OptiTrans

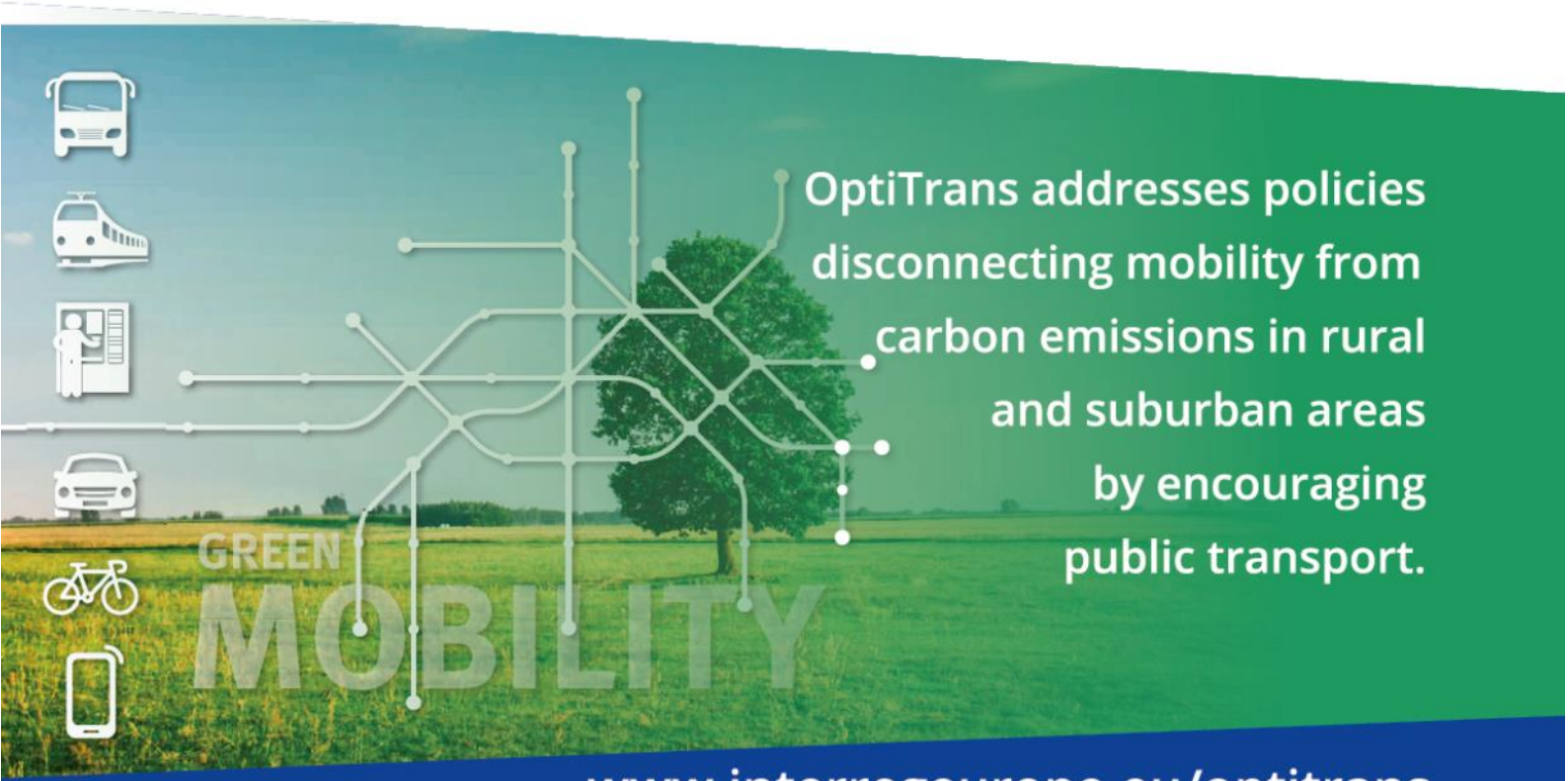
Interreg Europe

Optimization of Public Transport Policies for Green Mobility

Action Plan

HELLENIC REPUBLIC
REGION OF THESSALY

European Union
European Regional
Development Fund



OptiTrans addresses policies disconnecting mobility from carbon emissions in rural and suburban areas by encouraging public transport.

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Sharing solutions for
better regional policies

OptiTrans
Interreg Europe

Region of Thessaly Action Plan

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General information

OptiTrans Action Plan
Project
OptiTrans - Optimisation of Public Transport Policies for Green Mobility
Partner
Region of Thessaly
Country
Greece
NUTS2 Region
Thessaly (EL61)
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Policy context

The Action Plan aims to impact:

☒ Investment for Growth and Jobs programme

☐ European Territorial Cooperation programme

☐ Other regional development policy instrument

Name of the policy instrument addressed: Regional Operational Programme (ROP) of Thessaly 2014-2020

Priority Axis 1: Strengthening the competitiveness and extroversion of enterprises (particularly SMEs), transition to qualitative entrepreneurship, spearheaded with the innovation and growth of Regional Value Added

Thematic Objective 2: Enhancing Access To, and Use and Quality of, Information and Communications Technology

Investment priority 2c: Reinforcement of ICT applications in the field of e-governance, e-learning, e-integration, e-culture and e-health

Relevance (contribution to the policy instrument)

According to the ROP of Thessaly, Investment Priority 2c aims at strengthening the public services of the Region in order to offer high quality services to citizens, businesses and social actors in key developmental sectors. Consequently, the actions for funding have to be relevant with the Specific Objective 1.3.1 of Investment Priority 2c "Categories of ICT services provided by public authorities of the Region". It refers to small scale investments on a regional and / or local level, with the reinforcement of digital infrastructures in the services / organizations of the Region and / or other entities mainly active in the fields of entrepreneurship, research or social support, in order to create the opportunity of networking on the one hand, whilst improving electronic access to these entities by citizens and businesses for their information and service on the other hand. As it will become more evident further down this document, the proposed action entitled "Online platform for public transport travel planning in Thessaly" can be characterised as a high-quality ICT service addressed to citizens and visitors/ tourists.

Details of the action envisaged

The background

The main objective of the OptiTrans project is to increase the modal split share of public transport in suburban and rural areas. To this end, the project corresponds to the following three subobjectives:

1. increase the capacities of 7 public authorities and their subordinated bodies responsible for public transport planning and organisation,
2. adopt action plans to introduce novel approaches improving public policies including public spending priorities (ERDF and national/local resources),
3. contribute to a change of attitude giving way to increased use of public transport and other integrated low-carbon mobility options (emobility and cycling to reach final destinations).

During the first phase of the project (2017-2019), OptiTrans partners were engaged in a three years policy learning process, which included participation of the partners and their stakeholders in thematic workshops, to analyse good practices found elsewhere as well as their local public transport statusquo (baseline studies), and to learn and assist each other through peer reviewing their transport strategies and (ERDF) spending priorities.

The policy improvements that were identified through the learning process are mentioned herein:

- Better integration of different low-carbon transport modes (bicycle/emobility and public transport).
- Better ticketing options (e.g. doortodoor mobility tickets).
- Use of ICT to react in realtime to fluctuating demand (especially bus transport; e.g. flexible routing).
- Timetable integration (between large city networks and suburban surroundings).
- Higher passenger comfort (e.g. onboard WiFi allowing work and leisure online activities while in public transport).
- Promoting a better image of public transport (PR and participation).

The result of the abovementioned process is the development of a plan, per partner, of real actions that can be financed by ERDF funds (or any other type of eligible funds) related to the optimization of public transport and green mobility, with a view to its subsequent real implementation.

The partnership of OptiTrans project consists of the following organizations:

Ministry for Infrastructure and Agriculture of Thuringia (LP), Germany

Baia Mare Metropolitan Area Intercommunity Development Association, Romania

City of Zadar, Croatia

Tartu City Government, Estonia

Region of Thessaly, Greece

Abruzzo Region, Italy

Granada Energy Agency (Granada Provincial Council), Spain

OptiTrans implementation in the Region of Thessaly

Based on the characteristics of the Region of Thessaly (scale of area, topography and morphology, distribution of the area's population, the density of the population, the mobility pattern in the region, the fact that although road, rail, air and sea transport modes are available, only road transport covers the entire region as well as the continuous economic crisis in the country) in relation to the best practices identified and analysed in the framework of the project, the possible future directions towards sustainable mobility and decrease greenhouse gas emissions in reference to passenger transportation can be based on the following:

- Public road and rail transport should be the corner stone on achieving modal shift from private car to other transport modes. For this to achieved, public rural road and rail transport must be performing as complementary transport modes rather than competing each other specifically for the Region of Thessaly. Furthermore, public road and rail transport modes should be linked to each other in terms of integrated ticketing systems and timetables.
- The fact that there are companies providing rural public transport services based and operating at each of the Regional Units leads to a fragmented public road transport system. The current legislation which is rather complicated intensifies this situation.
- A possible solution could be the implementation of e-ticketing for all companies providing public rural transport services. Based on a web tool (platform) developed specifically for the needs of the OptiTrans project the users could have the ability to identify possible routes for their trips by using a multi-modal transport planner considering all kinds of urban public transportation (urban and sub-urban buses and trains), where the user could get alternative routes combining more than one transport modes if necessary. After the users identify and choose their routes, through this web tool the users could have the ability to book their ticket(s) for all transport modes required for their trips from their point of origin to their point of destination inside the territory

of the Region of Thessaly (and in some cases for destinations outside the Region of Thessaly, such as those destinations served by public rural road transport). At the end of this process, the users could either print their ticket(s) or save them at their mobile device through an email (as barcodes or QR codes).

The analysis of the identified best practices revealed that the users of Public Transport rely on real time data in order to organize their movement (departure time, travelling time, available transport modes, transport cost per mode, ticket availability and ways of purchasing, etc.). Several solutions and tools are developed and introduced to the users through applications for smartphones and tablets, as well as online internet services. The results of the implementation of all these solutions and tools are quite promising and by all means interesting.

In the framework of OptiTrans project, although all cases examined during the interregional learning process (thematic workshops and peer review meetings) were interesting, four of them were stood out as most related to the objective of the tool to be developed: a) VTM platform Thuringia, b) My Cicero, Italy, c) Green Your Move, Greece and d) Real time and travel planner mobile application, Tartu.

The economic crisis in Greece over the last ten years resulted, among other things, to the unwillingness by the investors/ stakeholders to take any risks. The policy makers, having the responsibility of managing public funds, are very cautious as the limited funds and the constant increasingly needs of their communities, require to maximize the benefits with the minimum possible cost. Furthermore, the political cost of any decision that might not lead to the expected results is heavily considered performing as an obstacle. The above-mentioned case studies are excellent examples that there are ways to achieve the required results without significant cost. At the same time, acknowledging that the technologies, tools as well as the experience and know-how are available to be used for other cases are helpful in order to eradicate policy makers' doubts or seconds thoughts.

As the proposed action plan for the Region of Thessaly concerns the development of a tool providing the ability to schedule a route regarding points of interest in the region, integrated to a web platform, it was necessary to identify case studies that meet those characteristics. The above-mentioned case studies concern "routing and scheduling" web tools integrated to web platforms, which provide to the users all possible routes between points of origin and destination taking into consideration several parameters. Furthermore, those case studies also provide the ability to the users to purchase on line tickets for the transport means they will have to use along their trip. This is a characteristic that might interest the tool (platform) to be developed in the case of Region of Thessaly in the future. The

architecture of those system in terms of conception and perhaps also in technical terms can be similar and this is important to ensure the successful development of the proposed tool.

The case of achieving modal shift from private car to public transport modes is not an easy task. Especially in those cases that the available transport modes (for several reasons) cannot easily be compared to private car. The flexibility provided by private car on accessing the desired point of destination whenever the user decides is a strong reason not to choose public transport mode. Beyond any measures aiming to strengthen and improve the transport infrastructure (especially the one serving public transport modes) and/ or improve the provided services, the issue of training people to understand the principles of sustainable mobility but most importantly the ways to achieve it, it is considered to be of great importance.

Another issue that has been taken into consideration is the knowledge gained and produced by the Region of Thessaly through the several projects in which participated or was involved (CityMobil2, MyWay, Move On Green, Green Your Move). Furthermore, at the city of Larissa, digital information boards and ticket vending machines have been installed in the most crowded bus stations. Also, commuters, who have smartphones, are able to find the nearest bus stations and be informed about the arrival time of the buses. Moreover, through the application "Build your route" not only citizens but also visitors can move easily and reliably with the city buses in the city. At the city of Trikala, the ITS include digital information boards, which have been installed at all bus stations, information boards, which provide information about parking places and spaces, monitoring system of the municipal vehicle fleet and state – of – the art inductive loops for the study of city's traffic data. At the city of Volos, there are digital information boards and ticket vending machines in the bus stations of the city centre. However, the most significant is that citizens and visitors are able to plan their transports from one point of the city to another through the web application "Volos routes" by combining walking and the use city buses. Finally, at the city of Farkadona, one "smart bus stop" has been created, that offers Wi-Fi connection, operates as routes info-point, tablet and smart-phone charger as well as bicycle parking for those that wish to continue their travel via bus (participating to the CIVITAS Project).

Finally, according to the "Annual Inventory Submission of Greece Under the Convention Kyoto Protocol for Greenhouse And Other Gases for the Years 1990-2017" report published by the Ministry of Environment and Energy of the Hellenic Republic in April 2019, transport share of GHG emission in 2017 was 24.6%. As mentioned in this report "*In total, GHG emissions from transport in 2017 increased by approximately 19% compared to 1990 emissions (from 14.44 Mt CO2 eq in 1990 to 17.24 Mt CO2*

eq in 2017)". The transport sector includes internal aviation, road transportation, railways and internal navigation, while emissions from international marine and aviation bunkers were not included in national totals. Moreover, the contribution of road transport regarding GHG emissions from 83% in 1990 was increased to 86% of total emissions in 2017, as a result of the increase of the vehicles in Greece and the considerable progress in antipollution technology of the vehicles' engines. Specifically, CO_2 emissions produced by the transportation sector were increased by 14,124.14Kt in 1990 to 24,831.54Kt in 2009 and then decreased to 16,903.18Kt in 2017. The fact that the produced CO_2 decreased during the period 2009-2017 can be partially explained by the fact that 2009 was the year that Greece faced the first symptoms of the upcoming economic crisis. It was that year that the annual mileage driven by all vehicles' categories started to decrease according to the abovementioned report and presented in Figure 1.

The necessity of actions to be undertaken is beyond any doubt. The Region of Thessaly has the experience and knowledge on implementing innovative solutions and measures, the climate changes of the last decades, the change occurred in the habits of the passengers and the overall pattern of their movements/ trips (partially based on the economic crisis) and the willingness of the region's authorities to take actions promoting sustainable mobility formed the following described action plan. Therefore, in the frame of OptiTrans the project team of the Region of Thessaly and the External Expert's project team, following the process of the interregional learning through the participation of the Region of Thessaly in the thematic workshops and peer review meetings, developed an action plan customized to the needs of the Region in order to provide solutions for public transport optimization and promotion of green mobility.

Local transport stakeholders' involvement was considered as a crucial part of the process of action plan development. Therefore, a group of practitioners and policy makers of public transport operators and local authorities has been set up in order to define the needs and propose solutions for the promotion of sustainable public transport in the Region. During the local stakeholders meetings, public transport operators, such as urban - intercity bus operators and taxi associations, port authority, municipalities and development agencies, academia, the Managing Authority of ROP and other stakeholders responsible for transport and mobility initiatives worked together with the Region of Thessaly in order to develop the suitable actions within the frame of OptiTrans project.

Description of the action

The proposed action plan is based on the idea of developing an **online platform for public transport planning in Thessaly**. Although the term platform is used, in reality a tool will be developed able to cooperate with platforms which provide routing and scheduling services to the users. It could be added to existing or new such platforms, simplifying the system's architecture and needs. The characteristics of this tool are the following:

- **Single public transport on-demand service**
- **Residents and visitors**. The tool will be addressed to all residents and visitors of the Region of Thessaly as it will be available online through the web. Furthermore, the possibility of developing an application for mobile devices will be examined.
- **Real time information of PT routes and timetables.** The architecture of the proposed tool foresees and incorporates the ability to provide to the user real time information regarding the timetables of the available public transport modes.
- **Search for routes and stops based on user's Location.** The tool will provide the user the ability to search for available routes from the point of origin to the point of destination of his choice. The algorithm that will be used will take into consideration not only the available public transport modes but also to minimize the number of necessary intermediate stops by synchronizing the time tables of the available public transport modes.
- **Proposed routes of touristic and cultural interest of the Region of Thessaly by means of PT.** As part of the previously described, the tool will be using a database (able to be constantly updated) in which all points of interest will be hosted and described. The attributes of these point of interest will be different depending their characteristics. The tool will recognize the points of interest and destination and will present though the platform to the user, routes of touristic, cultural and religious interest inside the territory of the Region of Thessaly. For example, the tool to be developed (and integrated to a platform) can be tested as a pilot action, when ready, through the integration with the existing Tourist Portal of Thessaly as presented in Figure 2.
- **Information about CO_2 emission of the trip in comparison with private car.** The previously mentioned algorithm will incorporate equations that describe the fuel consumption of different types of vehicles and at the same time can calculate CO_2 emissions produced. In this way, the user can be informed not only for the available routes between the points of origin and destination of

his choice using the available public transport modes, but also a comparison of the produced CO_2 emissions among the public transport modes to be used and private car. In this way, the user can practically understand the benefits of choosing to use public transport modes instead of private car.

- **Interoperability with PT operators' Intelligent Transport Systems.** It is necessary**,** critical and crucial the new tool to be designed and developed in such way that interoperability and integration with PT operators' IT Systems will be achievable without significant requirements. IT Systems are used to collect real time data and then be presented to the public using informative tools and solutions (VMS, Telematic at bus stations, real time information through the net, through apps, etc.). Based on the fact that the tool to be developed will integrate with navigating and routing & scheduling platforms, it is absolutely vital to use such information.
- **Website and smart app.** As explained on the above, internet will be the web connecting the users to the tool to be developed and eventually the platform in which it will be added/ hosted. The possible forms of the tool and the platform will be a) website and b) application for mobile devices (smartphones, tablets). In either case, the User Interface (UI) will be designed and developed in a simple but fully functional way, so that users of all ages and level of experience using the internet, will be able to use it without significant problems.
- **Online ticketing.** All PT operators in the region provide online ticketing (e-ticketing) services. For the current Action Plan however, the tool to be developed will investigate (through discussion with the stakeholders) and if agreed will be designed and developed in order to include in its architecture the possibility of unifying those services as one. The objective is to design the tool and ultimately the platform in such way that "One-Stop Shop" services will be provided to the users through a holistic way, as described in the following steps:

    1. Decide point of origin and destination.
    2. Compare the available and proposed routes (taking into consideration all presented information such as time needed, transport modes used, timetables, intermediate stops and waiting times, cost, emissions saved).
    3. Decide the route to use.
    4. Examine the proposed routes regarding points of interest near the points of origin and destination.

5. In case a movement/ trip is chosen compare the alternative routes and decide.
6. Pay and Purchase (PP service) online all tickets required for the movement/ trip.

Players involved

The players (hereafter mentioned as entities) involved in the process of developing the tool proposed are distinguished based on their characteristics but mainly on their contribution in the process and are the following:

- **Supervisor:** Region of Thessaly will be responsible on monitoring the entire process and facilitating all administrative procedures.
- **Technical Support:** The Directorate of Informatics & New Technologies of the Region of Thessaly will be responsible on developing the tool (system architecture) and providing support in all steps of the developing process to other entities.
- **Public Transport Operators:** Public Transport providers in the Region of Thessaly will be responsible on providing the necessary data for the developing process.
- **Associated partners:** This category concerns Research Institutions, Universities and other entities which have developed similar or able for integration tools and platforms and willing to contribute with their knowledge and know-how to the developing process.
- **External:** This category concerns those entities that are not categorized in any of the above mentioned categories and willing to contribute to the process either by providing useful data or by supporting the process based on their experience.

Figure 3 presents a visualization of the scheme to be formed and the way the interfere among them.

Timeframe

The estimated timeframe for the developing process of the proposed tool is 16 months and starts with the publicity of the call for proposal and ends with the platform's full operation.

Prior to the development of the proposed action, a set of preparatory steps is essential for the finalization of the relevant call for funding the action through the ROP of Thessaly. In particular the following actions have to be undertaken:

- Approval of the Action Plan from the JS of Interreg Europe
- Finalization of the Call for the proposed action
- Approval of the proposed action for funding from the Monitoring Committee of the ROP of Thessaly
- Approval of the proposed action from the Ministry of Digital Governance (every action for funding had to be aligned to the strategy "A Digital Agenda for Europe" and to the "National Strategy for Digital Development – Digital Greece 2021")
- Publish of the call for funding from the Managing Authority of ROP of Thessaly
- Region of Thessaly applying for funding
- Approval from the Managing Authority of the funding of the action
- Development of the online platform for public transport planning in Thessaly

Figure 4 presents an estimation of the timeframe (in Gantt timetable) in relation to the stages/ actions to be implemented during the developing process of the proposed tool.

Costs

It is estimated that the cost for designing, data entry, operation and maintenance of the online platform shall not exceed the 100.000,00 Euros in total.

Funding sources

ROP of Thessaly – Investment Priority 2c, while the Beneficiary Organization which will be responsible for the design and operation of the online platform will be the Directorate of Informatics & New Technologies of the Region of Thessaly.

Date: 14.02.2020

Name/ function: KONSTANTINOS AGORASTOS, GOVERNOR OF THE REGION OF THESSALY

Signature/ Stamp:

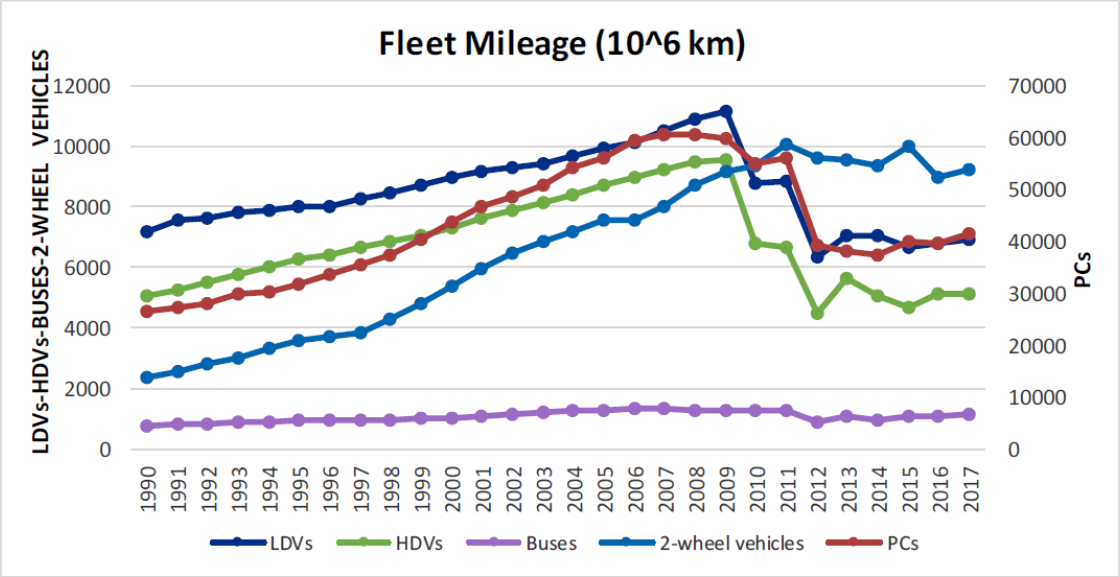

Figure 1. Annual mileage driven by all vehicles categories during the whole time period 1990-2017 (MEE Report, 2019)

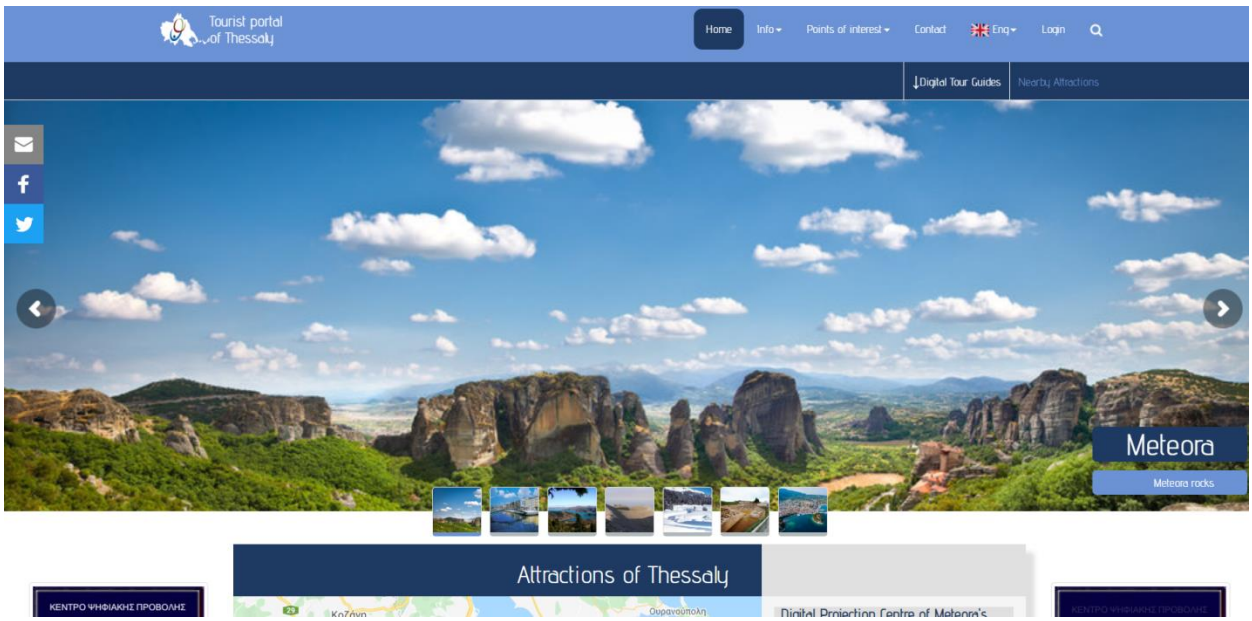

Figure 2. Tourist Portal of Thessaly Home Page (http://gothessaly.com)

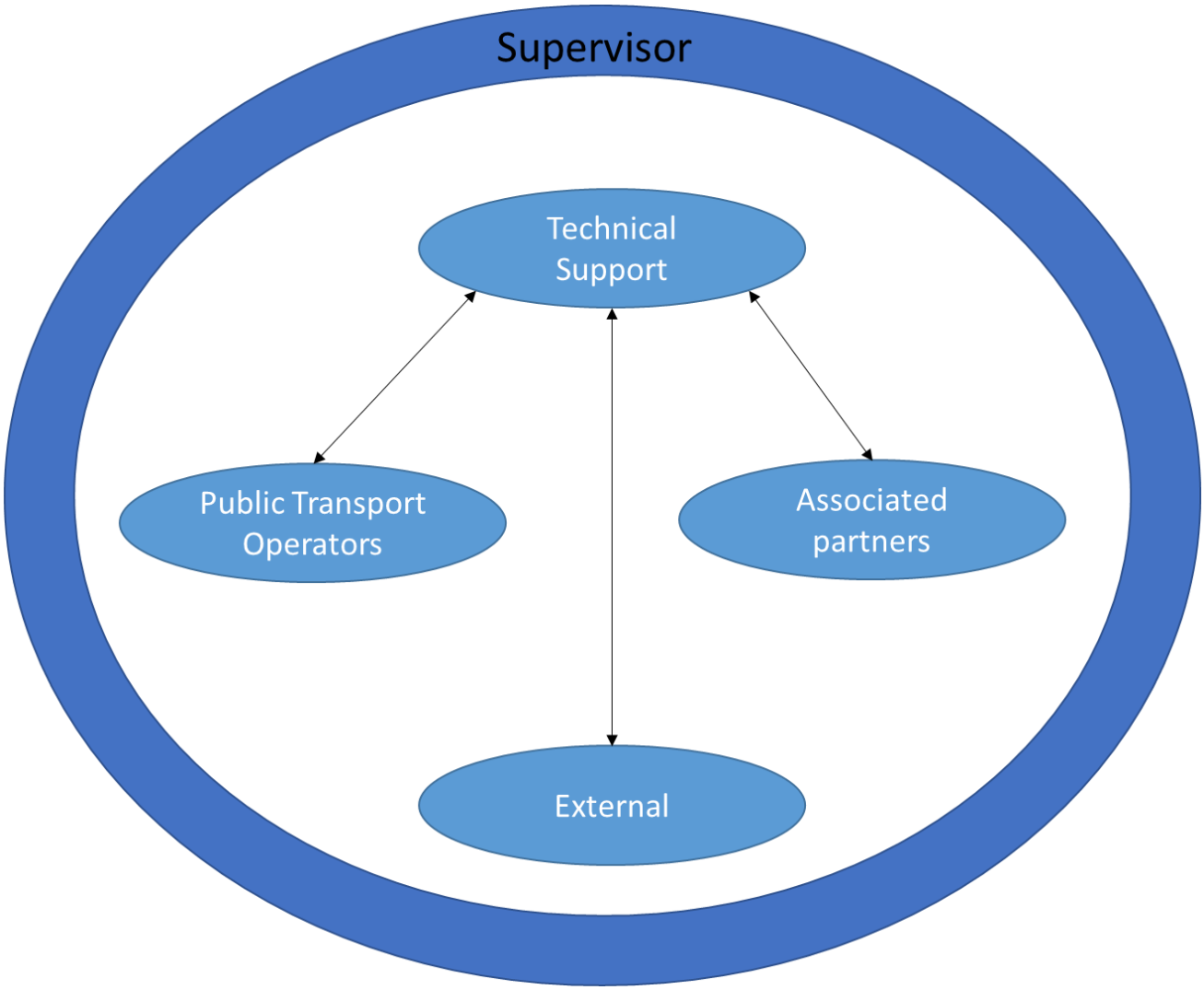

Figure 3. Visualization of the proposed scheme regarding the entities involved in the developing process

Activities	2020												2021											
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
Monitoring of the Action Plan																								
Approval of the Action Plan from the JS of Interreg Europe																								
Finalization of the Call for the proposed action																								
Approval of the action for funding from the ROP of Thessaly Monitoring Committee																								
Approval of the proposed action from the Ministry of Digital Policy																								
Publish of the call for funding from the Managing Authority of ROP of Thessaly																								
Applying for funding																								
Approval from the Managing Authority of the funding of the action																								

Activities	2020												2021											
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12
Development of the online platform for public transport planning in Thessaly																								
Exploration for existing databases describing Point of Interest in the region																								
Open Call to submit information to be included in the new database																								
Open Call to associated partners for commitment																								
Open Call to PT Operators for integration of the required data																								

Figure 4. Online platform Gantt timetable