



# WP.T3 - D.T3.2.7

**SMACKER Enlarged Transfer Programme (ETP).  
Szemud DRT Action Plan.**

**FINAL**



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## 1. Introduction

Remote regions in central Europe share the same risks and issues related to the fact that they are located at the periphery of main transport networks. Inadequate and under-used services, excessive costs, lack of last-mile services and proper intermodality, poor communication and information to users and car commuting are some of the challenges that many central European regions face.

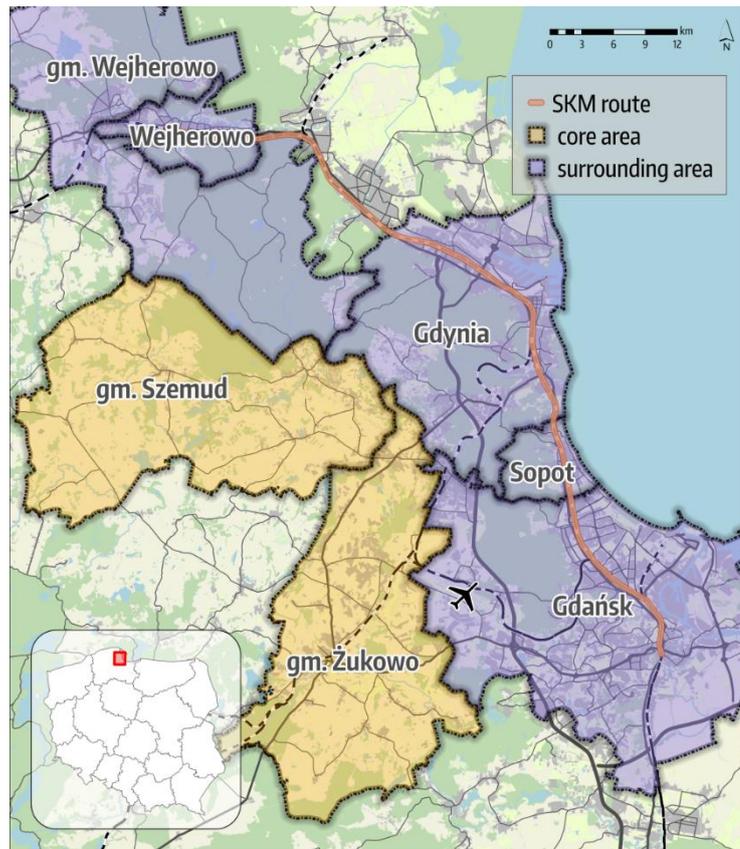
The SMACKER project addresses these disparities and promotes public transport and mobility services that are demand-responsive and that connect local and regional systems to main corridors and transport nodes.

Within SMACKER mobility issues related to peripheral and rural areas, main barriers are assessed and addressed and solutions drawn on the best international know-how are provided. SMACKER promotes demand-responsive transport services to connect local and regional systems to the main transport corridors and nodes. Soft measures (e.g. behaviour change campaigns) and hard measures (e.g. mobility service pilots) are used to identify and promote eco-friendly solutions for public transport in rural and peripheral areas, with the aim of achieving more liveable and sustainable environments and better integration of population to the main corridors.

SMACKER helps local communities to re-design their transport services according to user needs, through a coordinated co-design process between local/regional partners and stakeholders; SMACKER also encourages the use of new transport services through motivating and incentivizing campaigns. The direct beneficiaries of the actions are residents, commuters and tourists.

This report addresses the issue of mobility in the rural gmina (municipality) of Szemud in northern Poland, adjacent to the Tricity consisting of Gdańsk, Gdynia and Sopot, which is lately a subject of intensive urbanization. Previously, a State-of-the-Art document was issued, containing analyses of current urban conditions and problem. In the last part of the SotA report, possible solutions to the area's existing problems through modern transport services and sustainable mobility were described.

As part of the State-of-the-Art report, two gminas, Szemud and Żukowo, were first analysed to see if they should be included in a DRT system. The analyses revealed that both gminas are under intense urban pressure, while gmina Żukowo is served by a well-scheduled railway service and a network of private bus lines. Neither system is a perfect solution, partly because of the poor timetables of the bus lines. Still, they provide public transport for most of the inhabitants, as most of the population lives in localities that are currently served - at least to some extent - by public transport (except the southernmost part of gmina). Buildings in the Żukowo gmina are, however, largely concentrated, and based on main transport corridors, which allows for effective regular bus service - which, of course, requires improvements, but does not require the use of DRT service to serve the area. It is worth noting that the "Kartuzy bypass", a planned railroad which passes through gmina Żukowo and was described in the State-of-the-Art report as "to be brought to life", is already under construction, which will make rail transport more accessible to passengers from gmina Żukowo.



**Map 1. Core area (gminas Szemud and Żukowo) and the surrounding area.**

The analysis of the current situation of Szemud revealed that the urban network is very fragmented and is well served only in the eastern part. At the same time, the rest of the area does not have a functioning public transport network. It is challenging to serve the area efficiently with regular bus services as the buildings are scattered over numerous roads of different types. There is also an idea to construct a new rail link in the next few years, but it would only serve the eastern part of the gmina. Therefore, it was decided to establish a DRT service in the territory of the gmina, as it offers the possibility of varying travel times and routes. This could be a solution to gmina's mobility problems and a way to increase the level of sustainable mobility by improving accessibility to public transport and - as a consequence - reducing car dependency.

This report presents an action plan for introducing a DRT service in the territory of gmina Szemud. It focuses on the main objectives to be achieved and the measures to achieve them. These include adaptation to the needs of the inhabitants, high availability, coverage of a large area and numerous points of interest, inclusiveness, comprehensibility, adequacy of infrastructure, reduction of social exclusion and forced car ownership, integration, reduction of costs and pollution, all with public participation.

Later, a list of stakeholders with their possible responsibilities and commitments was presented. Next, a list of key actions was developed, divided into elements for creating the concept, implementing the project and maintaining it. These actions were then assigned relevant dates for reaching the end of the phases in a time plan, and their risk was assessed. The project's potential risks in organisational, financial, legal or social terms were then evaluated, and ways to mitigate them were identified.

The following chapters address the possible financing of the project, including fundraising at different levels, and identify ways to involve stakeholders in the activities, e.g. through various meetings and workshops and the establishment of a working group, as well as the description of the project launch event. Indicators are also listed to assess the extent to which the project has been successfully implemented,



indicating the current and desired value of the indicators. The document concludes with a section on new findings from the plan.

A key element of the Action Plan is Annex I - Concept of the DRT System - which contains the critical assumptions for how the DRT service will operate, the area covered, the proposed type of service with details of vehicles, staff responsibilities, software specification, etc.

The concept was discussed with the project's primary stakeholders on 9 February 2022. Annex II contains the summary of the meeting and the main discussion points. Annex III is a presentation of the meeting.

## 2. Aims

**Being adapted to the actual needs of residents, with a reliable and tailored timetable, with sufficient trips available at times of real demand.** This applies to both peak hour and off-peak trips, as well as weekend trips. Most localities in the western and southern parts of gmina Szemud do not have an adequate bus timetable during peak hours. A significant percentage of all localities have a negligible number of off-peak and weekend trips.

**Providing access to public transport for as many residents as possible.** The municipality has an extensive road network as it is mainly made up of small villages located on numerous roads and places affected by intensive urban sprawl. As this network is difficult to serve by conventional public transport and many houses are located up to 2 kilometres from the nearest bus stop, the DRT should enable its residents to shorten the distance to the bus stop as much as possible.

**Providing access to major regional centres and facilities.** This should also include major transport hubs (mostly train stations and bus stops that serve as transfer points) and other points of interest that are also outside the core area. Current services provide this inadequately or not at all (especially when it comes to accessibility to train stations or, for example, the municipality's headquarters).

**Enabling access to an understandable service.** This should be achieved thanks to well-organised passenger information, including digital and traditional solutions and well-designed routing. Currently, the timetables and routes of existing lines are highly complicated (with numerous notes next to the journey times). They may be incomprehensible to passengers (different line variants, U-turns, skipping stops, etc.).

**Maximising accessibility.** The service should be accessible to all residents, regardless of their age, digital literacy or disabilities. This includes both suitable vehicles that do not cause accessibility problems and a diverse booking system. It should use both technological possibilities, with bookings via the internet and mobile apps (including vehicle location), but also traditional methods such as phone calls.

**Providing appropriate infrastructure.** Properly marked bus stops should include shelters with timetables and benches, and the pedestrian path to the stop should be comfortable and safe. Currently, bus stops are not well marked, lack basic infrastructure, and the path to them is often not paved or lit.

**Preventing social exclusion.** It is a severe problem in the area today, which can be fought thanks to enabling access to critical services such as health clinics, schools, community centres and service centres, as well as connectivity to a broader public transport network that extends beyond the core area.

**Curbing forced car use.** A reliable bus service could even incentivise regular car drivers to use public transport for their trips, reducing the share of individual car use.

**Providing high level of integration.** The implemented service should be highly integrated within transport hubs with existing bus routes and other modes of transport, especially rail. The integration should be characterised by compatibility with the timetable of other connections as well as compatibility with the infrastructure to enable fast and convenient interchanges. This is a crucial point in the region where there is little integration with the timetable and inconvenient interchanges where the stops of the different modes are even a kilometre apart, even though the route is close to a possible node. The fare should also be



integrated to create an incentive to use the new service if possible. When organising the DRT service, attention should also be paid to integration at the route system level to display it as a viable option alongside its fixed-route counterparts.

**Improving the urban environment.** The vehicles running on the route should also improve the attractiveness and quality of the urban environment by being low-emission and energy-efficient, thus reducing pollution, the greenhouse effect, and the energy consumption of passenger transport.

**Reducing the cost of operation.** The introduction of a DRT service should also reduce the cost of operating or supporting currently inefficient transit lines, including replacing school transport trips, thanks to a service without a fixed route.

**Ensuring public participation.** Residents must be consulted in the design of the service to ensure that it meets their needs and is not under-socialised.

### 3. Stakeholders involved

Specified stakeholders will be involved in the project at different stages. In the starting phase, which was already initiated, engaged were: Szemud Commune Office, Gdynia Independent Department of EU Projects and Mobility Management, Gdynia and Gdańsk City Transport Authorities and Metropolitan Union of Communication of the Gulf of Gdańsk. At the stage of finalising the service concept and preparation for the start of DRT, the Ministry of Infrastructure, Pomeranian Voivodeship Office in Gdańsk, Wejherowo Powiat Council, Gdańsk and Gdynia City Councils, local operators, universities and associations should be engaged. Complete list of proposed stakeholders to involve is presented below, with the responsibilities of each entity:

**Szemud Commune Office** - one of the head stakeholders involved, responsible for the organisation of the whole DRT service, coordination between individual entities and acquisition of funding.

**Gdynia: Independent Department of EU Projects and Mobility Management** - leader of the SMACKER project, responsible for coordinating the introduction of the DRT with guidance from the programme, gaining knowledge from other leaders

**Gdynia City Transport Authority** - current public transport organiser in the gmina, which may be interested in handling the DRT service within the gmina, while at the same time being able to answer what issues it encountered within the multiple years of servicing the area by regular bus lines

**Gdańsk City Transport Authority** - the main public transport organiser in the area of Gdańsk, in which one of the hub stops for DRT will be created.

**Metropolitan Union of Communication of the Gulf of Gdańsk** - responsible for the possible inclusion of the DRT service in the metropolitan tariff

**Ministry of Infrastructure** - engaged in elimination of problematic legal provisions preventing the full operability and development of the DRT system, such as the possibility to create DRT based on service without a fixed route and possibility to stop on the bus stops

**Pomeranian Voivodeship Office in Gdańsk** - obtaining EU funding for the start-up and operation of the DRT service and the vehicles

**Wejherowo Powiat Council** - as the gmina is located at the bottom of the ladder of the administrative hierarchy, the powiat authorities need to approve any resolutions of the gmina.

**Gdańsk City Council and Gdynia City Council** - provision of roads and roadside infrastructure within the cities and possible construction of additional infrastructure, e.g. a loop at the railway station

**PKS Gdynia, Przewozy Autobusowe Gryf, Przewozy Albatros, PKS Gdańsk, PKS w Bytowie, PKS Starogard Gdański** - private transport operators in the gmina or in its vicinity, which may be interested in handling



the DRT service within the gmina, while at the same time PKS Gdynia is able to answer what issues it encountered within the multiple years of servicing the area by regular bus lines

**Gdańsk University's Faculty of Economy, Gdańsk University of Technology's Faculty of Civil and Environmental Engineering** - scientific entities involved in traffic studies before the designation of the area of operation and, after its launch, in effectiveness studies

**Kashubian-Pomeranian Association, Gdańsk Foundation for Social Innovation, Gdańsk Agglomeration Development Forum, Agency of Development of Pomerania, Local Action Group Kashubian Way, Stowarzyszenie Mieszkańcy Bojana i Okolic** - regional and local entities committed within the area of promotion and information of the project, and consultation of the proposed solutions.

Table 1. Stakeholders table.

GROUP	STAKEHOLDERS	KEY ROLE	INVOLVEMENT SO FAR	FUTURE ROLE
local level	Szemud Commune Office	public transport organisator in gmina Szemud	participation in the stakeholder meeting	organisation of DRT service, coordination between individual entities and acquisition of funding
	Gdańsk City Council and Gdynia City Council	provision of roads and roadside infrastructure in cities areas	participation in the stakeholder meeting	possible construction of additional infrastructure
	Gdynia: Independent Department of EU Projects and Mobility Management	coordination of the SMACKER programme	organisation of the project actions and events, participation in the stakeholder meeting	responsible for coordinating the introduction of the DRT with guidance from the SMACKER programme, gaining knowledge from other leaders
regional level	Wejherowo Powiat Council	decision maker on powiat level	not needed to be involved at this stage of project	approval of gmina's resolutions
	Pomeranian Voivodeship Office in Gdańsk	regional EU funds managing authority in Pomeranian voivodeship	not needed to be involved at this stage of project	providing EU funding
national level	Ministry of Infrastructure	national legal regulations provider	not needed to be involved at this stage of project	elimination of problematic legal provisions



GROUP	STAKEHOLDERS	KEY ROLE	INVOLVEMENT SO FAR	FUTURE ROLE
<b>PPT providers</b>	<p>Gdynia City Transport Authority</p> <p>Gdańsk City Transport Authority</p> <p>Metropolitan Union of Communication of the Gulf of Gdańsk</p> <p>Przewozy Autobusowe Gryf, Przewozy Albatros, PKS Gdańsk, PKS w Bytowiu, PKS Starogard Gdański</p> <p>PKS Gdynia</p>	<p>current organizer of city regular lines connecting Szemud and Gdynia</p> <p>current organizer of city regular lines in Gdańsk city area</p> <p>ticket tariff integrator in area of the Gulf of Gdańsk</p> <p>operators of public transport bus lines in area of Gulf of Gdańsk</p> <p>operator of public transport bus lines in area of Gulf of Gdańsk</p>	<p>participation in the stakeholder meeting</p> <p>not needed to be involved at this stage of project</p> <p>participation in the stakeholder meeting</p> <p>not needed to be involved at this stage of project</p> <p>not needed to be involved at this stage of project</p>	<p>may be interested in organisation of the DRT service; information about issues encountered while servicing regular bus lines</p> <p>integration of DRT service with Gdańsk city transport on hub</p> <p>responsible for the possible inclusion of the DRT service in the metropolitan tariff</p> <p>companies may be interested in handling the DRT service within the gmina</p> <p>as above and answering what issues it encountered while servicing regular bus lines in Szemud</p>
<b>higher education and research</b>	<p>Gdańsk University's Faculty of Economy</p> <p>Gdańsk University of Technology's Faculty of Civil and Environmental Engineering</p>	<p>scientist support during creation of the final concept of DRT service</p> <p>scientist support during creation of the final concept of DRT service</p>	<p>participation in the stakeholder meeting</p> <p>participation in the stakeholder meeting</p>	<p>conducting traffic studies and effectiveness studies</p> <p>conducting traffic studies and effectiveness studies</p>
<b>interest groups and NGOs</b>	<p>Kashubian-Pomeranian Association, Gdańsk Foundation for Social Innovation,</p>	<p>regional and local entities</p>	<p>not needed to be involved at this stage of project</p>	<p>consultation of the proposed solutions, support with promotion</p>



GROUP	STAKEHOLDERS	KEY ROLE	INVOLVEMENT SO FAR	FUTURE ROLE
	Gdańsk Agglomeration Development Forum, Agency of Development of Pomerania, Local Action Group Kashubian Way, Stowarzyszenie Mieszkańcy Bojana i Okolic			and information of the project

## 4. Key actions

Review and expansion of the concept for the functioning of the system - Szemud Commune Office in cooperation with Gdynia City Council: Independent Department of EU Projects and Mobility Management, Gdynia and Gdańsk City Transport Authorities and scientific institutions of Faculty of Economy of University of Gdańsk and Faculty of Civil and Environmental Engineering of the Gdańsk University of Technology:

1. conducting an initial demand survey,
2. selection of route(s)/area of operation and stop location (if applicable),
3. deciding on whether a public or a private operator should provide services,
4. analysis of the legal provisions and possibilities for the operation of the service, with consultations and lobbying with the Ministry of Infrastructure,
5. choice of the DRT service operation mode (scheduled or not, demand-responsive transport, stop-to-stop, door-to-door or hybrid between stop-to-stop and door-to-door),
6. consideration of the required infrastructure (involvement of Gdynia City Council and Gdańsk City Council),
7. decision on the specification of the required vehicles,
8. choice of the booking method,
9. description of the software for timetable planning and route selection,
10. determination of the responsibilities of the staff servicing the passengers - drivers and dispatchers,
11. decision on the ticketing system with simultaneous discussions on inclusion in the metropolitan fare system (involvement of Metropolitan Union of Communication of the Gulf of Gdańsk),
12. seeking possibilities of financing the service (with the support of the Pomeranian Voivodeship Office in Gdańsk),
13. marketing strategy and promotion for the operation of the service,
14. conducting several public consultations on the respective steps (with the participation of all interested regional and local bodies, including Kashubian-Pomeranian Association, Gdańsk Foundation for Social Innovation, Gdańsk Agglomeration Development Forum, Agency of Development of Pomerania, Local Action Group Kashubian Way, Stowarzyszenie Mieszkańcy Bojana i Okolic).

Milestone: project approval (crucial role of the Wejherowo Powiat Council).



Implementation of the project - Szemud Commune Office in cooperation with Gdynia City Council: Independent Department of EU Projects and Mobility Management and scientific institutions of Faculty of Economy of the Gdańsk University and Faculty of Civil and Environmental Engineering of the Gdańsk University of Technology:

15. provision of funding (with the support of the Pomeranian Voivodeship Office in Gdańsk),
16. development of infrastructure and information (participation of Gdańsk City Council and Gdańsk City Council),
17. creation of the booking system, schedule planning and route selection software,
18. conducting a tender for the operator and signing of a contract,
19. preparing the vehicles for service (DRT operator),
20. recruitment and training of drivers and dispatchers serving passengers (DRT operator),
21. information campaign on the start-up of the service for residents of the gmina,

Milestone: start of the service.

Functioning of the DRT service:

22. organisation of the day-to-day operation, including the booking system - Szemud Commune Office
23. operation of the service - operator selected in the tender
24. promotion campaign to encourage inhabitants to the use of service,
25. collection of feedback from passengers and residents,

Evaluation of the service - Szemud Commune Office with the participation of educational institutions.

## 5. Implementation time plan

Key actions were put into the schedule of the service implementation and operation (Table 2). The project is divided into three steps: verification and expansion of the concept of the service (lasting three months), implementation of the project (6 months) and service operation (12 months). That's concluding the Pilotage phase, which is ending with the milestone of assessment of the service functioning.

During the assessment period, gmina should decide whether the service met indicators target values and should be sustained or need remodelling and improvement. At that point, another action plan should be created with a new set of goals. If target values are fully met, service should function further with minor changes, according to the gathered feedback from passengers. Source of further funding for the operation of the service should be saved at this step of operation, as DRT systems generally are not self-funding from ticket revenues.

Table 2. Gantt schedule of the project.

#	Month	1	2	3	4	5	6	7	8	9	10-20	21
<b>Stage I: Verification and expansion of the concept of the service</b>												
1	initial demand survey											
2	area of operation											
3	type of operator											
4	law analysis and consultations with the Ministry of Infrastructure											



#	Month	1	2	3	4	5	6	7	8	9	10-20	21
5	choice of operation mode											
6	required infrastructure											
7	specification of vehicles											
8	method of booking											
9	description of software											
10	responsibilities of the staff											
11	ticketing system											
12	possibilities of financing											
13	marketing and promotion strategy											
14	public consultations											
<i>Milestone: Concept approval</i>												
<b>Stage II: Implementation of the project</b>												
15	provision of funding											
16	development of infrastructure											
17	creation of the booking system											
18	conducting a tender for the operator											
19	preparation of vehicles											
20	employment and training of drivers and dispatchers											
21	information campaign											
<i>Milestone: Start of service</i>												
<b>Stage III: Functioning of the DRT service</b>												
22	ongoing organisation											
23	operating the service											
24	promotion campaign											
25	gathering feedback											



#	Month	1	2	3	4	5	6	7	8	9	10-20	21
	<i>Milestone: assessment of the service</i>											

## 6. Risk analysis

The potential risks associated with the project can affect many areas, both at an organisational and financial level and in relation to the public's perception of the service. They can occur at all stages of the system's functioning, from the early stages to risks regarding the maintenance of continuous functionality (Table 3).

Table 3. Risk analysis with mitigation actions

Risk	Likelihood (1-5)	Consequence (1-5)	Mitigation
Insufficient funding to launch the service	3	4	<ul style="list-style-type: none"> <li>Secure funding in advance</li> <li>External funding (e.g. EU funds)</li> <li>Government aid programmes</li> <li>Taking out a loan</li> </ul>
Insufficient funding to continue running the service	2	4	<ul style="list-style-type: none"> <li>Inclusion in financial planning</li> </ul>
No cooperation between municipalities	3	5	<ul style="list-style-type: none"> <li>Commitment of all communes already during concept development</li> <li>Joint meetings of the working team with staff from all participating communes</li> </ul>
Lack of tender applications	1	5	<ul style="list-style-type: none"> <li>Precise description in tender</li> <li>Exchange of experience</li> <li>Invitation of a wide range of operators</li> </ul>
Legal impediments	2	3	<ul style="list-style-type: none"> <li>Legislative analysis</li> <li>Contact with the Ministry of Infrastructure</li> </ul>
No permission to use infrastructure	2	3	<ul style="list-style-type: none"> <li>Maintain contact with infrastructure management</li> </ul>
No will to build infrastructure	4	3	<ul style="list-style-type: none"> <li>Offer to share the costs</li> </ul>
No will to use the service	3	5	<ul style="list-style-type: none"> <li>Well-designed marketing activities</li> <li>Provide various forms of promotion</li> </ul>



			<ul style="list-style-type: none"> <li>Educate passengers</li> </ul>	potential
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The primary and most destructive possible risk is the problem of not gaining enough funds to run the service. This may happen if gmina Szemud would not obtain adequate funds from its budget to organise the service and then launch it. This also considers the risk of not receiving EU funding, which may be necessary to establish such a modern solution in a rural area. The problem may also arise after the launch of the service when in the long run, there is a lack of funds for the operation of the service due to increased spending on other purposes, lack of political will to direct funds to the service or insufficient revenue to the budget, also including cuts for political reasons, recently increasingly frequent in the country due to strong centralising tendencies of the government.

Potential solutions to minimise the risk are securing an adequate level of resources in the budget in advance of the work on the system, finding financial support from external sources such as EU funds, government aid programmes and governmental support for modern solutions in rural areas, or taking out a loan on preferential terms - although this appears to be a last resort. The risk of a lack of downstream funding can be minimised by including the operation of the service in the area's multi-annual financial forecast, ensuring that funds initially allocated to DRT are not reallocated to other purposes.

An essential organisational risk is the lack of cooperation between municipalities, especially Szemud, Gdynia and Gdańsk communes. Each of them is critical for DRT to start working. Residents of Szemud using the service frequently travel to Gdynia and Gdańsk. These journeys are covered by transit hubs located outside of gmina, allowing residents to switch on buses and trolleybus or trains. To mitigate the risk of no cooperation, all communes are engaged starting from the concept development stage and in joint meetings of the working team, including employees of all involved communes.

Another organisational risk could be the lack of tender applications. This is a relatively new technical solution in Poland, and operators, having no experience in this field and not knowing whether running such a service will not be problematic for them, and above all - whether it will be profitable for them, may not want to take part in a tender for the operation of DRT lines. A solution may be to describe the subject of the tender as accurately and clearly as possible when announcing it, also describing previous experience with DRT at home and abroad (current organisers and operators from other cities may also be asked to provide information to encourage new operators) and to invite a wide range of potential operators to participate, while providing detailed information on how the system will work, what the operator's role will be and how it can result in a profit.

Current law concerning public transport in Poland poses a risk for creating a DRT system. The obsolete Public Transport Act, which is also responsible for a modest budget for public transport in rural areas, is also not adapted to modern solutions such as DRT service. It does not allow providing regular public transport services with no regular timetable or route, thus forcing the DRT to be treated by the law, not by "occasional transport", which allows no need to develop regular timetables and allows for the use of "dynamic stops". Such "occasional transport" is not well-described in law and may cause various troubles in implementation. Thus, the implementation should be preceded by an appropriate legislative analysis as the provisions are not explicit - preferably with the participation of the Ministry of Infrastructure.

If the potential route passes through land that extends beyond the gmina, there is a risk of not obtaining permission to use the infrastructure. Therefore, it is essential to discuss this as early as possible, even before the service area is decided, as there is a good chance that the infrastructure of Gdansk or Gdynia will be needed. Infrastructure managers of cities outside the gmina may also be reluctant to build new infrastructure for DRT service, such as a terminal loop at a railway station, in the area of their governance. In such a case, it is advisable to offer participation in construction or land purchase costs.

Another area where risks may arise is in the use of the service by residents. They may be reluctant to use a service that is entirely unknown and incomprehensible or too complicated for them. The service needs to be explained as clearly and simply as possible to encourage residents to try the new service. At the same



time, it is vital to promote the service as widely as possible so that people know how the service works and what they can gain from it - access to service centres, interchanges etc. In addition, it is crucial to ensure that the booking process is as easy to understand as possible and accessible to all age groups. Educational measures can also overcome the reluctance to use a new mode of transport. Residents who have been entirely forgotten by those responsible for public transport for many years are also strongly accustomed to individual means of transport, above all the car. They should be encouraged to change to DRT in various ways, emphasising its advantages - price, speed or the convenience of multimodal connections, through strong promotional actions.

## 7. Funding resources

Szemud's current budget on the side of expenses is €28,500,000. All expenditure on transport is covered by €6,650,000 (23% of the budget), divided between local public transport - €216,000 (0.8% of the budget), county public roads - €950,000 (3% of the budget) and commune public roads - €5,500,000 (19% of the budget).<sup>1</sup>

The costs of the service are composed of OPEX and CAPEX parts. On the CAPEX side, there are all the investments necessary for introducing the service (mainly infrastructure works - new bus stops, the creation of new workplaces for dispatchers and the installation of a particular system). On the OPEX side are the costs of running the service (ongoing monthly costs for staff and vehicle maintenance plus variable costs for each kilometre travelled by the DRT vehicles). The basic calculation of the costs is given in Table 4. The total cost for one vehicle kilometre of the DRT service is predicted as €2.1 (including fixed and variable expenses for 9000 km of service per month).

\* amounts originally in Polish zloty (PLN), converted to euro at the rate €1 = 4.63 PLN current as of 06/04/2022.

**Table 4. Costs of DRT implementation and functioning**

CAPEX			
Element	Value per unit [€/unit]	Number of units	Total [€]
Bus stop placement (stop-to-stop variant)	540	27	14,580
Designation of parking spots on transit hubs	540	3	1,620
Creating dispatchers' workplace	10,800	1	10,800
DRT programme, website and mobile application	43,200	1	43,200
Marketing and promotion campaign	5,400	1	5,400
<b>SUM OF CAPEX</b>			<b>75,600</b>

<sup>1</sup> Gmina Szemud Budget for 2022 year, Resolution number XXX/449/2021 of Gmina Szemud Council from 30.12.2021



OPEX (monthly and annually)			
Element	Value per unit [€/unit]	Number of units	Total [€]
Working time of staff [h]	6.5	Hours: 30 (days) x 3 (2 drivers + dispatcher) x 18 (h per day) = 1620 h	10,530
Vehicle maintenance [daily]	43	2x 30 days = 60 units	2,580
Vehicles mileage [km]	€0.7/km	30 (days) x 300 km (per day) = 9000 km	6,300
SUM OF OPEX MONTHLY [€]			19,410
SUM OF OPEX ANNUALLY [€]			232,920

Possible sources of funding for the operation of the DRT service could be:

- the municipal budget for public transport - there is little funding for public transport (3% of transport budget of the gmina) and a complete imbalance with investments in road infrastructure (97% of transport budget of the gmina),
- DRT service revenue - tickets could cover an estimated 20-25% of operating costs,
- EU funds (National level: European Funds for Infrastructure, Climate, Environment 2021-2027; Voivodeship level: Regional Operational Programme - in West Pomeranian Voivodeship it is provided through Operation 7.6. Support for the Development of Social Services of General Interest) - a potential source of funds for CAPEX expenditure: Placement of bus stops, creation of jobs for dispatchers, DRT programme, website and mobile application, marketing and promotion campaign and purchase of special vehicles for the operator,
- Subsidies from the national and regional government (Rural Development Programme, Bus Routes Development Fund (FRPA) - but this instrument is just for regular bus routes and its maximum application budget in Pomeranian Voivodeship has already been reached, so it would be tough to cover the operation of the service from this fund),
- Local Action Group - Kaszubska Droga.

## 8. Key action monitoring schemes

An essential part of the service implementation is monitoring the indicators that show the results of the ongoing DRT. For each of them, the current and target values are given (or must be presented at the concept design stage). The leading indicators are the number of public transport operating hours, the average number of seat kilometres and the number of public transport users. The share of public transport users and car users in total users should also be monitored, as well as the coverage of the network, the percentage of residents with access to public transport within a 500 m radius of the stop, and parameters related to the



fleet and the performance of the service in marketing campaigns. The Key Performance Indicators (KPIs) are listed in Table 5.

**Table 5. Key Performance Indicators (KPIs) are divided into must-have and nice-to-have.**

KPI GENERAL CATEGORY	INDICATORS	CURRENT VALUE	TARGET VALUE
<b>Must-have-KPIs</b>			
Quality of public transport/ DRT	<input type="checkbox"/> Average number of public transport operating hours per day	0-17	18
	<input type="checkbox"/> Average number of seat kilometres offered per day	0	3600
Usage of supply in the course of the pilot action	<input type="checkbox"/> Number of public transport users	0	160
<b>Nice-to-have-KPIs</b>			
Share of different mode users	<input type="checkbox"/> Share of public transport users in overall transport users	15.6%	25%
	<input type="checkbox"/> Share of car users in overall transport users	74.2%	65%
Accessibility	<input type="checkbox"/> Range of network	0 km	176.0 km (all roads owned by the government)
	<input type="checkbox"/> Share of residents accessed within 500 metres of public transport stop (stop-to-stop variant)	54.1%	74.3% (500m buffer around those stops)
	<input type="checkbox"/> Share of residents accessed by public transport within 500 metres of DRT corridor (door-to-door variant)	54.1%	95.7% (500m buffer around those roads)
Environmental issues	<input type="checkbox"/> Number of CO <sub>2</sub> friendly vehicles in the fleet	0	2
DRT lines and booking	<input type="checkbox"/> Number of new on-demand lines	0	1 (network of corridors)
	<input type="checkbox"/> Number of available booking options for DRT	0	3
Marketing strategy	<input type="checkbox"/> Number of likes on social media	0	3 000
	<input type="checkbox"/> Number of clicks on webpages which provide information on public transport	0	15 000



	<input type="checkbox"/> Number of distributed leaflets	0	5 500
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## 9. Key stakeholders' involvement strategies

Before any actions are implemented, a meeting was organised with the participation of the Gdynia Commune Office and the Szemud Commune Office to discuss how to develop the final SMACKER Action Plan and what opportunities for cooperation exist. The conclusions of the meeting are attached to the Action Plan in the form of annexes II and III. The panel identified the initial challenges associated with launching a service. In many cases, consensus still needs to be reached (who will be the service organiser how key stakeholders will be involved in the project) to follow subsequent actions.

First of all, a Memorandum of Understanding should be signed by Commune of Szemud, the Voivodeship Office and the Gdynia City Council: Independent Department for EU Projects and Mobility Management, educational institutions and if possible, the Ministry of Infrastructure, to jointly develop the best possible detailed action plan at the beginning of the process and to remove as many discrepancies as possible.

After that, the project team should be formed, consisting of decision-makers and other stakeholders or institutions with knowledge on the subject. Stakeholders should then be involved through numerous meetings on various key actions in the form of round tables, discussions and workshops (e.g. service design workshops) to create a final shape of the service, preferably held weekly, to sum up, what has been achieved so far and outline plans for the next future. All stakeholders who have an influence on the delivery of a particular key action point should attend such meetings - these include sessions on traffic studies and how they should be carried out, the mobility needs of the area, how the service might be funded, how the service should be operated, infrastructure, booking methods, choice of operator, etc.

As mentioned above, public consultations should be held to constantly involve the community, as the residents will be the product's end-users. These should include consultations during the development of the product and before its launch and further consultations during its operation.

## 10. Conclusions

Introducing a DRT system in gmina Szemud could have a tangible impact by providing residents with access to efficient public transport and reducing car dependency. The DRT system would provide access to the most important destinations within the gmina and the nodes with access to the Tricity. A more comprehensive concept of how the solution could be implemented and how it would subsequently work has additionally been included in Annex I.

However, setting up such a service would be a pioneering effort on a national scale and would also involve significant risks, as the risk analysis shows. Mitigation measures need to be taken on several fronts to reduce these risks. This requires the cooperation of many stakeholders at different levels - from gmina Szemud itself to the residents, public transport organisers and operators, authorities, research departments, NGOs and the Ministry of Infrastructure. Stakeholders are involved in various ways - project team meetings, discussions, workshops, etc. to maximise the opportunity to share experiences and introduce the most profitable solution. One meeting has already taken place and has produced important conclusions for the project, as described in Annex II.

Based on the resulting list of key activities, creating an appropriate division of responsibilities for each stakeholder and based on an implementation plan, it seems possible to implement the solution. The implementation of the service is to be divided into three phases: development of the functional mechanism (including funding), implementation, and operation together with evaluation (through appropriately selected indicators) - planned for a total of 21 months. The expenses for setting up and operating the service



are considerable at the municipal level. Still, due to the innovative nature of the solution, funding may well be sought at the European, national and regional levels.

In conclusion, it is considered reasonable to introduce a DRT solution in gmina Szemud, despite specific difficulties associated with the measures. The innovative DRT service can solve many of the gmina's problems, including social exclusion. An adequately introduced and maintained pioneer solution can become a model solution that other administrative units can implement in the country.

## 11. Annexes

Annex 1. Concept of the DRT system

Annex 2. Report from the meeting of key stakeholders

Annex 3. Presentation from the meeting of key stakeholders