Green Up Your Errand-Running
 - f) Become a Public Transit Pro
 - g) Keep Up with Your Car Maintenance
 - h) Drive Smarter to Lower Gas Consumption
4. Did you find the presentation materials useful?
5. Are you willing to tell others about the advantages of a sustainable commute?

4.3. Tips and examples of best practices to apply this module to your own training activity

• DO	• DON'T
<ul style="list-style-type: none"> • Brainstorming consists in encouraging the participants to come up with ideas so they can solve a problem or answer a question. 	<ul style="list-style-type: none"> • Avoid Childish Setups

- **Brainstorming is quick as participants are encouraged to not think in detail and say whatever first comes to their minds. We aim for quantity and not quality. The ideas will be analysed and discussed later.**
- **When introducing a discussion, make sure that the topic meets one of the learning objectives of the course.**
- **In order to be useful, a discussion needs to be well-structured and focused on the subject.**
- **Start a discussion with one question, and then you can have a series of follow-up questions. While delving deeper into a topic, it is important to maintain focus. For instance, while facilitating the discussion, you can ask probing questions, such as ‘Can you say a little bit more about that?’**
- **It is easier for the better outcome of the presentations to divide participants into small groups and ask them to design a short presentation**
- **Avoid unnecessary movements of the delegates. If moving is important for your exercise, make sure it is for a good reason. Otherwise, you can just give them a break.**
- **Avoid Poor Experiential Learning Tasks**
- **Movement does not automatically make the course experiential. There is much more to it, for example, the mastery of a useful skill through observation, conceptualisation, and active experimentation. See how to apply experiential learning for a comprehensive guide.**
- **Avoid Symbolic and Forgettable Activities**

together and deliver it in front of the class.

- **The presentation can be produced as a result of research, or simply as a result of a short group discussion.**
 - **Problem-solving consists in giving participants a problem to solve such as a scenario that poses a problem, a practical task to solve, a puzzle, or an enigma.**
 - **Case studies consist of practical scenarios, which reflect a real-life situation involving people (it is not necessary to be situations that really happened, but they need to be believable and realistic).**
 - **Rather than being an activity in itself,**
- A training course should be able to help students transfer skills and knowledge into long-term memory. A symbolic gesture should also be practical so it would not be forgotten.
 - Avoid Using Discussion Exercises as a Substitute to Develop Skills
 - A discussion exercises are for delegates to share their ideas about how they approach something, and it is different from skill-building exercises where delegates need to repeatedly go through a task with a feedback loop present that can help them become better at it.
 - Push Them Beyond Their Current Skill Level
 - Just asking students to do an

<p>a case study is something that can be used as material for another activity.</p> <ul style="list-style-type: none"> • In order for a trainer to engage participants, to ask questions. • It is important rather than an idea straight away to your participants, to lead them to that idea by asking questions. It does not matter if they give wrong answers as you will guide them and explain the concept later. • The important thing is that the emphasis is on understanding rather than simply knowing something. 	<p>exercise and then reflect on it is very generic.</p> <ul style="list-style-type: none"> • Cognitive overload • Split up content into manageable chunks. This helps with completion and retention. • A great course should match the attention span and availability of the user. Try to keep courses to a maximum of 15 – 20 minutes.⁹
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Chapter 5 – References/ tools

- Abdallah, M., Tawfik, A. M., Monghasemi, S., Clevenger, C. M., & Adame, B. A. (2020). Developing commute optimization system to minimize negative environmental impacts and time of business commuters. *International Journal of Sustainable Transportation*, 14(2), 101–119.
- Flamm, M., & Kaufmann, V. (2006). Operationalising the concept of motility: A qualitative study. *Mobilities*, 1(2), 167–189.
- Sharples, R. (2010). *Travel competence: A requirement for transport sustainability*. 33rd Australasian Transport Research Forum (ATRF), Canberra. < http://www.patrec.org/web_docs/atrf/papers/2010/1922_198.
- Viry, G., & Kaufmann, V. (2015). *High mobility in Europe: Work and personal life*. Springer.

Links

⁹ www.skillsconverged.com

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789>

<https://www.flexjobs.com/blog/post/15-green-ways-to-commute-to-work/>

<https://davidsuzuki.org/living-green/how-to-green-your-commute/>

<https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport>

<https://davidsuzuki.org/living-green/air-travel-climate-change/>

<https://www.bbc.com/news/science-environment-24021772>

<https://www.noaa.gov/news-release/carbon-dioxide-now-more-than-50-higher-than-pre-industriallevels#:~:text=Carbon%20dioxide%20measured%20at%20NOAA%207s,of%20California%20San%20Diego%20announced>

<https://www.ipcc.ch/report/ar6/wg2/about/factsheets/>

<https://www.bbc.com/news/science-environment-49349566>

<https://www.epa.gov/sites/default/files/2015-05/documents/cs4-opm-air-miles.pdf>

<https://www.businesstravelnewseurope.com/Sustainable-travel/Case-study-Symetra>

https://www.europarl.europa.eu/news/en/headlines/society/20200618STO81513/green-deal-key-to-a-climate-neutral-and-sustainable-eu?&at_campaign=20234Green&at_medium=Google_Ads&at_platform=Search&at_creation=RSA&at_goal=TR_G&at_audience=green%20deal&at_topic=Green_Deal&at_location=GR&gclid=Cj0KQCQjwuKiBhCsARIsAPztUF2HhKocZTicQptUsUKjoV8_UGUOU96nlRpxehc7yyv_9xgXg06fv2kaAiSXEALw_wcB

Module assessment

1. What is the best choice to travel on your next international trip?
 - A. By bus (3 points)
 - B. By Train (4 points)
 - C. By plane (2 points)
 - D. By car, alone (1 point)

2. What is the most environmentally friendly solution for a transnational meeting?
 - A. Online meeting (4 points)
 - B. One-stop air travel (1 point)
 - C. Travel by plane without any stopover (2 points)
 - D. Travel by train (3 points)

3. Circle the correct sentence.
 - A. Concerning road transport, some zero-emission solutions have already been developed (4 points)
 - B. Rail transport does not need improvements (1 point)
 - C. There are zero-emission technologies that have been developed for all means of transport (2 points)
 - D. The EU should promote the mobility system properly by making it affordable and safe (3 points)

4. Which of the following flights from Athens to London would you choose?
 - A. Directly- 128 kg CO₂- €104 (3 points)
 - B. Directly- 127 kg CO₂- 110 € (4 points)
 - C. Directly- 130 kg CO₂- 100 € (2 points)
 - D. Directly- 165kg CO₂- 50€ (1 point)

5. Circle the correct sentence.
 - A. I will not travel internationally to protect the environment (1 point)

- B. I will schedule only online meetings (3 points)
 - C. I will travel environmentally friendly when necessary and online if not (4 points)
 - D. I will only use the bus (2 points)
6. What are the environmental impacts of local commuting?
- A. Traffic congestion (2 points)
 - B. Air pollution, greenhouse gas emissions (3 points)
 - C. None of the above (1 point)
 - D. All of the above (4 points)
7. Which is a more eco-friendly way of commuting to work:
- A. Bus (2 points)
 - B. Car (1 point)
 - C. Car with other 3 persons (3 points)
 - D. Walking (4 points)
8. Which mode of commute is more cost-efficient:
- A. Car (1 point)
 - B. Bus (2 points)
 - C. Train (3 points)
 - D. Bike (4 points)
9. What are the advantages of public transport?
- A. Monetary relief, Reduces air pollution, Community Health (3 points)
 - B. Improve Fuel Efficiency (2 points)
 - C. All of the above (4 points)
 - D. None of the above (1 point)
10. In which way you can make your car more eco friendly
- A. Properly inflated tires, Clean air filters, Routine oil changes (3 points)

- B. Routine tire rotation, Extra weight removed from the vehicle (2 points)
- C. All of the above (4 points)
- D. None of the above (1 point)