PROJECT HANDBOOK

Parking gets SMART

Parking gets SMART

CONTAINING SOFTWARE TOOLS APPLICABLE IN PARKING MANAGEMENT AND PILOT IMPLEMENTATION OF PARKING MANAGEMENT SOLUTIONS BY THE PARTICIPATING MUNICIPALITIES

"PARKING GETS SMART – IMPROVED & DIGITALIZED PARKING MANAGEMENT AS TOOL TO FOSTER GREEN AND MULTIMODAL TRANSPORT IN THE SOUTH BALTIC AREA"
Co-financed from european regional development fund

December 2022

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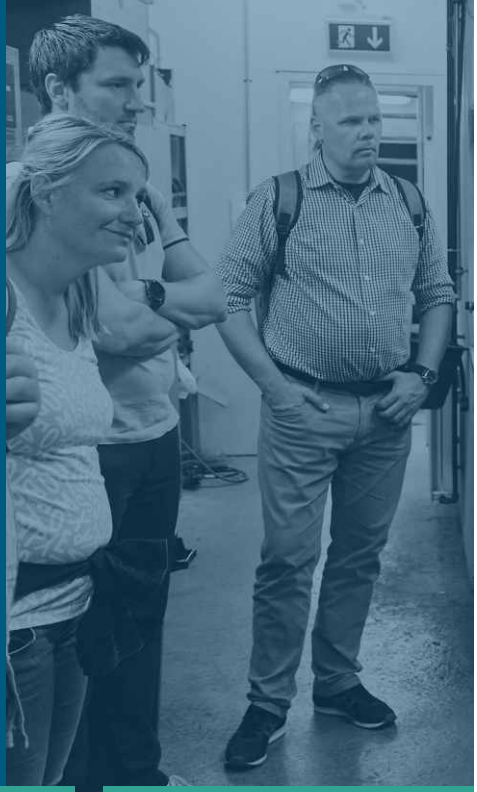
SOFTWARE TOOLS APPLICABLE IN PARKING MANAGEMENT

1

Set of model strategies for digital parking management

1.1

Throughout the project PICTEC team conducted a series of market analyses in the subject of digital parking management solutions taking into consideration technological and various strategic approaches applied by model municipalities from all over the world. Published reports focused on three different aspects, according to the stage of the project: data-driven parking management, route planning, and push and pull measures.



2019

Market overview on Smart Parking Management

Key role of the smart parking management is to reduce traffic and improve commuting conditions of inhabitants through a complex set of tools and activities based on technological and social innovation. It ranges from determining the optimal parking places (e.g. near public transport stops and stations), through automated parking management (e.g. charging fees and detecting violations), down to parking data collection and analysis, as well as promotion of certain behaviours through e.g. dynamic pricing.

Currently digitalisation and advanced ICT create a new wave of innovative solutions for parking management. Although some of them are already becoming mainstream for some regions (e.g. payment apps), others are still in the development phase (e.g. real-time parking guidance apps).

The document presents different types and categories of parking datahubs with a comparison of advantages and disadvantages of each.

2021

Market overview of Multimodal Journey Planners

The transport system's efficiency determines the efficiency of the city itself, therefore municipalities find it crucial to always improve and optimise private and public transportation services. They move toward smart transportation system to incentivize city residents and visitors to switch from private to public transport. While there are many elements of the transportation system that cities have to consider when improving their sustainability, this review focuses solely on Mobility as a Service (MaaS) solutions, namely multi-modal trip planners.

MaaS solutions offer travellers various mobility options, based on their needs, requirements and current resources. They integrate such functions like trip planning, booking and payments. They usually also offer commuters one interface for multiple modes of transport, such as train, bus, taxi, ridesharing, bicycle-sharing, etc., without the need of switching between different app providers.

The document presents different types of available solutions with a suggestions for municipalities willing to implement them.

2022

International markets overview of push&pull measures

A number of municipalities are currently facing an immense challenge of reducing the number of private cars in favour of more sustainable and efficient modes of transport. In order to bring about such a change, push and pull measures should be used. Push measures are intended to make cars less attractive in a direct manner, while pull measures are associated with a positive effect. They are focused on introducing alternative means of individual transport, such as bicycles, scooters, carsharing and collective transport, and making them more convenient, faster and trendy.

This document describes different types of push and pull measures, along with model municipalities and details, such as: when a given method makes sense to be implemented, what problems can be expected during its' implementation and what effects a given solution brings.

Open source tools for digital processing & sharing of “open parking data”

1.2

PgS Data Hub (backed) as a generic model parking data hub

PgS-data-hub (https://github.com/PgS-Toolbox/pgs-data-hub) is a generic version of Parkkihubi (https://github.com/City-of-Helsinki/parkkihubi), which is a Django-based REST API for processing parking data with PostgreSQL database for storing parking information and React dashboard for monitoring purposes. Parkkhubi was chosen as a backbone for pgs-data-hub because it follows open source and open data principles and its core allows public distribution of the anonymized real-time data.

Certain changes were made to the original Parkkihubi, to allow easier deployment of the hub for other cities. All of the aforementioned three parts of the Parkkihubi were dockerized and modified to be all-in-one customizable. Input format for geospatial data was unified to GeoJSON and it is possible to get it from local storage or from external resources. Configuration of the email box for sending authorization keys and other hardcoded settings were parametrized to allow easier configuration.

Data hub API was also adapted to the APDS data standard, which was chosen as a core for its parking data standard by DATEX II community. Without changing the data model of the original Parkkihubi, PICTEC team implemented endpoints for exposing and interpreting data in the APDS standard for appropriate objects.

PgS Multimodal Widget (Frontend) Journey planning and live parking information

PgS-Widget was created as an open-source tool to easily access any public transportation data and PgS-Widget (https://github.com/PgS-Toolbox/pgs-widget) is a journey planner based on react and javascript.

Easy access to communication data

It allows displaying static and dynamic information about city public transportation. Supported static data include the location of: parking lots, bike parking racks, bus/tram/train stops and points of interest. Application displays parking occupation and departures information in a dynamic manner. Additionally, users can be guided to a chosen parking spot or other facility.

Works standalone

It is intended to be used by the cities along with PgS-data-hub, or as an out of the box solution leveraging open street maps and overpass API. It is a “three in one” aggregate of spatial data. Widget is designed to primarily cooperate with PgS-data-hub, but also uses open sources to access missing data. It was designed with the intention to extend it with data available in particular cities in mind.

Simplicity in adding new data sources

(not only PgS data hub)

Widget fetches data in a centralised manner. Programmers need to edit only one file to use dedicated data sources. PgS-widget-Gdansk, that is a fork of the original repository, can be used as an example of such implementation. Moreover, a step by step instruction in the code repository is available.

Responsive website

PgS-widget is adjusted to be used on PC, tablet and mobile devices.

Source code can be found in the repository

https://github.com/PgS-Toolbox/pgs-widget

https://github.com/PgS-Toolbox/pgs-widget-gdansk

PILOT

IMPLEMENTATION OF PARKING MANAGEMENT SOLUTIONS BY THE PARTICIPATING MUNICIPALITIES

2

Introduction to “push and pull policy” measures of urban parking management

Parking management methods applied within a larger framework of sustainable urban transport system policies can be classified according to their restrictiveness.

In the Netherlands the push and pull policies are considered as “acid and honey”: the word push is reserved for measures which are intended to charge the car users with at least part of external costs generated by their transport choices, while the word pull is reserved for measures intended to improve the conditions and – indirectly – the level of utilization of sustainable transport modes, such as, first of all, walking, cycling and public transport or their combinations.

Todd Litman, the chairman of the Victoria Transport Policy Institute (www.vtpi.org) has identified the following levels of development of comprehensible urban transport development policies: Transit Oriented Development (TOD) and the Transport Demand Management (TDM).

Transit Oriented Development suggests the integration of spatial development policy of a city with the policy of development of its transport system. The agglomeration is developed around public transit hubs, i.e. stations of local rapid transit lines (usually rapid rail mass transit lines built either on the ground, on elevated platforms or underground), but restrictive parking policy for car users is not stressed. Sometimes, at peripheral stations of rapid transit lines park and ride facilities are built, where car parking is free for the users of seasonal rapid transit ticket holders.

Transport Demand Management suggests the application of TOD principles, but accompanied with clearer and more strictly applied measures aimed at the restriction of car usage, particularly in city centers.

Parking policy measures and reasons for their implementation. Parking policy measures may be used to internalize the costs of driving and/or to influence the transport behaviour of (mainly urban) residents.

If variable message boards are installed to inform the drivers about the availability of parking places at critical destinations (where the demand for parking places usually exceeds their supply) they actually reduce the cost borne by car users and do not induce them to rethink the rationality of their transport behaviour.

The costs of their installation should be borne by people, who decide to drive and park their cars at managed car parking lots while the revenue generated from the introduction of paid parking zones should be used to cover the costs of promotion of sustainable transport modes, in particular walking and cycling. Public transport can only function effectively if the city assures comfort and safety of pedestrian and cycling traffic, since the latter modes enable to reach the public transport stops comfortably and safely.

2.1

Measure title:

Parking gets smarter with SUMP: sustainable urban mobility planning

Countries:

Germany

City:

Free Hanseatic City of Bremen

All European cities face a similar dilemma: more and ever-bigger cars are consuming more and more space. The average car is in use less than one hour a day[1], thus parked most of the time. This demand for space causes problems as street space is very limited and needs to serve a wide range of functions. It is transport space for all road users, storage space for various vehicles, social space for residents to interact, for children to play, space for economic functions – from street cafés to market stalls. And of course there are also ecological functions which are becoming more important with the impacts of climate change and the need for climate adaptation.

[1] See also https://www.reinventingparking.org/2013/02/cars-are-parked-95-of-time-lets-check.html

Multifunctional street space:

- Transport functions::
  - walking, cycling, cars, buses, freight
  - Parking of bicycles, cars, e-scooters etc.
- Communication and business functions:
  - Market stalls, street café, shops
  - People meeting, talking, playing
- Ecological functions
  - Greening, avoid summer overheating
  - Dealing with rain water
  - Climate adaptation

Aesthetic function, identification with the neighbourhood.

While climate protection and adaption require immediate action, the car remains a status symbol and an unquestioned right for some – leading to an ever-growing conflict for street space. “Push” measures such as parking controls and pricing are unpopular as some see them as a money grab. Some decision makers choose inaction over conflict. This results in even basic safety issues such as sufficient width for firefighting vehicles or blocked hydrants not being taken seriously.

Problems for firefighters

Problems for people with handicaps

Increasing space consumption:

- Golf 1: 3.70 m long / 1.61 m wide
- Golf 7: 4.25 m long / 1.80 m wide

Graph: © Süddeutsche Zeitung 16.02.2016 (https://www.sueddeutsche.de/auto/design-autos-mit-fettsucht-1.2860340)

On top of the existing demands for street space, more and more are being added. These include space for logistics (loading zones, micro-hubs, micro-depots), for parking e-scooters, cargo bikes and personal and shared bicycles and space for greening and climate adaptation (e.g., rainwater management).

The situation makes clear that many cities need strategies to re-organise the use of street space and to deal with parking within their wider strategies.

The project Parking Gets Smart described and demonstrated how to organise car parking more efficiently using organisational, digital and financial tools. With an integrated approach of SUMP – also addressing more independence from car ownership, you can go beyond.

Free parking for cars at starting points (e.g., in housing) as well as destinations (workplace, shopping centres, tourist destinations, etc.) acts as an incentive to go by car and not to use public transport or the bicycle. Free parking also contradicts a market-based approach; someone needs to pay for the infrastructure and maintenance, but it is not the user.

To place parking problems into a wider strategic context, mobility behaviour in general needs to be addressed. In this way, we reduce the number of trips done by car, reduce dependence on the car and then reduce the related level of car ownership.

Sustainable Urban Mobility Planning can help to establish the strategic context. A SUMP[2] combines the objective of sustainable mobility with strategic planning and a participation process. Citizens and other stakeholder involvement is needed to achieve success.

[2] A Sustainable Urban Mobility Plan (SUMP) is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles. See: Summary of Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan, second edition https://www.eltis.org/sites/default/files/sump_guidelines_2019_interactive_document_1.pdf

Sustainable Urban Mobility Planning as a strategic policy instrument

Urban transport has been part of European transport policy for decades, for example in clean air management, noise abatement, reduction of risks and collisions and in reducing dependence on (imported) mineral oil. As early as 1995, the European policy paper Citizens' Network[3] made reference to urban planning, parking policy and digital tools (at that time called transport telematics). With the focus on improving urban mobility growing, a Concept for Urban Mobility Plans became part of the Urban Mobility Package of European transport policy[4] in 2013.

The core goal of SUMP is improving accessibility and quality of life by achieving a shift towards sustainable mobility. Within this context, parking policy must answer the question: How can we shift car trips to other modes? SUMPs should "cover all aspects of mobility (both people and goods), modes and services in an integrated manner and plan for the entire functional urban area, as opposed to a single municipality within its administrative boundaries". Especially related to parking, the latter aspect is important. There is some interrelation between parking policies and wider mobility plans.

The 12 steps of SUMPS (SUMP guidelines graphic © Rupprecht Consult)

As part of the wider SUMP policy, a practitioner briefing for parking and SUMPs[5] and the publication Parking and SUMP:

Using parking management to achieve SUMP objectives effectively and sustainably[6] further support the development and implementation of innovative strategies.

[3] The Citizens' Network Fulfilling the potential of public passenger transport in Europe European Commission Green Paper, Brussels, 29.11.1995 COM(95)601 final

[4] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Together towards competitive and resource-efficient urban mobility, COM(2013) 913 final (as of 17.12.2013)

[5] https://www.eltis.org/sites/default/files/parking_and_sustainable_urban_mobility_planning.pdf

[6] sump_topic_guide_parking_and_sump.pdf (difu.de)

The practitioner briefing states 16 good reasons for parking management:

1. Public space has a high value and therefore should be paid for if used for parking.
2. Parking management contributes to a more sustainable modal choice and therefore quality of life.
3. Parking management leads to less park search traffic.
4. Parking management has a good impact to acceptance ratio compared to other demand management measures like road pricing.
5. People usually moan before new parking management is introduced but initial opposition turns to support when they realise its positive impacts.
6. Parking management protects European historic cities from an “invasion” of parked cars.
7. Parking management does not kill the high street - it can support the local economy.
8. User-friendly parking areas within walking distance of key locations are acceptable.
9. Parking management will not stop companies investing in your city.
10. Guaranteed parking spaces at workplaces influence modal choice significantly.
11. Parking management contributes to road safety
12. Enforcement of parking violations is necessary – and not harassment of car users.
13. Carefully chosen parking standards can have a positive impact on housing and other real estate projects.
14. Correct rates, prices and appropriate fines are key to the success of parking management.
15. Parking management can raise municipal revenue that can be used to encourage sustainable mobility
14. Correct rates, prices and appropriate fines are key to the success of parking management.
15. Parking management can raise municipal revenue that can be used to encourage sustainable mobility[7]

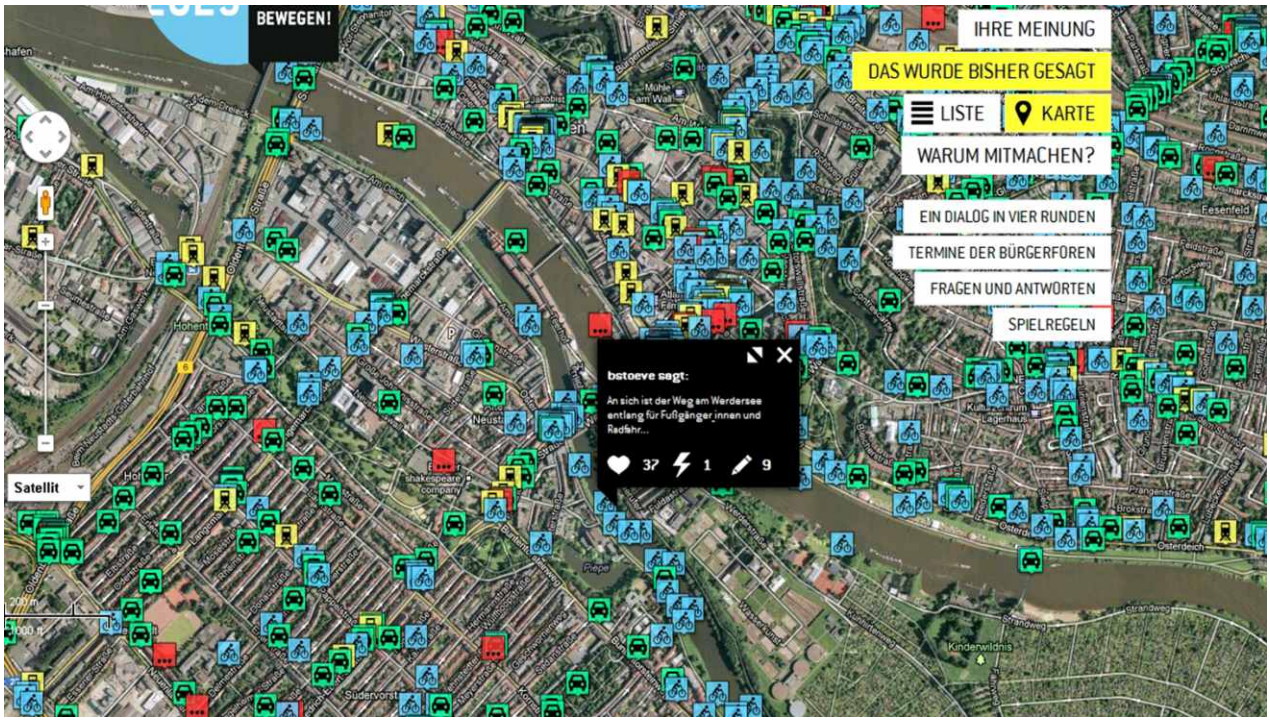
[7] Practitioner Briefing based on The EU PUSH & PULL project (2015). For more advantages and arguments for good parking policy, see the Push & Pull brochure: 16 Good Reasons for Parking Management, 2015.

Going beyond: the City of Bremen in Parking Gets Smart

The Parking Gets Smart partner city, Bremen, serves as a forerunner in combining SUMP, parking policies and the provision of alternatives to car ownership. The combination of promoting car sharing as an alternative to car ownership with improving public transport, cycling and walking in Bremen shows clearly shown the high level of synergy: a lower dependence on the car for daily trips allows to get rid of the private car when car sharing is providing a reliable and convenient service level. This combination has found international recognition, e.g., with the 2019 European CiViTAS Award[8] where 'Bremen took home the Transformation Award, after impressive efforts to reduce car use through car sharing and integrated public transport and by offering alternatives to car ownership.

Between 2012 and 2014, Bremen developed its SUMP using a participatory process. Stakeholders including representatives of the parliamentary parties and of relevant NGOs (from the cycling association and motor club to the chamber of commerce) were involved in a seminar style. The approach of the SUMP – to increase cycling, walking and public transport and to reorganise car traffic – was also presented in in regional assemblies as well as in exhibitions in shopping centres, where 'ordinary people' would see it. An online tool also allowed comments and proposals. The online participation tool got more than 125,000 clicks, about 4,200 proposals, almost 10,000 comments and about 100,000 likes / don't likes. As proposals and comments were visible for all users, the online participation wool achieved a high level of transparency. As an innovative tool, a game allowed to create some mobility plans – with given resources and desired impacts.

[8] See https://civitas.eu/awards/2019



graph: map with thematic proposals made by citizens (screenshot of the online tool www.bremen-bewegen.de)

Bremen's SUMP was unanimously adopted in 2014 and in March 2015, EU Commissioner for Transport Violeta Bulc presented the European SUMP Award to Bremen's Minister for Transport, recognising the combination of ambitious targets and extensive participation.

An innovative element of Bremen's SUMP is the role of car sharing. Bremen's modal split is overall quite sustainable: 64% of its residents' trips are done by walking, cycling and public transport.

Smart cities reduce the number of cars without reducing mobility

In general, good public transport and cycling systems are pre-conditions for independence from car ownership. Car sharing has been around since 1990 in Bremen, allowing users to book and pick up cars from stations in their neighbourhood for a journey as short as one hour or as long as an entire summer holiday. Various car types are available and payment is by time and mileage driven. Reservations can be made online (via smart phone app or Internet) and some operators offer customer service via a call centre. Access to the car is via smart card or mobile phone app. With station-based services, you reserve the car for the time that you expect to use it. A combination of a time-based and a mileage-based fee allows you to calculate the costs of each trip.

Car sharing can replace the first car in households when people can do their daily trips (to work, to university, grocery shopping, kids to school, etc.) without a car. The 23,000 users of Bremen's local car sharing service represent about 7% of the city's drivers. The Swiss cities of Zurich and Bern show that the potential is even higher.

From a municipality's perspective, it is important to exploit the potential of car sharing to replace car ownership. A 2019 survey showed that 26% of all parked cars in the streets of the SUNRISE neighbourhood were not moved for three consecutive workdays, indicating that they were not needed for daily commuting. Surveys focussing specifically on car sharing users indicate that from the user's perspective, the top three requirements are easy handling, reliability and proximity of stations.

While handling and reliability are the responsibility of the car sharing operator, proximity of stations is where the city can play a role. This means finding space in dense neighbourhoods for car sharing stations. Projects like SUNRISE help to make this possible by organising public space in dense urban neighbourhoods.

[9] SUNRISE was a European project (2017-2021) in which Bremen was a partner. Within the project, Bremen established an extensive local participation/co-creation process with the result being a shared goals to prevent illegal parking on sidewalks and establish resident parking in the pilot neighbourhood. The motto of the project was “our street can do more”.

[10] Team Red: Analyse der Auswirkungen des Car-sharing in Bremen, final report, Bremen 2018 download (English version): https://vb.northsearegion.eu/public/files/repository/20181109093720_AnalysisoftheImpactofCar-SharinginBremen2018_TeamRed_FinalReport_English_compressed.pdf

[11] Reliability is an important difference between station-based car sharing and free-floating services. A study in Bremen shows that almost 80% of car sharing users have no car in their household. As the reliability of the car sharing service is such a crucial aspect for non-car owners, station-based car sharing systems have a significant advantage, as they allow both reservation in advance and spontaneous access.

Impact comparable to a €150 million investment in parking garages

Many European neighbourhoods need to reclaim street space from car parking. The promotion of car sharing is by far the most efficient strategy to reduce the number of cars in an urban neighbourhood without curbing mobility but giving more flexibility. The Bremen impact studies show that 80% of car sharing users have no car in their household; the 23,000 car sharing users gave up (or did not buy) more than 7,000 cars. This is equivalent to 35 kilometres of cars parked end-to-end. To achieve similar impacts by building parking garages would require an investment of €100-150 million.

Bremen is providing more and more space for on-street car sharing stations in its neighbourhoods. Such stations (called mobil.punkt in Bremen) are visible, easy-to-reach and serve as promotion for the service. The density of stations (i.e., proximity to as many residents as possible) is important to make car sharing attractive. In some of Bremen's urban neighbourhoods, stations can be found every 300 metres.

Larger stations (Rembertiring, Bremen)

Smaller stations (mobil.puenktchen in Feldstr., Bremen)

Car sharing and housing developments

Whereas in the past, car parking was required for all new housing developments, recent legal developments allow developers to offer mobility management that favours sustainable modes (and reduces costs). Depending on the location, the developer can replace car parking with a car sharing station and membership offers, cargo bike sharing, bike sharing, season tickets for public transport and other mobility services. A first survey (Team Red, 2020) confirms that the number of car-free households, at 32%, is much higher than in developments with car parking spaces for all housing units (16%).g spaces for all housing units (16%).

[12] Wirksamkeit Mobilitätskonzepte Evaluation von Mobilitätsmaßnahmen im Rahmen des Bremer Stellplatzortsgesetzes, Berlin 2020

Car sharing and bike sharing instead of car parking: affordable urban housing project (Kissinger Str., Bremen)

Potential for digital tools

The current trend towards ever-larger cars reduces the efficiency of parking management, but parking fees are not currently related to space consumption. In theory, it is already technically possible to restrict parking for cars that exceed a certain length or width – which would create a clear incentive for smaller cars. The appropriate digital enforcement tools and legal framework could make this possible.

Looking at on-street parking, no technical or legal preparation has yet been made to enable size-based parking pricing. From a technical perspective, a digital twin (i.e., digital information with the relevant size indicators) of each parked vehicle would be required in the parking app and in the enforcement equipment.

For residential parking (with annual fee for the permit), the technical requirements are simpler. A 2022 legislative change in Germany allows cities to set fees for residential parking permits according to the space occupied by the car. The regulation allows municipalities to get away from the "one fee fits all" approach. As one of the first, the city of Freiburg introduced a new structure of fees for parking permits in three classes. While the average annual fee is €360, there is a reduced fee of €240 for cars shorter than 4.21 m while owners of cars longer than 4.70 m pay €480[13].

While digital tools are already commonly used to provide information on whether and where parking spots for cars are available, they have not (yet) been used to address illegal parking, which is a significant problem both in dense cities and in tourist destinations. Similar to Intelligent Speed Assistance (ISA) systems in new cars which use digital maps and road sign recognition to require cars to keep to speed limits, Intelligent Parking Assistance could use digital maps and recognition of road sign and kerbs to only allow legal parking.

Simplified georeferenced systems are already used for e-scooters in sharing systems so that the scooter refuses to be returned in a no-parking zone. If such systems work in €1,000 scooters, surely this is also possible in vehicles that are sold for €20,000 or more.

Conclusion and outlook

Street space management within SUMP is more than parking management. It considers the needs of other road users as well as the need to shift to more sustainable modes. As long as the car remains a status symbol with an emotional value for some, parking will remain both a centrepiece of SUMPs and the subject of intense political debates.

Nevertheless, limited space, road safety goals and climate protection require innovative solutions that go beyond the more efficient management of parking space. Within Parking Gets Smart, Bremen was able to demonstrate how car sharing policies can lead to a reduction in the number of cars while maintaining or even improving mobility options.

Car sharing is an integral part of sustainable urban mobility planning and supplements public transport and improved conditions for walking and cycling. It is also part of strategies for affordable housing in urban areas.

In the future, cars may travel autonomously to a storage area, but this will take time, as driving on urban streets requires more than current technology allows. On the other hand, by building on existing technology, digital tools already have the potential to go beyond information and payment to active prevention of illegal parking. This possibility should be actively explored.

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[13] https://www.freiburg.de/pb/site/Freiburg/get/documents_E-13391950/freiburg/daten/ortsrecht/07%20Verkehr/OrtsR_07_05.pdf

2.2

Measure title:

Hackathons

Countries:

- Germany
- Lithuania
- Poland (challenges providers)
- the whole of Europe (promotion)
- hackathon applications (collected from Czechia, Egypt, Estonia, France, Germany, Great Britain, Ireland, Latvia, Poland, Slovakia, Spain, Turkey)

City:

- Heringsdorf
- Klaipeda
- Neringa
- Gdansk (challenges providers)
- non-applicable to promo activities and collected applications

Objective:

Make parking and mobility smarter for residents, tourists and travellers, and local administration.

Main target groups:

Startups, scaleups, SMEs, informal teams focused on innovative products, students (previously with the idea to work out the products during hackathon, finally with focus on existing ideas).

Push mechanisms:
Cash for the presentation of winning products.
Pull mechanisms:
Online format, access to mentors and experts od demand.

SBA replication potential:

Depends on access to relevant potential participants and level of engagement of challenges providers.

Costs and who paid them:

Depending on the format and prizes.

Description of the CS

E.g. promotion, scouting, experts and mentors (especially for the in-person event), online tool or local venue (plus catering), incentives.

Implementation process:

Prepare a detailed description of the hackathon challenges, plan the agenda, engage experts as mentors, prepare the registration form, promote the event, collect applications, organize the hackathon and choose winners.

Stages:

The first stage of promo activities - social media and via mailing lists/webpages - low number of applications due to narrow focus (smart parking).

The second stage of promo activities - social media and via mailing lists/webpages plus scouting – an acceptable number of applications received.

Barriers:

Access to relevant participants, access to relevant experts, and mentors, incentives considering the wide group of potential participants.

Difficulties/ Barriers:

Access to relevant participants, access to relevant experts, and mentors, incentives considering the wide group of potential participants.

Drivers:

Cash for the best, access to potential clients.

2.3

Measure title:

Improvement of parking management at the urban beach front areas

Countries:

Poland

City:

Gdansk

Objective:

- Tackling the increased parking demand by residents and visitors in peak periods
- Reduction of parking search traffic and illegal parking
- Promotion of sustainable means of transport to reduce noise and air pollution to improve the quality of city life
- Shift to public transport or bike (before trip or on trip)
- Improved access to information about vacant parking lots

Main target groups:

Incoming tourists & day visitors, residents, seasonal staff of tourism sector.

Push mechanisms (in place):

Fees for off-street parking & paid parking zone on-street parking, introduction of fees for off- and on-street parking.

Pull mechanisms / end-user devices:

Parking availability real time information boards, integrated parking guidance and alternative travel options via a multimodal journey planner, in the further perspective: provision of guidance apps.

SBA replication potential:

Cities of Hansastadt Rostock – Warnemünde, Greifswald – Eldena, Klaipeda – Krakle, Helsingborg, Kristiandstad, Ahus, Naestved, Karrebaeksminde, Mielno etc.

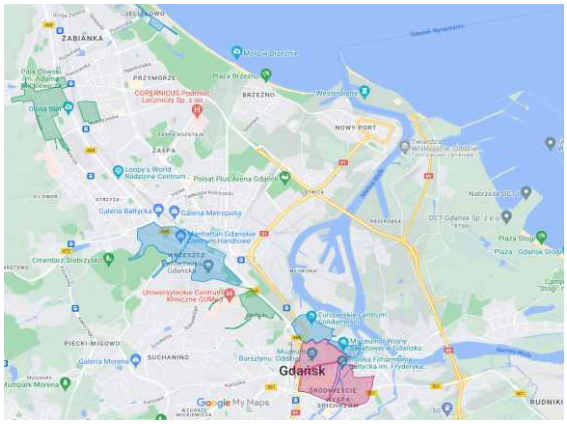
Costs and who paid them:

Scheme development costs amounted to 214 125 €. 85% of total expenditures were reimbursed from the European Regional Development Fund of the EU. The remaining 15% were covered from the budget of the City of Gdansk.

Description of the CS

One of the results of rapid change in the economic and social system in 1990s was a substantial increase in the number of private cars owned by the residents of the city of Gdansk and people interested in visiting the city beach front area. Because of that on busy beach days (from June to September) the beach front parking lots are poorly accessible by car and it is not easy to find a vacant parking place there. That is why the city office came out with the idea to inform the incoming visitors at a certain distance from the beach front of the city about the (lack of) availability of parking spaces so that they could find a parking place elsewhere and use available public transport services (trams or buses) to reach the beach.

The City of Gdansk delegated the management all paid parking zones and public (municipal) car parks to the special organizational unit operating under the name of Gdańsk Road and Greenery Authority. Certain on street and off street paid parking zones are managed by private companies. In the city there are three paid parking zones - blue, green and red (downtown paid parking zone - located in the historical city centre). The parking fees in those zones are differentiated: in the downtown zone are the highest, somewhat lower are applied in the green zone, while the fees in the blue zone are the lowest.



It is possible to pay the fees using different ways, including ticket machines, apps or advanced subscriptions. Data about the level of occupancy of paid parking areas are fed to the TRISTAR Intelligent Transportation System and drivers are informed about the availability of parking places via special message boards located along the principal traffic arteries of the city.

On busy beach days (from June to September) the beach front parking lots are poorly accessible by car and it is not easy to find a vacant parking place. That is why the city office came out with the idea to inform the incoming visitors at a certain distance from the beach front of the city about the (lack of) availability of parking spaces so that they could find a parking place elsewhere and use available public transport services (trams or buses) to reach the beach.

Implementation process

Activities carried out within the framework of the project were focused on the beach front area. Four parking lots were equipped with occupancy registering sensors and vehicle presence identifying induction loops have been installed at the entry and exit gates.

Car park location	Capacity	Type	Detection
Czarny Dwór	340	off street	loops at gateway/exit
Błękitna	220	off street	loops at gateway/exit
Kaczyńskiego	160	off street	sensors in pavement
Kapliczna	60	off street	loops at gateway/exit
Total	**780**		

To inform the drivers in advance about the availability of parking spaces, 8 dynamic information boards were installed in 5 locations. The information was provided as a result of integrating the collected information with the TRISTAR Intelligent Traffic System.

The electronic messaging boards informing about the availability of parking slots were installed at the following locations:

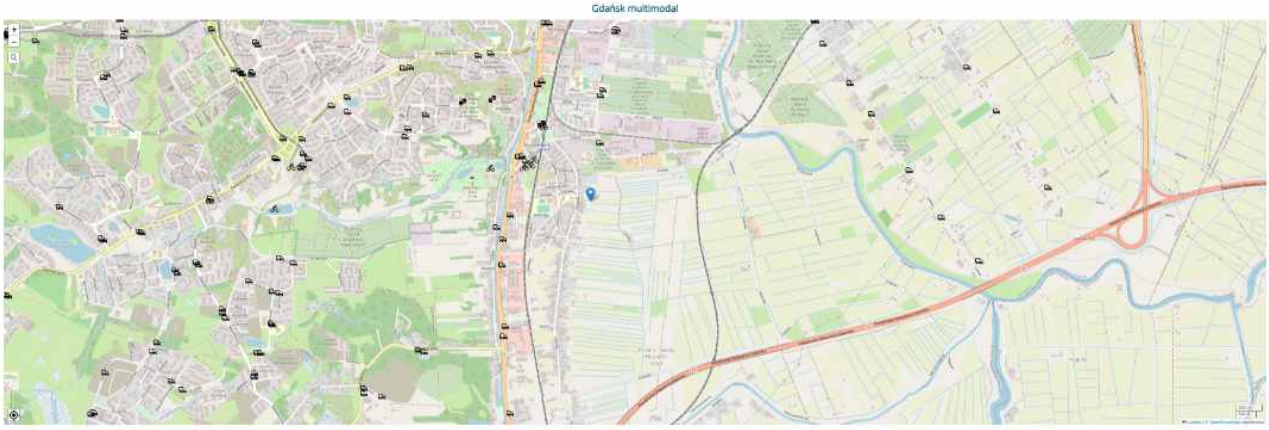
1. Intersection of the Pomorska and Chłopska streets – 2 boards
2. Intersection of the Pomorska-Jelitkowska streets – 1 board
3. Intersection of the John Paul 2nd Avenue with the Czarny Dwór street – 1 board
4. Intersection of the John Paul 2nd Avenue with the Rzeczypospolitej Avenue – 1 board

Besides that two permanent information boards were installed at the intersection of the Pomorska and Chłopska streets.

End user devices

Information about the availability of parking spots is also provided via the website of the Gdańsk Road and Greenery Authority, where an appropriate widget is installed. It is integrated with a journey planner providing information about the accessibility of journey destinations by different transport modes (public transport, shared micromobility modes, bicycle, foot).

The widget, journey planner, developed by PICTEC within the Parking gets Smart project is a simple and user friendly tool which makes any journey in the city much easier. It aggregates data not only from Parking gets Smart pilot parking lots, but also public transportation dynamic data, POIs, bike parking racks and many more. A number of different data makes any journey really easier especially the multimodal ones.



Since the pilot parking lots are integrated into the Tristar ITS, the data is also presented on a Tristar website, where you can find any useful information related to traffic not only in Gdańsk, but also in Sopot and Gdynia.

Moreover, the data is available for anyone on a municipal open data portal.

Objective	Reduce occupancy of the beachfront area parking lots during high season and weekends, encourage people to switch from car to other means of transport when going to the beach.	Encourage commuters (especially living in the outskirts) to make multimodal journeys using park&ride parking facilities.
Indicators	Traffic data, traffic surveys.	Traffic data, traffic surveys, public transport data.
Data used	Traffic volumes data, parking occupancy data, spatial data.	Public transport data, spatial data.
Promotion	IMentions in press releases and events, especially Active Mobility Congress, movie clipt.	Mentions in press releases and events, especially Active Mobility Congress, movie clip.
Evaluation	Parking occupancy data, online quality questionnaire.	Parking occupancy data, online quality questionnaire.
Impact results	Changes in transportation habits are long. However, since the beachfront area parking lots are overoccupied, any physical changes would be visible in a longer time. Today the evaluation shows willingness to the change the habit using PgS tools.	As above, the change of commuting habits take a long time. In questionnaire commuters declared the willingness of change with the use of journey planner. But it needs time.

Stages

First, and the most important question is to choose the target group. Gdańsk on one hand is a tourist destination, but on the other- the regional capital and an important regional business centre. This two aspects generates heavy traffic, but completely different in characteristics.

- Tourist traffic is more seasonal, most of the travellers visit the city once, and come back, if ever, after a year. They are not familiar with the city and its transportation system.
- The traffic resulting from the role of the city as a regional capital is characterised by a number of frequent daily commuting journeys.

In view of the fact, tourist traffic and excessive demand for parking at the beach front was not considered as an important object of attention before the PgS project was implemented, the idea of reducing its excess was adopted.

- Choice of the pilot sites.
- Processing of the public procurement of digitalisation of the pilot sites.
- Installation of cameras and ground sensors
- Calibration and integration of data acquired from cameras and ground sensors with the existing Tristar ITS.
- Setting up a multimodal end-user tool on line, on the website of the Gdańsk Road and Greenery Authority
- Promotion of the effects of the project at the Congress of Active Mobility
- Evaluation of effects with the use of an on-line questionnaire. Since behavioural changes are visible during a long time perspective, extending beyond the project time line, questionnaire was a preferable way to evaluate rather than any traffic or parking data.

Barriers

There are many IT parking companies in Poland. They use their own, closed and often incompatible systems and solutions. Most of them cooperate with the private sector: malls and office parks which need isolated, small systems to manage their parking lots. So the first barrier was the difficulty to find a versatile contractor able not only to set up a detection system, but also to integrate it with the existing one.

ITS Tristar was introduced almost a decade ago, as one of the first such systems in Poland. It is a complicated system with a number of subsystems and with many solutions tailored to respond to the needs defined at that time. Without many updates, today it is a bit outdated, and many solutions are no longer applied. It was the second main barrier – to integrate contemporary solutions with a relatively outdated system.

Third main barrier

Drivers

Existing ITS Tristar was a barrier (integration), but a driver as well. It was much easier to implement a (sub)system when already we operate (on a smaller scale) one. Not only on a technical layer of the implementation, but also as an experience and a knowledge in this matter.

Of course implementation within the project with several professional partners who provide their expertise is important too. As well as possibility of mutual experience exchanges and support.

Last but not least, important from the very beginning is to know two things: why are we doing it (what problems we need to solve by it), and for whom (defined target groups). The implementation is much easier when we know where we are heading with the project.

Image by Freepik

2.4

Measure title:

Improvement of P&R management at a public transport hub

Countries:

Poland

City:

Gdansk

Objective:

- Reduction of traffic bound to the city centre
- Tackling the increased parking demand by residents and visitors in peak periods
- Reduction of parking search traffic and illegal parking
- Promotion of sustainable means of transport to reduce noise and air pollution,
- Shift of car trips to public transport or cycling trips,
- Improved access to information about vacant parking spots

Main target groups:

Commuters

Push mechanisms:

Systematic extension of paid parking zones accompanied with stricter enforcement of parking regulations and an increase in the level of parking fees in recent times.

Pull mechanisms:

Parking gets Smart end user devices: information about availability of vacant parking spots in the widget and on the city website, data received from the parking lots made accessible within the framework of open data format, in future the app is supposed to increase the competitiveness of public transport trips in relation to car trips.

SBA replication potential:

Cities of Hansastadt Rostock – Warnemünde, Greifswald – Eldena, Klaipeda – Krakle, Helsingborg, Kristiandstad, Ahus, Naestved, Karrebaeksminde, Mielno etc.

Costs and who paid them:

Scheme development costs amounted to 24 000 €. 85% of total expenditures were reimbursed from the European Regional Development Fund of the EU. The remaining 15% were covered from the budget of the City of Gdansk.

Description of the CS

The City of Gdansk delegated the management all paid parking zones and public (municipal) car parks to the special organizational unit operating under the name of Gdańsk Road and Greenery Authority. Certain on street and off street paid parking zones are managed by private companies. In the city there are three paid parking zones - blue, green and red (downtown paid parking zone - located in the historical city centre). The parking fees in those zones are differentiated: in the downtown zone are the highest, somewhat lower are applied in the green zone, while the fees in the blue zone are the lowest.

One of the results of rapid change in the economic and social system in 1990s was a substantial increase in the number of private cars owned by the residents of the city of Gdansk as well as hinterlands residents working or studying here.

That is why park&ride parking lots are becoming more and more popular. As the transportation system in Gdańsk is expanding, the new tram and light rail lines are developed, more people choose multimodal commuting as a default. Therefore suburban more often use transportation hubs. One of them, located in the southern outskirts of Gdańsk, the Łostowice-Świętokrzyska transportation hub was digitalised. As a part of pilot activities we chose cameras to count parked cars and vacancies in order to gain experience with this technology.

Implementation process:

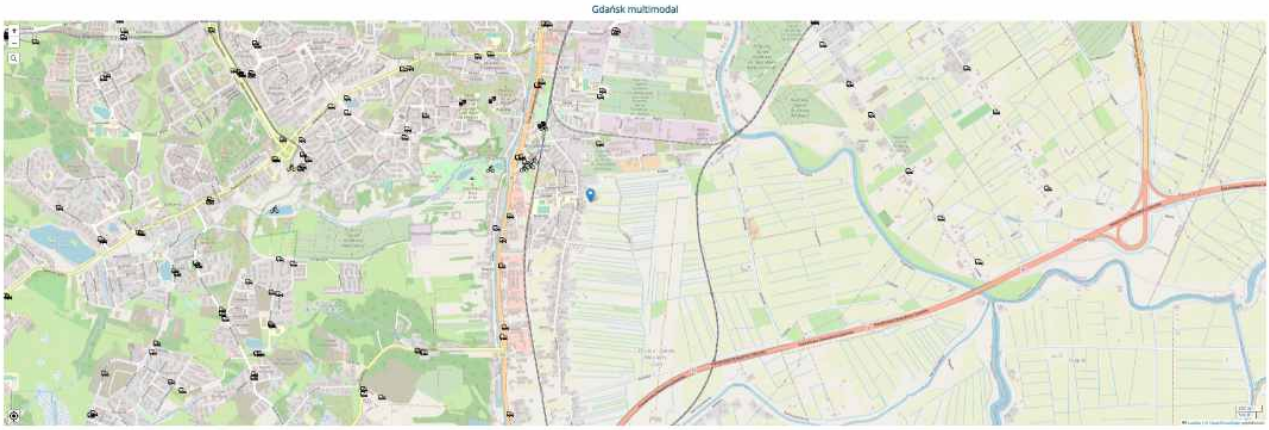
Activities carried out within the framework of the project were focused on one of the outskirts P&Rparking lot selected as a pilot site, easy to replicate at other P&R multiomodal transport hubs.

Car park location	Capacity	Type	Detection
Park&Ride Łostowice Świętokrzyska	101	off street	cameras

End user devices

Information about the availability of parking spots is provided via the website of the Gdańsk Road and Greenery Authority, where an appropriate widget is installed. It is integrated with a journey planner providing information about the accessibility of journey destinations by different transport modes (public transport, shared micromobility modes, bicycle, foot).

The widget as a journey planner, developed by Pictec within the Parking gets Smart project is a simple and user friendly tool which makes any journey in the city much easier. It aggregates data not only from Parking gets Smart pilot parking lots, but also from public transportation dynamic data, POIs, bike racks and many more. A neat combination of different data makes any journey – in particular a multimodal trip much easier.



Since the pilot parking lots are integrated into the Tristar ITS, the data are also presented on the Tristar system website, where you can find any useful information related to traffic not only in Gdańsk, but also in Sopot and Gdynia.

Moreover, the data is available for anyone from a municipal open data portal.


Image by teksomolika on Freepik

Objective	Encourage commuters (especially subur-banites) to make multimodal journeys using park&ride parking lots.
Indicators	Traffic data, traffic surveys, public transport data
Data used	Public transport data, spatial data
Promotion	Mentions in press releases and events, espe-cially Active Mobility Congress, movie clip
Evaluation	Parking occupancy data, online assessment of quality of pilot solutions in the questionnaire
Impact results	As above, the change of travel habits takes a long time. The commuters declared the willingness to change travel habits with the use of the journey planner in the questionnaire

Stages

- Residents of the city and its suburbs commuting daily to work or school are the most important group generating most of the traffic in the city. That is wny the city of Gdansk decided to encourage them to use multimodal transport options, using digitalised parking management tools. Thus the first stage of this part of the PgS project was the selection of this target group.
- The second stage consisted in the determination of an appropriate parking lot as a test site.
- Identification of the provider of services of counting vacancies was the next stage
- The next stage consisted in the designing and implementation of an appropriate system meeting the requirements of the city tailored to the needs of the selected parking lot. In this case the system based on the analysis of images from the cameras, and not on ground installed sensors. One of the reasons of selection of this technology was to learn it and to compare it with technology applied at the beach front area.
- Installation, calibration and integration of the camera based system with the Tristar ITS.
- At the same time, continuation of efforts to install the widget providing data about parking vacancies, public transport and any other relevant travel information at the city website.
- Promotion of the PgS project via: information in local media, presentations during the events such as the Active Mobility Congress and the Google Ads campaign in the South Baltic area.
- Evaluation based on a widely advertised internet questionnaire about travel habits, with particular stress put on multimodal trips. Over 2000 respondents gave answers to the questionnaire.

Barriers

The first barrier was the difficulty to find a versatile contractor able not only to set up a parked car detection system, but also to integrate it with the existing traffic management and journey planning systems. There are many companies offering IT based parking management systems in Poland. They usually apply their own, closed and incompatible systems and solutions. Most of them cooperate with the private sector: malls and office parks which need isolated, small systems on their parking lots.

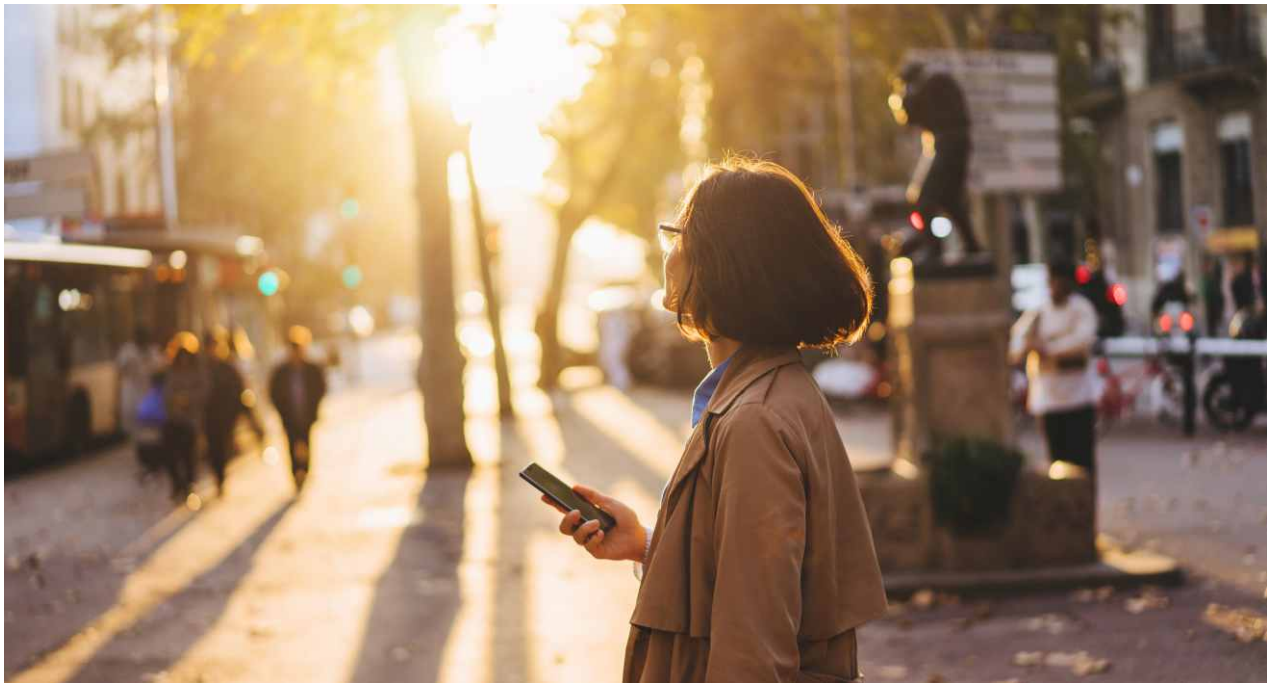
The Tristar ITS was introduced almost a decade ago, as one of the first in Poland. It is a complicated system with a number of subsystems and with many solutions tailored to satisfy needs defined at that time. Without many updates, today it is a bit outdated, and many solutions are no longer applied. It was a second main barrier – to integrate currently available solutions with a relatively obsolete system.

Drivers

The existing Tristar ITS was a barrier (as far as the facility of integration), but a driver as well. It was much easier to implement a (sub)system when we operate an ITS on a smaller scale. It has facilitated the implementation not only in the technical sense, but has also provided necessary experience and knowledge in traffic management.

Another driver was the expertise of a number of professional partners with whom the project was being implemented. Their cooperative approach has created the chance for mutual exchange of experience and support.

Last but not least, important from the very beginning is to know two things: why are we doing it (what problems we need to solve by it), and who is going to benefit from the realisation of the project (what are the defined target groups).



2.5

Measure title:

Improvement of parking management at the public transport hubs at the historical inner city centre and at the ferry terminal connecting the city of Klaipeda with the protected area of the Curonian Spit Peninsula

Countries:

Lithuania

City:

Klaipeda/Neringa

Objective:

- Reduction of traffic flows striving to reach the ferry terminal located in central part of the municipality in high season;
- Influencing the consumer behaviour – enhancing the use of sustainable transport modes,
- Promotion of public transport usage;
- Reduction in costs of car parking management.

Main target groups:

Incoming tourists from all over Lithuania, day visitors, residents of Klaipeda.

Push mechanisms (in place):

Fees for off-street parking & on-street parking in Klaipeda and Neringa.

Pull mechanisms / end-user devices:

Guidance apps, parking guidance in public transport /multimodal journey planner.

SBA replication potential:

Rügen/ Jasmud National Park, Wolin National Park, Łeba Słowinski National Park, Stensuvud/ National Park Skjoldungerenes Land / National Park.

Costs and who paid them:

85% of total expenditures were reimbursed from the European Regional Development Fund of the EU. The remaining 15% were covered from the budget of the Klaipeda Transport Authority and the municipality of Neringa.

Description of the CS

Neringa municipality is located south of Klaipėda in the Curonian Spit - a 98 km long, thin, curved sand - dune spit that separates the Curonian Lagoon from the Baltic sea coast. It is a UNESCO World Heritage Site shared by two countries – Lithuania and Russia. The entire territory of Neringa municipality has the status of national Park. Neringa also has a status of resort. During the summer season the motorised traffic flows significantly increase - approx. 400 thousand vehicles enter the territory of Neringa municipality. Parking in Neringa is charged from 1st May to 30th September. The rest of the year is free of charge.

The only transport means that connect the city of Klaipeda with the protected area located on the Curonian Spit and the municipality of Neringa is a ferry boat. The natural beauty of the Curonian Spit is an important tourist attraction, inspiring a great number of day visitors from all of Lithuania and tourists from Klaipeda.

Intensive traffic flows accumulated along the road leading to the ferry boat terminal result in long queues (congestion) and exert a negative influence on the natural environment of the Curonian Spit.

This was the reason that the Klaipeda Transport Authority and the Neringa Municipality came out with the idea to introduce measures aimed at reducing the level of private car traffic and promote public transport connections to tourist and other destinations located along the Curonian Spit.

This was the reason that the Klaipeda Transport Authority and the Neringa Municipality came out with the idea to introduce measures aimed at reducing the level of private car traffic and promote public transport connections to tourist and other destinations located along the Curonian Spit.

Implementation process:

In order to reduce the traffic flows to the ferry terminal located near the city centre the Klaipeda Transport Authority decided to introduce measures intended to inspire the car users to modify their transport behaviour. Activities carried out within the framework of the project were focused on the implementation of a parking management system near the ferry terminal located close to the city centre. Smart cameras and sensors for counting available parking slots were installed; an open data parking hub was created and the end user device with journey planner functionality has been developed and made accessible to the general public.

On the other hand, the Neringa municipality equipped 6 pilot sites with cameras and vehicle counting system applied to on street and off street parking slots. The Klaipeda public transport authority and Neringa municipality developed as well an open data hub for parking and public transport users in the area fed with real time data from Klaipeda area and Neringa. Information on parking availability is currently provided on www.klaipedatransport.lt , Neringa municipality, tourism information and stakeholder websites.

End user device - “A Smart Way to Travel”:

An important project benefit has been achieved thanks to the development of the end user device with journey planning functionality allowing the residents and visitors to access real time information about the number of vacant parking places in 4 spots of Klaipeda and 6 parking lots in the Curonian Spit Peninsula in the Neringa municipality, with 474 parking places altogether.

This device allows to plan the journey and select an appropriate transport mode to reach particular destinations in the Klaipeda and Neringa area. High level of occupancy of available parking spots suggests to choose a sustainable travel mode to the Curonian Spit destinations, such as public transport organized by the Klaipeda Transport Authority. The widget allows as well to limit the propensity to use private cars and reduce time spent on looking for available parking spots.

An important advantage of the app which provides information about available vacancies is that it is combined with a travel planner which shows the timetable of bus connections and the possibility of buying a bus ticket on-line.

The Smart Way to Travel app is connected as well with the googlemaps and visimarsrutai.lt and Schedules by Trafi apps.

Travelers can conveniently plan their journey to Neringa and Smiltyne by using mobile version of www.klaipedatransport. They can see the real time data information about different available parking spots, choose to navigate to the destination and use the journey planner to switch to public transport or choose another sustainable way to travel. Using the google maps and visimarsrutai.lt widgets and traffic app, travellers can also get real time information about public transport, best available routes and ticket prices. There is no need to have different tools to get to the destination point, it suffices to have only one website www.klaipedatransport.lt installed on a smartphone.

Measures applied and effects resulting from the implementation of the project.

Objective	Make drivers park away from the North Cape & Smiltyne	Make people leave their cars and use public transport
Indicators	• Number of paid parking transactions in the pilot sites • Number of paid parking violations	• Number of paid parking transactions in the pilot sites • Number of paid parking violations • Number of public transport travels • Number of respondents who chose more ecological way to travel • Survey data
Data used	• Registered number of paid parking transactions in the pilot sites • Statistic of paid parking violations • Survey data	• Statistics of validation of public transport tickets • Paid parking transactions in the pilot sites • Statistics of paid parking violations • Survey data
Promotion	• Promotional articles in local and state - wide media, social media posts • Companies' website • Promotional animation movie	• Promotion articles in local and state wide media, social media posts • Companies'website • Promotional animation movie
Evaluation	• Evaluation using the Statistics of public transport tickets • Number of paid parking transactions in the pilot sites • Statistics of paid parking violations • Data from survey (using questionnaire)	• Evaluation using the statistics of the number of paid parking transactions in the pilot sites • Statistics of paid parking violations • Data from survey (using questionnaire)
Impact results	• Implemented tool and activities encouraged travellers to plan their journey in advance • A significant number of drivers chose more ecological way to travel	Implemented tools and activities encouraged travelers to use public transport and ecological ways to travel

Stages

- Process for selecting of preferable tools for data gathering
- Installation of cameras and parking sensors
- Integration of real time information to the existing company owned private (closed for public) parking data hub.
- Installation of info boards for on-street drivers
- Data and API integration to the new open source parking data hub adapted for Klaipėda by IT expert-partner (open data for public)
- Creating the end user device(-s) called “A Smart Way to Travel”.
- Promotional activities and events
- Evaluation using statistics and a survey questionnaire.

Difficulties

There were difficulties in many stages of project implementation resulting from the unstable situation experienced during the COVID-19 pandemic. Initial stages of the project were adequately planned and implemented successfully enough at the beginning, but then COVID-19 struck and as a result of many restrictions applied at the local and international level the process of the project implementation was disrupted.

Changes in the composition of project consortium (City of Växjö representatives could not participate anymore, what resulted in the abandonment of the city from the project consortium) meant that the implementation of certain crucial stages of the projects was postponed. To be precise, the implementation of pilot open parking data hub was transferred to Klaipėda from Växjö. That process was quite difficult, because it necessitated the use of additional technical and human resources. Even after the launch there were many issues connected with the data and API integration.

Barriers

- Finding of the software developer for integration of different systems;
- Managing the public procurement procedures when updating or expanding the existing infrastructure.

Drivers

- Awareness of taking part in the process of development of useful systems contributing to the improvement of local quality of life.
- Possibility to use the expertise of reliable and professional project consultants and experienced software developers and infrastructure installation providers;

Image by Freepik

2.6

Measure title:

Improvement of parking management at the seaside resort municipality Ostseebad Heringsdorf

Countries:

Federal Republic of Germany

City:

Heringsdorf - Ahlbeck

Objective:

- Reduction of traffic flows in the municipality in high season
- Influencing the consumer behaviour – enhancing the use of sustainable transport modes
- Promotion of public transport usage via spontaneous or planned park & ride trips consisting in change car > public transport (UBB) or car > rental bike (UsedomRad)
- Simplified approach to vacant parking lots as well as day / night sharing of existing parking lots

Main target groups:

Incoming tourist & day visitors, residents, seasonal staff of tourism sector.

Push mechanisms (in place):

Fees for off-street parking & on-street parking

Pull mechanisms / end-user devices:

Guidance apps, parking guidance in public transport / multimodal journey planner, sharing of parking lots between different user groups (e.g. residents / hotel staff / tourists)

SBA replication potential:

E.g. Świnoujście, Miedzyzdroje, Darłowo, Ustka, Łeba, Hel peninsula, Vistula Spit, Svetlogorsk, Palanga, Öland island, Bastad, Marielyst, Mon island etc.

Costs and who paid them:

Scheme development - 85% of total expenditures were reimbursed from the European Regional Development Fund of the EU. The remaining 15% were covered from the budget of the Heringsdorf municipality.

Description of the CS

Popular Seaside Resort Municipality Heringsdorf – Ostseebad is located on the island of Usedom at the Baltic Sea near the Polish – German border. The principal motivation to look for solution stems from a highly seasonal pattern of traffic flows which significantly increase during the summer season.

As far as payment methods are concerned, it is possible to pay the fees using one of some modernised parking meters accepting coins and/or credit cards or using mobile apps.

Implementation process:

Creation of parking management system at 3 pilot sites and, additionally, installation of one real time information board. Particular locations were the following:

- Parkplatz Bansin at the junction of the Badstrasse and Waldstrasse in Heringsdorf near the Schloonsee lake. Particular parking places have been equipped with ground detectors and/or entry and exit recording devices.
    - Ground detectors are activated when a car is parked over them. Information about the occupancy/vacancy of the parking spot provided by the detectors are displayed on the information boards located at the Badstrasse and the Waldstrasse.
    - Entry/exit recording devices have been installed at the separate entry point located at the Badstrasse only. Information about the occupancy/vacancy of parking spots is displayed at the real time information boards located at the Badstrasse and Waldstrasse.
- Parkplatz Lindestrasse (close to the junction with the Seestrasse). Cameras were installed at the borders of the parking lot. One camera has a detection range covering about 10 parking slots. Parked cars are detected and information about occupancy/vacancy of parking slots is displayed on a real time information board located at the Lindenstrasse.
- Parkplatz Grenze (at the border crossing point at the Polish German border in Swinoujscie). The offstreet parking lot with one entry/exit point allowed to install a ground entry/exit recording device. Information provided by the device is displayed on a two sided real-time information board located at the Swinemunder Chaussee.
- Additionally, for drivers approaching Herings-dorf from south-west, a real time information board was installed, informing them about the occupancy/vacancy of parking lots located at Parkplatz Bansin, Parkplatz Lindestrasse and at the Heringsdorf railway station.

2.7

Measure title:

Improvement of parking management at the culture and gastronomy hot spots in Klaipeda

Countries:

Lithuania

City:

Klaipeda

Objective:

- Reduction of traffic flows in the municipality in high season
- Influencing the consumer behaviour – enhancing the use of sustainable transport modes (before trips)
- Encouragement of parking at sites outside the old town
- Promotion of public transport usage via spontaneous or planned park & ride trips consisting in change car > public transport

Main target groups:

Incoming visitors or restaurants and culture offer in the old town, staff and visitors of the theatre, tourist & day visitors, residents, seasonal staff of tourism sector.

Push mechanisms (in place):

- Reduction of traffic flows in the municipality in high season
- Influencing the consumer behaviour – enhancing the use of sustainable transport modes (before trips)

Pull mechanisms / end-user devices:

Apps, parking guidance in public transport / multimodal journey planner

SBA replication potential:

Gastronomy and culture hotspots with scarce parking capacities in larger cities like Gdynia, Rostock, Malmö or smaller cities like Naestved, Kalmar, Karlskrona, Malbork, Elbląg etc. of the South Baltic Area.

Costs and who paid them:

Scheme development costs amounted about €50 K €. 85% of total expenditures were reimbursed from the European Regional Development Fund of the EU. The remaining 15% were covered from the budget of the Klaipeda Transport Authority.

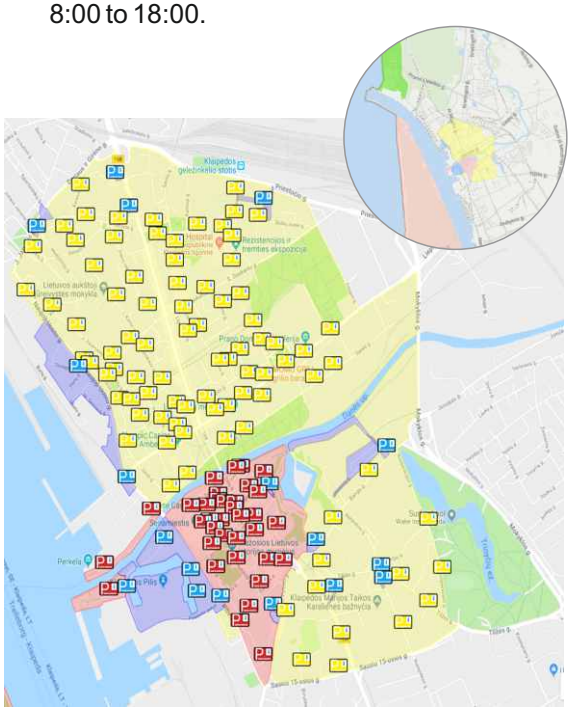
Description of the CS

The culture and gastronomy hotspots in the City of Klaipeda are located in a densely built up area of the old town. Since it was built before the era of mass motorization, parked cars and car traffic in general exert a negative influence on the atmosphere of the city. This was the reason for which the city decided to start the process of implementation of a restrictive parking policy, charging the car users with costs resulting from their mobility behaviour. Thus the city of Klaipeda established the first paid parking system in 2008. It is managed by the city municipality and the Klaipeda Public Transport Authority.

There are three paid parking zones:

(1) the old town is included in the red zone with the highest fees (€0.9/hour),

(2) the city centre is covered by the yellow zone, where the fee amounts to €0.60/hour, while in the blue zone there are several designated long term parking lots where the fee amounts to €0.15/hour only. The fees are due during the working days from 8:00 to 18:00.



As far as payment methods are concerned, it is possible to pay the fees using one of 170 parking machines accepting coins and/or credit cards, 4 different mobile apps, using the resident and business permits, long term passes or bank transfers.

Implementation process:

Activities carried out within the framework of this part of the project were focused on the implementation of a parking management system in the city centre. Smart cameras and sensors for counting available parking slots were installed; an open data parking hub was created and the end user device with journey planner functionality has been developed and made accessible to the general public.

End user device - "A Smart Way to Travel":

An important project benefit has been achieved thanks to the development of the end user device with journey planning functionality allowing the residents and visitors to access real time information about the number of vacant parking places in 4 spots of Klaipeda and 6 parking lots in the Curonian Spit Peninsula in the Neringa municipality, with 474 parking places altogether.

This device allows to plan the journey and select an appropriate transport mode to reach particular destinations in the Klaipeda and Neringa area. High level of occupancy of available places suggests to choose a sustainable travel mode to the city centre, such as walking or public transport which is well developed in the municipality. The widget allows as well to limit the propensity to use private cars and reduce time spent on looking for available parking spots. An important advantage of the app which provides information about available vacancies is that it is combined with a travel planner which shows the timetable of bus connections and the possibility of buying a bus ticket on-line.

The Smart Way to Travel app is connected as well with the googlemaps and visimarsrutai.lt and Schedules by Trafi apps.

Measures applied and effects resulting from the implementation of the project:

Objective	Make drivers park away from the Old Town centre
Indicators	• Number of paid parking transactions in the pilot sites; • Number of paid parking violations; chose more ecological way to travel
Data used	• Registered number of paid parking transactions in the pilot sites • Statistic of paid parking violations • Survey data
Promotion	• Promotional articles in local and state - wide media, social media posts • companies'website • Promotional animation movie
Evaluation	• Evaluation using the Statistics of public transport tickets • Number of paid parking transactions in the pilot sites • Statistics of paid parking violations • Data from survey (using questionnaire)
Impact results	• Implemented tool and activities encouraged travellers to plan their journey in advance • A significant number of drivers chose more ecological way to travel

Stages

- Process for selecting of preferable tools for data gathering
- Installation of cameras and parking sensors
- Integration of real time information to the existing company owned private (closed for public) parking data hub
- Installation of info boards for on-street drivers
- Data and API integration to the new open source parking data hub adapted for Klaipėda by IT expert-partner (open data for public)
- Creating the end user device(-s) called "A Smart Way to Travel"
- Promotional activities and events
- Evaluation using statistics and a survey questionnaire.

Difficulties

There were difficulties in many stages of project implementation resulting from the unstable situation experienced during the COVID-19 pandemic. Initial stages of the project were adequately planned and implemented successfully enough at the beginning, but then COVID-19 struck and as a result of many restrictions applied at the local and international level the process of the project implementation was disrupted.

Changes in the composition of project consortium (City of Växjö representatives could not participate anymore, what resulted in the abandonment of the city from the project consortium) meant that the implementation of certain crucial stages of the projects was postponed. To be precise, the implementation of pilot open parking data hub was transferred to Klaipėda from Växjö. That process was quite difficult, because it necessitated the use of additional technical and human resources. Even after the launch there were many issues connected with the data and API integration.

Barriers

- Finding of the software developer for integration of different systems
- Managing the public procurement procedures when updating or expanding the existing infrastructure.

Drivers

- Awareness of taking part in the process of development of useful systems contributing to the improvement of local quality of life.
- Possibility to use the expertise of reliable and professional project consultants and experienced software developers and infrastructure installation providers;

Lead Partner:

- Polish Union of Active Mobility (PUMA), PL

Project Partners:

- City of Gdańsk, PL
- InfoShare Foundation, PL
- PICTEC Foundation, PL
- Neringa municipality administration, LT
- Klaipeda Public Transport Authority, LT
- Hanseatic City of Bremen, DE
- Municipality Ostseebad Heringsdorf, DE

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