

Executive summary

The purpose of this measure is to implement software tools for mobility management actions in industrial areas in order to increase the use of dedicated PT service for their daily home to work journeys. By implementing the measure, RAT provides an additional service to the industrial area companies of Craiova, based on analysis of each company needs.

At the beginning of this measure RAT, the PT Company from Craiova provided transportation service to 8 companies on a contractual basis. Around 2000 passengers were daily transported, depending on the companies working program.

The measure provided two actions:

- The design and the implementation of a new software tool, in order to increase this service;
- GPS GPRS implementation on buses operating in industrial area to facilitate the PT service deployment.

A dedicated software application has been developed and uploaded on RAT website in order to manage the commuter's transportation in the industrial area. The management actions are based on interactive web application designed to provide a set of functions to help the industrial customer to define the route according to the employees' residence, route length, and transportation costs. The web application can be used by every interested company

The operation period showed that the number of companies that used the service increased by 50% and the perception on quality of service improved by 8 %. The implementation of the measure led to 12 contracts concluded between companies from industrial area and RAT, in the operation period of the measure.

The key results are as follows:

- The revenues slightly increased by 0,6% after the measure implementation
- The number of commuters slightly increased by 0,26 %. FORD AUTO and other 2 companies which are FORD's partners are the only ones that have increased the number of employees. Some companies, even renewed the contract with RAT for employees transportation, they have dramatically reduced the number of employees because of decreased activity
- In the operation period, 12 contracts have been concluded with PT Company for commuters transportation, thus, the number of contracts increased by 50% compared with ex-ante situation
- Quality of service- improved by 8%.

The new system implemented in Craiova offered us new lessons learnt:

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Measure title: Software tools for mobility management actions in industrial areas in Craiova

City: CRAIOVA

Project: MODERN

Measure number: 04.08

- Better marketing approach by diversification of transportation mode. Instead of long term contract, RAT Craiova accepted daily requests or transportation on demand.
- Orientation towards smaller and medium sized companies involving a number of buses almost equal to that for a single large company.
- Associated services offer for more companies (with less employees) working on the same industrial platform and having the same working-program.

Considering the measure results and the advantages offered by the system (special the software tool developed and on board equipment for GPS / GPRS tracking) it is important to mention that RAT intent to extend this service to all business partner companies using of course the entire dedicated fleet for companies employees transport service. This will be gradually extended according to the own financial resources.

Results, however, are clearly dependent on the economic activity and justifying the benefits to the potential customers through appropriate dissemination.

In this regard, all potential client companies can access the special software for routes configuration by using RAT or Municipality website.

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A Introduction

A1 Objectives

The measure objectives are:

A. High level / longer term:

- To encourage companies from the industrial area and their employees to use dedicated PT services.

B. Strategic level:

- To optimise the routes according to the costs and commuters(employees)collecting stations.

C. Measure level:

- To increase the number of users (employees using the buses for this type of transportation) at least 10%.

A 2 Description

The purpose of the measure is to develop a software tools for a better management of the PT service dedicated to companies operating in the industrial area in order to increase t quality and the number of passengers of PT service.

The system is based upon:

- The design and the implementation of a new software tool, in order to increase this service;
- GPS GPRS implementation on buses operating in industrial area to facilitate the PT service deployment..

The idea was to synchronize the regular bus schedule with the above services; this , means that buses would start their route by shuttling the employees from the city (5 stops) to the factories, continue the usual bus schedule throughout the day and conclude with picking-up the same employees and taking them back to their home in the city.

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The route optimization would be based on contract specifications with the individual companies (optimizing travel time and use of bus capacity). The software tools provides an extended service for large companies from Craiova, based on analysis of companies needs.

Measure implied accomplishing of two actions:

1. 10 buses used for employees' transportation in the industrial area were equipped with GPS / GPRS system devices and of on-board computers connected to general dispatcher of RAT. The buses operate both in urban and industrial area. In industrial area, the buses operate on a contractual basis periodically have renewed periodically
2. A dedicated software program, called "digital maps software" (Fig A2-1) was implemented to RAT. By the aid of this software program, the RAT customers have the possibility to define a route according to the employees' residence, route length, and transportation costs.

The "digital maps software", also allow a better management of the transportation service in industrial area. The software application offers the following functions:

- The digital map allows the visualization of the passengers' picking points and the road links between them, offering the possibility of visual representation of one or more passengers' transport routes.
- The possibility to select from a drop-down list the type of buses for transportation (producer, manufacture year, loading capacity).
- The possibility to select from a drop-down list the journey days in a week (Monday, Thursday....)

This software was designed to help the user to optimize the route for special transport depending on the logistic requirements and transport costs.

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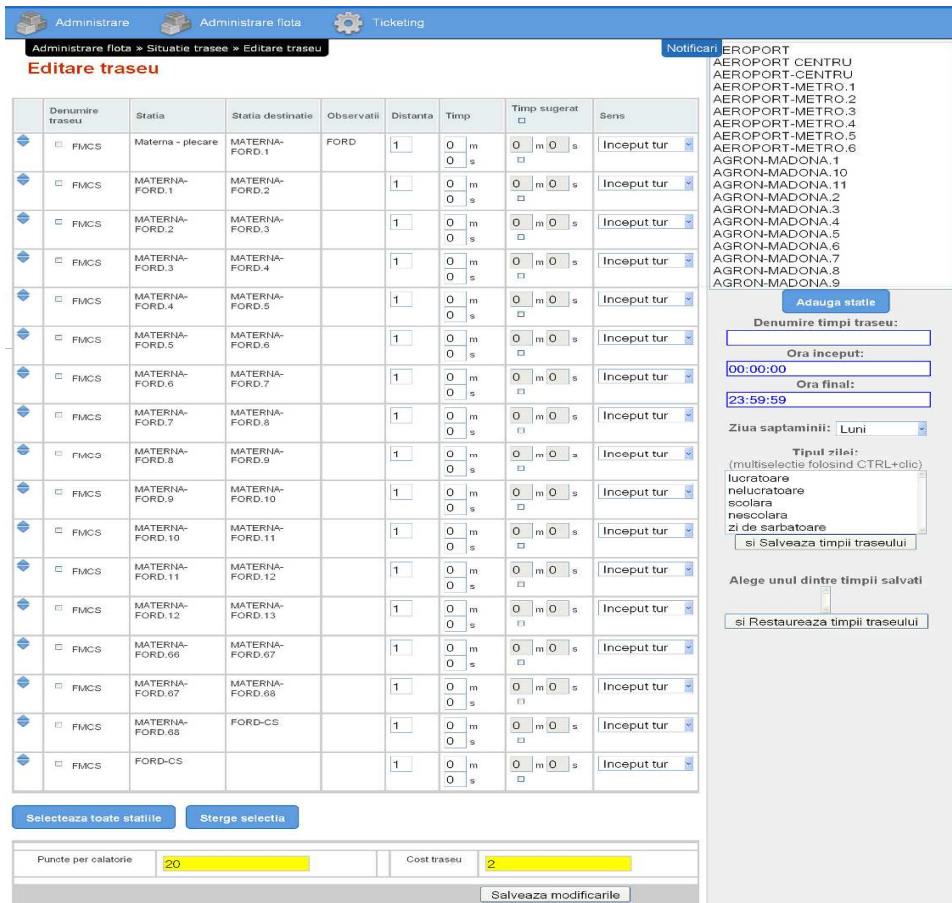


Fig. A2.1 – Screenshot of the software

The “digital map software” is posted on RAT website and it can be used by the any interested company.

B Measure implementation

B1 Innovative aspects

The innovative aspects of the measure are:

- **Use of new technology/ITS** – The mobility management tools involve new technology for data acquisition, communication and vehicles tracking. The “digital maps software” for public transport is for first time used in Craiova.
- **Targeting specific user groups**- The measure targets to a specific PT users- employees from the big companies from the industrial areas of the city.

Hence the most innovative aspect of the measure is the developed software that put potential Customer companies to design its own service, to evaluate relevant costs, to arrange the routes to the most convenient and effective employees transport.

B2 Research and Technology Development

Several documents and studies have been analyzed (traffic and passengers flow study, the existing contracts between RAT and different industrial companies) to assess the current state and to develop a mobility management for this kind of service which allow flexibility in configuring specific routes depending on the needs of companies.

As a result of the planning and design of the measure the best solution to optimize the transportation in industrial areas was to use a mix of digital maps and GPS software solution.

The digital maps system for the transportation in industrial area has been designed so as to provide the following functions:

1. Routs configuration: depending on the collection points and on the working program each company defines its rout. The system is able to purpose to the user a first optimization based on distance between the picking poits and the costs.. New routes could be connected with other routes on some sections, so trying to reduce the transport costs for companies.
2. Route optimization: if on the considered section the traffic conditions are difficult and could produce delays. For special transportation services, the most important requirement is to respect the route time schedule defined on the contract. Within the first phase the design of the measure has been completed by the definition of the Software specification. So the digital map software allowed the visualization of the bus stops and the road links among them, so allowing a visual representation of one or more passengers’ transport routes.



Figure B2.1

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Depending on visual representations of the paths, changes should be made on the routes and passenger stops (eliminate, add or modify); in the same way, the current route can be modified in order to optimize the company's employee's transportation.

B3 Situation before CIVITAS

Before CIVITAS measure, the commuters transportation was made on contractual basis using the standard routs set by RAT; no customization was allowed neither the issuing of new bus stops.

Following the request of several industrial companies RAT decided to improve this kind of services in order to increase the quality and to attract more customers.

B4 Actual implementation of the measure

The measure was implemented in the following stages:

Stage 1: Planning and design of the measure (Sept 2009-Mar 2010)

A design work carried out mainly for this measure, led to the conclusion that the measure must be connected with the 08.02 one – Info mobility tools for fleet management in Craiova.

The so called “dispatch center” (central monitoring station) to be developed under the measure 08.02 will be the same for both the measures. To complete the design of the measure several documents and studies were analyzed (traffic and passengers flow study, the existing contracts between RAT and different industrial companies, the technical specification for GPS/GPRS system to be implemented in Craiova through measure 08.02). t The status of traffic flows and the current state of delays occurring within PT operations was deeply analyzed in order to designa services able to respect the needed time scheduling.

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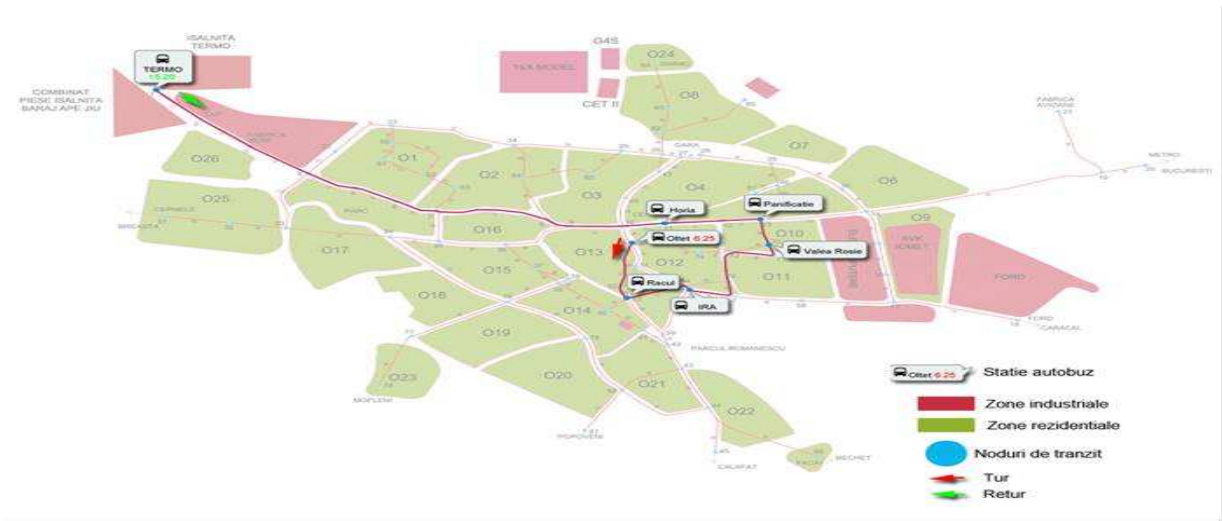


Fig. B4.1 – Digital map – example of route configuring for industrial area transportation

Stage 2: City plans and routes (March 2010-Sept 2010)

At the beginning a digital map of the industrial areas and relevant bus stop points, to pick up the employees, in the city was acquired and specifically developed.

All the contracts signed by RAT with companies in industrial zones were analyzed and all the relevant data: routes, collecting points, departure points and destination were reported.

Digital maps were installed within the central control and dispatch center and functional tests have been performed.

Stage 3: Software design for digital maps; Implementation of digital maps and software design (Sept 2010-April 2012)

In this stage, the software program was developed.

The digital maps were uploaded on RAT Craiova website from the central control and dispatching system and will be integrated with the GPS/GPRS system developed in the measure 08.02 within the MODERN project.

The application allowed the RAT company management staffs the following operations:

- management tool for special transport routes (for industrial area) that are used for special transport of workers between industrial and residential areas;
- system for route planning and optimization;
- management of the transport system for employees between industrial and residential areas in accordance with contracts agreed between RAT Craiova and companies that activate in those areas.

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Stage 4: System operation (May -2012- Oct 2012)

This is a description of how the system works:

- A potential customer may access the digital map (on the RAT's and Municipality's websites) and can select: route, stations, departures points and destination so defining a route according to its specific need.
- After the configuration, it is possible to choose time schedule, bus transport capacity and type:
- Following the choice made above the costs are automatically calculated.
- If the potential customer is satisfied it is possible to submit the SW results to RAT in order to define contract agreement.

The picture B4.1 shows an example of one route configured according to the stations needed.

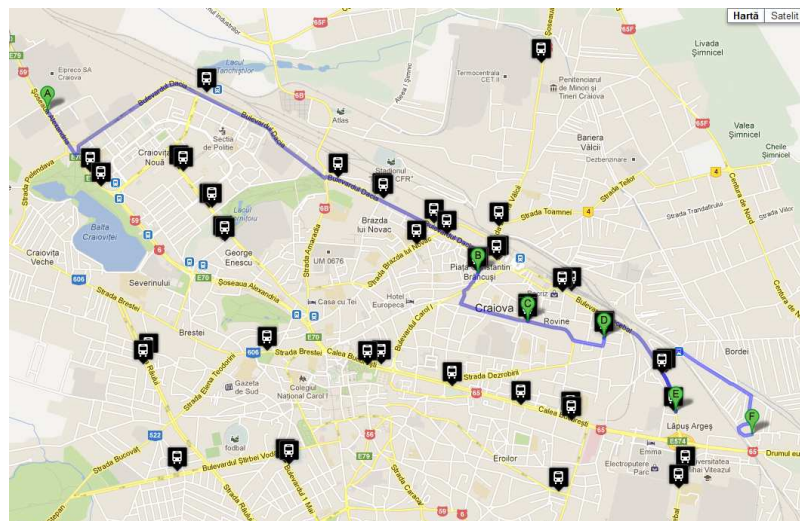


Figure B 4.1 – Example of configuration

The system processes the information provided by customers and calculates the routes and driving directions according to their needs. The software gives the possibility to save driving directions in a custom panel to make possible the return to previous route or share them with others. In the picture B 4.2, the button “Salvati Traseul”(“Save the rout”) means save the route.

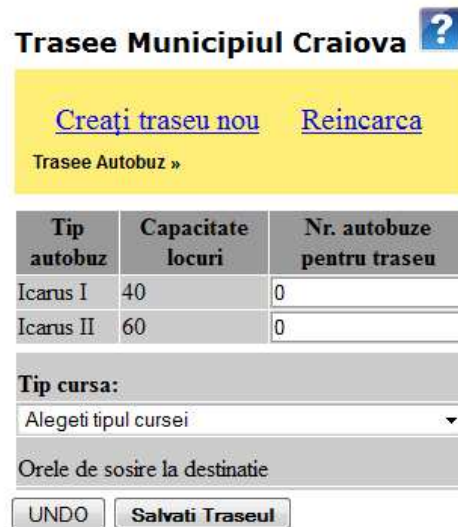


Figure B 4.2 – Software screenshot

The text inside the picture is translated in the following table:

Text in Romanian	Text in English
Trasee Municipiul Craiova	Craiova city routes
Creați traseu nou	Create new route
Reincarca	Refresh
Trasee Autobuz	Bus routes
Tip autobuz	Bus type
Capacitate locuri	Capacity
Nr. Autobuze pentru traseu	Number of buses for route
Tip cursa	Type of route
Alegeti tipul cursei	Select type of route
Orele de sosire la destinatie	Hours of arrival at destination
Salvati Traseul	Save route

The digital map system can estimate the fuel cost for each selected route. The fuel cost for the selected route is displayed in the custom panel. Clicking on the route opens up options to specify bus type, time of arrival at destination, route length. The estimated cost per route are automatically calculated and displayed depending on the input values. The table B 4.3 shows a cost estimation for a 9.9 Km length route.

Nr. traseu	Statiile (in ordinea parcurgerii)	Tip autobuz (nr. autobuze)	Tip cursa	Ore sosire la destinatie	Lungimea traseului	Estimare cost
1	St19, St81, St8, 44.31298000000001, 23.84362	Icarus I(1)	tur - retur (gol)	13:30	9.90 Km	40 RON

Figure B 4.3 – example of cost estimation for 9.9 km distance

The text inside the picture is translated in the following table:

Text in Romanian	Text in English
Nr. traseu	No. route
Statiile (in ordinea parcurgerii)	Stations (movement direction)
Tip autobuz (nr. autobuze)	Type bus (Bus No.)
Tip cursa	Type of route
Ore de sosire la destinatie	Hours of arrival at destination
Lungimea traseului	Length of the route
Estimare cost	The estimated cost

The digital map system allows the customer to add more stops or vary the direction along the route, to take more commuters. Once the customer agrees with the information provided by the digital map system, the contact with RAT top management could be done via website (Fig. B 4.4)

[Creați traseu nou](#) [Reincarca](#)

Trasee Autobuz »

Traseu 1 - 9.9 km

Nume companie:* Ford Craiova

Persoana de contact:* Istratie Valentin

Email:* valentin.istratie@ipacv.r

Telefon:* 0763253135

Comentarii: Asteptam un raspuns de la dumneavoastra cat mai repede posibil

Figure B 4.4

The text inside the picture is translated in the following table:

Text in Romanian	Text in English
Creați traseu nou	Create new route

Reincarca	Refresh
Trasee Autobuz	Bus routes
Nume companie	company name
Pesoana de contact	Contact person
Email	Email
Telefon	Phone
Comentarii	Comments
Vizualizare rezultate	View results
Trimite traseele selectate la RAT	Send selected routes to RAT

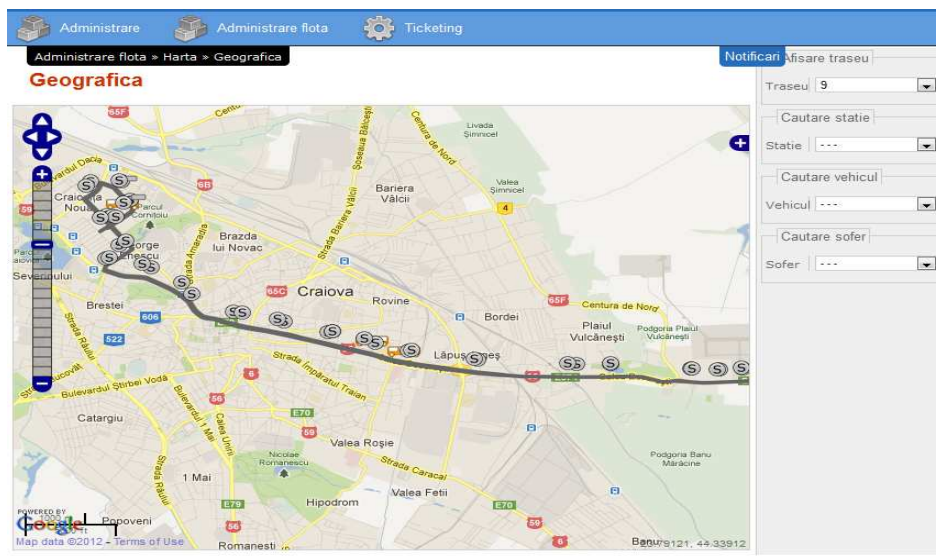


Figure B4.5 – example of a route configured by a customer

The text inside the picture B4.5 is translated in the following table:

Text in Romanian	Text in English
Administrare flota-Harta-Geografica	Fleet-management-Geographic map
Notificari	Notifications
Afisare traseu	Show route
Traseu	Route
Cautare statie	Search station
Statie	Station
Cautare vehicul	Vehicle Search
Vehicul	Vehicle
Cautare sofer	Drivers Search
Sofer	Driver

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The route is monitored by GPS/GPRS system and the drivers have the possibility to see the passenger's stations on the on board computer screen. Also, it is the possibility that the driver can receive messages if he is in delay or in advance according to the scheduled route

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- **M08.02 – Infomobility tools for fleet management in Craiova** - From functional view point, the GPS/GPSR – Operation Support System allows the monitoring of the 10 buses providing transportation services for commuters in industrial area
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C Impact Evaluation Findings

C1 Measurement methodology

C1.1 Impacts and Indicators

Table C1.1: Indicators.

No.	Impact	Indicator	Data used	Comments
1	Economy	Revenues	Euros/vKm	The revenues coming by passengers (namely season tickets) and payment per Kms
19	Transport	Quality of service	%	Face to face survey
Local indicator		Average number of commuters	No	RAT records referring to number of commuters using the service
Local indicator		Number of companies that use the service	No	RAT records referring to number of companies using the service

Detailed description of the indicator methodologies:

- **Indicator 1 Revenues** - Total income generated from season tickets and payment per Kms for a given period.
- **Indicator 19 (Quality of Service)** - Survey based on perception of the quality of service.

The survey has been done to see the impact of the measure on the commuters that use buses to get to work in the industrial area.

The questionnaires were structured in 2 sections:

1. General information about commuters (age, gender)
2. Question referring to the measure:
 - How do you evaluate the quality of service provided by RAT related to your transportation to work?

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- **Local indicator (Average number of commuters)** - RAT provided the monthly number of season tickets that means number of commuters using the service in industrial area.
- **Local indicator (Number of companies that use the service)**- RAT provided the number of companies using the service developed by the measure.

C1.2 Establishing a Baseline

The base line is 2011, when the transportation of the commuters in industrial areas was based on agreements with industrial companies employing these commuters. Routes and stops were set by RAT without any possibility of several analyses and selection of the optimal solutions.

Revenues

RAT provided all the data related to total revenues buses involved in the measure, in the period May-October 2011. This period of time was considered as reference to make a comparison between the same periods after the implementation of the measure.

Raw data	May-October 2011 Ex-Ante values
Total revenues coming from the buses traveling in industrial area	231'810 €

Quality of service

Starting to the number of commuters of 2301 that used the service in September 2011, 200 questionnaires were circulated (see annex 1- sample size calculation).

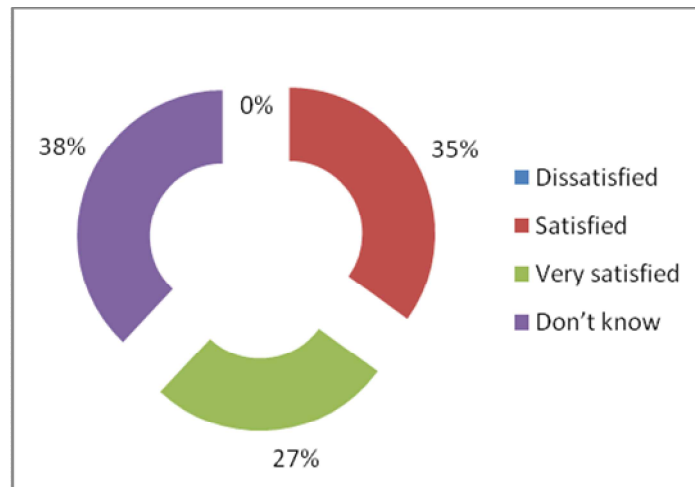
Questionnaire content	September 2011 Ex-ante values
Age	Between (18-40) age 33% Between (40-65) age 67%
Gender	Male 74% Female 26%
How do you evaluate the quality of service provided by RAT related to transportation to work	
Dissatisfied	0%
Satisfied	35%
Very satisfied	27%
Don't know	38%

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Average number of commuters

RAT provided the monthly number of sold season tickets that means the number of commuters using the service between May 2011 – October 2011.

The data are related to the buses operating in industrial area.

Indicator	Ex-Ante values May-October 2011
Average number of commuters	2'270 commuters

May	June	July	August	September	October	Average number of commuters
2'288	2'271	2'251	2'245	2'301	2'262	2'270

		May	June	July	August	September	October	Average number of tickets
2011	Number of tickets sold related to all companies in industrial area	2'288	2'271	2'251	2'245	2'301	2'262	2'270

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		May	June	July	August	September	October	Average number of tickets
	Number of tickets sold related to FORD	1'678	1'667	1'661	1'672	1'671	1'673	1'644
	Difference all companies –FORD	610	604	590	573	630	589	626

Number of companies that use the service

RAT provided the number of companies that concluded a contract with RAT and used the service developed by CIVITAS measure, before the implementation of the measure.

Indicator	Ex-Ante values 2011
Number of companies	8 7 companies signed contracts 1 company pay for Kms traveled

C1.3 Building the Business-as-Usual scenario

Without CIVITAS project, RAT Company would have provided a standard transportation mode for the employees of companies located in the industrial area.

So, it can be assumed that the indicators in BAU have the same values as ex-ante.

Revenues

Raw data	2012 BAU values
Total revenues coming from the buses traveling in industrial area	231'810 €

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Quality of service

Questionnaire content	BAU values
Age	Between (18-40) age 33% Between (40-65) age 67%
Gender	Male 74% Female 26%
How do you evaluate the quality of service provided by RAT related to transportation to work	
Dissatisfied	0%
Satisfied	35%
Very satisfied	27%
Don't know	38%

Average number of commuters

Indicator	2012 BAU values
Average number of commuters	2'027 commuters

In BAU situation, RAT assumed that the season tickets sold to FORD remain the same but take into consideration the reducing number of employees in industrial area, due to the crisis.

		May	June	July	August	September	October	Average number of tickets
2012	Number of season tickets sold related to all companies in industrial area	273	258	250	239	244	252	383
	Number of season tickets sold related to FORD	1'678	1'667	1'661	1'672	1'671	1'673	1'644
	Total number of season tickets sold	1'951	1'925	1'911	1'911	1'915	1'925	2'027

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Number of companies that use the service

Indicator	2012 BAU values
Number of companies	8

C2 Measure results

The measurements for ex-post evaluation have been collected between May-October 2012 to include the operation period deployed in the same period (May 2012 to October 2012).

C2.1 Economy

Revenues

In May 2012, the “digital maps software” was implemented to RAT.

RAT provided the revenues from buses involved in the CIVITAS measure, in the period: May - October 2012. Equal to 233’827 € a very slight increase of total revenues from the buses in industrial area.

The figures from the table shows a very slight increase of total revenues from the buses in industrial area, starting to May 2012, after the measure implementation. The increase is due to the service “payment for Km” rather than from season tickets sold in the period of analysis.

Raw data	May-October 2012 Ex-post values
Total revenues coming from the buses involved in CIVITAS measure	233’287 €

	Total revenues(euro)
May-October 2012- ex-post	233.287
May-October 2011- ex-ante	231.810

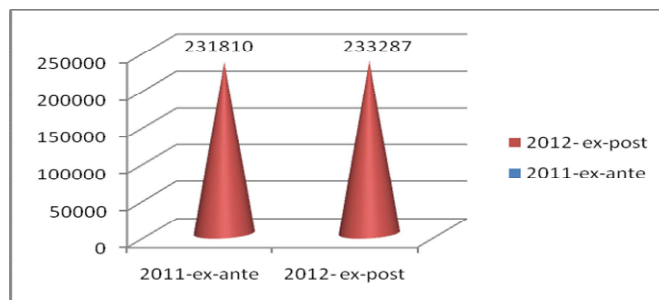


Fig. C2.1.1 – Evolution of operating revenues between May– October; comparative analysis -Ex-ante 2011 and ex-post 2012

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Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
Revenue	231'810 € (May 2011- October 2011)	231'810 € (May 2012- October 2012)	233'287 € (May 2012- October 2012)	1'477 0,6 % increase	1'477 0,6 % increase

C2.4 Transport

Quality of service

Starting to a target group of 2'302 commuters in September 2012, 200 questionnaires have been circulated among the employees of the companies that used the buses involved in the CIVITAS measure.

Questionnaire content	September 2012 Ex-post values
Age	Between (18-40) age 31% Between (40-65) age 69%
Gender	Male 72% Female 28%
How do you evaluate the quality of service provided by RAT related to transportation to work	
Dissatisfied	0
Satisfied	43%
Very satisfied	27%
Don't know	30%

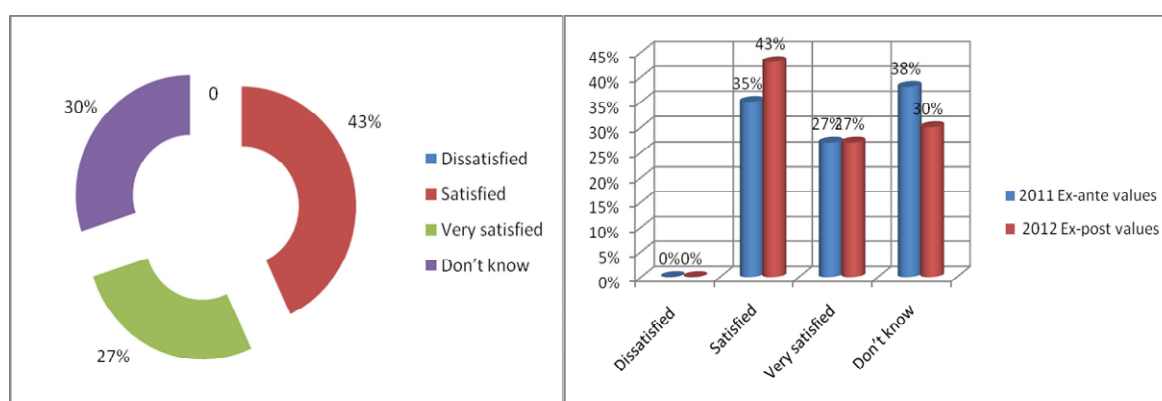


Figure C2.4.1 – Comparative analysis ex-ante – ex-post

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Average number of commuters

RAT provided the monthly number of season tickets sold which means the number of commuters using the service in the ex-post period, between May 2012 – October 2012. RAT records showed a very slight increase of average number of commuters in the in ex-post period. The explanation of these results are the following:

- Some companies (as FORD AUTO and 2 satellite companies) increased the number of employees due to the intensive activity;
- Some companies (as Electroputere SA and Avioane Craiova SA) renewed the contract with RAT but dramatically decreased the number of employees due to the reducing activity area.

Indicator	Ex-post values May-October 2012
Average number of commuters	2'276 commuters

	Ex-ante-2011	Ex-post - 2012
Average number of commuters	2'270	2'276

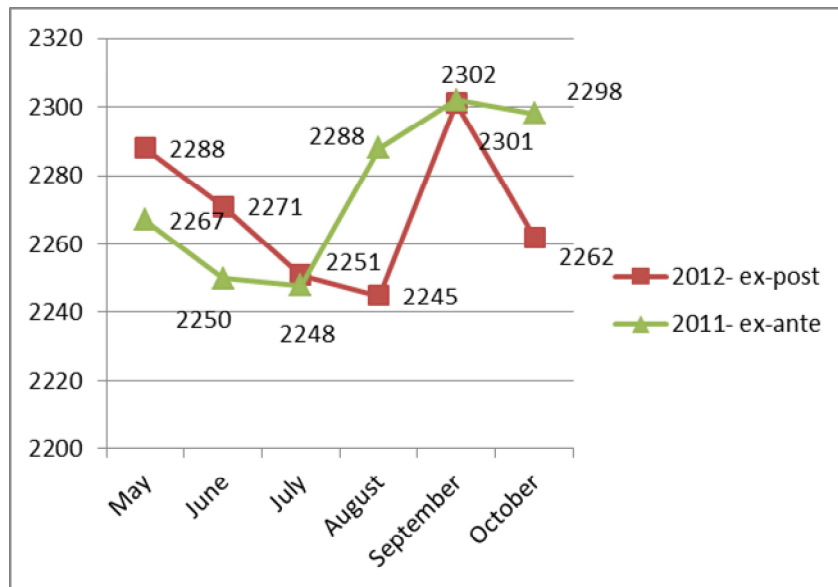


Figure C2.4.2 – Average number of commuters – comparative analysis ex-ante – ex-post

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Number of companies that used the service

RAT provided the number of companies that concluded a contract with RAT and used the service of the buses involved in the CIVITAS measure.

Indicator	2012 Ex-post values
Number of companies	12 companies 11 companies signed contracts 1 company used the service and paid for Km travelled

Comparative analyses between season tickets sold to FORD AUTO Company together with 2 satellite companies and season tickets sold to all companies in industrial area using the service

1. Data related to all buses fleet operating in industrial area, using the service

May-Oct 2011

	May	June	July	August	September	October	Average number of tickets
Number of tickets sold	2'288	2'271	2'251	2'245	2'301	2'262	2'270

May-Oct 2012

	May	June	July	August	September	October	Average number of tickets
Number of tickets sold	2'267	2'250	2'248	2'288	2'302	2'298	2'276

2. Data related to FORD AUTO company and 2 satellite companies working with FORD AUTO company (SC Johnson Controls Romania SRL and SC Cooper Standard Romania SRL).

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May-Oct 2011

	May	June	July	August	September	October	Average number of tickets
Number of tickets sold	1'678	1'667	1'661	1'672	1'671	1'673	1'644

May-Oct 2012

	May	June	July	August	September	October	Average number of tickets
Number of tickets sold	1'994	1'992	1'998	2'049	2'058	2'046	1'893

		May	June	July	August	September	October	Average number of tickets
2011	Number of tickets sold related to all companies in industrial area	2'288	2'271	2'251	2'245	2'301	2'262	2'270
	Number of tickets sold related to FORD	1'678	1'667	1'661	1'672	1'671	1'673	1'644
	Difference all companies in industrial area – FORD	610	604	590	573	630	589	626
2012	Number of tickets sold related to all companies in industrial area	2'267	2'250	2'248	2'288	2'302	2'298	2'276
	Number of tickets sold related to FORD& 2 satellite companies	1'994	1'992	1'998	2'049	2'058	2'046	1'893
	Difference all companies in	273	258	250	239	244	252	383

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		May	June	July	August	September	October	Average number of tickets
	industrial – FORD&Co							

The conclusion is the following:

As the table shows above, some companies, using the CIVITAS measure, have been forced to reduce the number of employees due to the economic crisis, from an average of 626 employees to an average of 383 employees(a reducing of 243 people because of crisis). On the other hand, some companies using the CIVITAS measure, which increased the activity, extended the average number of commuters from 1644 to 1893. This means an increase of 249 people using the service.

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
Quality of service	35 % satisfied 27% very satisfied 38 % don't know (September 2011)	35 % satisfied 27% very satisfied 38 % don't know (September 2012)	43 % satisfied 27% very satisfied 30% don't know (September 2012)	8 % increased Satisfaction level	8 % increased Satisfaction level
Average number of commuters	2270 (May-October 2011)	2027 (May-October 2012)	2276 (May-October 2012)	0,26% increased	12 % increased
Number of companies using the service	8 (2011)	8 (2012)	12 (2012)	4	4

C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	Integration of the 10 buses into the infomobility system(GPS/GPRS)	**
2	To install digital maps for routs configuration for commuters transportation in industrial area	**
3	To increase the number of users (employees using the buses for this type of transportation) at least 10 % <i>The average number of commuters increased by 0.26%</i>	O
	<i>The number of contracts concluded between RAT and companies that use the service have increased by 50 %</i>	***
NA = Not Assessed * = Substantially achieved (at least 50%) ** = Achieved in full *** = Exceeded		

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C4 Up-scaling of results

RAT Company promotes by any means its service of transportation for companies employees located in the industrial areas and encourages companies in industrial area and their employees to use dedicated PT services and to use the software application for digital maps.

By offering a better transport service for the company RAT hopes to increase the number of companies that use public transportatuon for thei employees and also the number of employees using the buses for this type of transportation.

C5 Appraisal of evaluation approach

The evaluation of this measure focused on some indicators across the areas of economy and transport which were to be measured in different ways and calculated.

The indicator “Average operating revenues” has been modify and considered as total revenues from buses operating in the industrial area. The justification of this modification is the fact that in 2011 RAT had no separate records of kilometers travelled in the industrial area, so, we could not calculate the average operating revenue per vKm(€/vKm).

The survey for “Quality of service” assessment was done in cooperation with the companies which used the service. The companies disseminated the questionnaires among the commuters employed of these companies.

The “Average number of commuters” was considered equal with the average number of season tickets sold for industrial area.

An additional indicator was “Number of companies” that concluded contracts for employees transportation because the measure addresses to the companies

C6 Summary of evaluation results

The key results are as follows:

Key result 1 – The revenues slightly increased by 0.6% after the measure implementation.

Key result 2 – The number of commuters slightly increased by 0.26%. FORD AUTO and other 2 companies, FORD partners, are the only ones that have increased the number of employees. Some companies, even renewed the contract with RAT for employees transportation, they have dramatically reduced the number of employees because of decreased activity

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Key result 3- In the operation period, 12 contracts have been concluded with PT Company for commuters transportation, thus, the number of contracts increased by 50% compared with ex-ante situation

Key result 4- Quality of service- improved by 8%. The buses stations, configured by the companies which sign contracts with RAT for commuters transportation, are chosen based on home addresses of commuters. After the measure implementation, some commuters realized that the stations are closer to home.

The new system implemented in Craiova offered us new lessons learnt:

- Better marketing approach by diversification of transportation mode. Instead of long term contract, RAT Craiova accepted daily requests or transportation on demand.
- Orientation towards smaller and medium sized companies involving a number of buses almost equal to that for a single large company.
- Associated services offer for more companies (with less employees) working on the same industrial platform and having the same working-program.

Considering the measure results and the advantages offered by the system (special the software tool developed and on board equipment for GPS / GPRS tracking) it is important to mention that RAT intent to extend this service to all business partner companies using of course the entire dedicated fleet for companies employees transport service. This will be gradually extended according to the own financial resources.

Results, however, are clearly dependent on the economic activity and justifying the benefits to the potential customers through appropriate dissemination.

In this regard, all potential client companies can access the special software for routes configuration by using RAT or Municipality website.

C7 Future activities relating to the measure

RAT Company intends to promote by any means its service of transportation for companies employees located in the industrial areas and encourages companies in industrial area and their employees to use dedicated PT services.

The use of the software application for digital maps is one essential tool to develop this service..

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D Process Evaluation Findings

D.0 Focused measure

- Please fill in the number of the reason from the checklist in the clarification section according to importance.
- If it is not clear what the reason(s) is (are), please check this with your Local Evaluation Manager and / or your Project Evaluation Manager.

X	0	No focussed measure
	1	Most important reason
	2	Second most important reason
	3	Third most important reason

D.1 Deviations from the original plan

The deviations from the original plan comprised:

- **Deviation 1-** Extension of the implementation period

Due to the wrong estimation of time needed for the implementation and testing of the digital maps software, the implementation of the measure had to be extended by 6 months.

- **Deviation 2-** Including of the system operation period

In the work-plan no task for the operation of the system was foreseen. In the 5th contract amendment, 6 months system operation period was added. Therefore, the measure was extended in order to perform all the evaluation procedures.

D.2 Barriers and drivers

D.2.1 Barriers

Preparation phase

There have been no barriers in this phase.

Implementation phase

- **Barrier 1 Involvement, communication** - Low number of companies that require special transport.

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Operation phase

- **Barrier 1 Problem related** – Reducing of the activity in large companies due to the recession and limitation of the demand for such a service
- **Barrier 2 Involvement – communication** - Low number of companies that require special transport

D.2.2 Drivers

Preparation phase

There have been no drivers in this phase.

Implementation phase

- **Driver 1 Planning** - Flexible software for routes and station configuring

Operation phase

- **Driver 1 – Planning** - Flexible software for routes, station configuring and cost's optimization

D.2.3 Activities

Preparation phase

There have been no activities in this phase.

Implementation phase

- **Activities 1 – Planning** - Better marketing approach by diversification of transportation mode. Instead of long term contract, RAT Craiova accepted daily requests or transportation on demand.

Operation phase

- **Activities 1 – Planning** - Better marketing approach by diversification of transportation mode. Instead of long term contract, RAT Craiova accepted daily requests or transportation on demand.

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D.3 Participation

D.3.1. Measure Partners

- **Measure partner 1 – IPA SA - Leading role**

IPA SA is a 47 years old Romanian industrial R & D company and is the Romanian national institute for research and development, engineering in energy, automation and IT, with a large experience in European projects in technology transfer and in information dissemination.

IPA was responsible for the dissemination activities and carrying out the research activity and technical studies in the measure. Since 2011 IPA took over the evaluation activity.

- **Measure partner 2 – RAT- Principle participant**

RAT Craiova is main Public Transportation Company in Dolj county. It provides the citizen transportation by trams, buses and micro-buses.

RAT Craiova uploaded the digital map system on the website and provided the buses for operation. Also, RAT managed the operation and monitoring activities.

- **Measure partner 3 – LCM – Occasional participant**

The Local Council of Craiova Municipality (Primaria Municipiului Craiova) was organized and functions according to Law No. 215/2001 regarding Local Public Administration with the subsequent modification and completion.

Municipality as local government institution has, under the conditions imposed by the public administration law, the decisional right in all matters of local interest: political, social, cultural, educational and technical. Through their structures, the municipality is a complex mechanism which can produce major changes in the quality of urban life under an effective management and coordination.

The competencies of these bodies related to the project covers both the services provided to the local community (i.e. Public transport service in various forms) and the technical interventions (the urban infrastructure, constructions) that together change the image of the city and bring added value to the quality of life in the areas where they act.

LCM was the coordinator of the project since 2009 and assumed the responsibility for the management activity in the MODERN project. Between 2009-2011, LCM carried out the evaluation activity in the project.

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D.3.2 Stakeholders

- **Stakeholder 1 - Alien Concept Company** – GPS tracking equipment supplier, tests and installation.
- **Stakeholder 2** - Ford Company has contract with RAT for commuters transportation
- **Stakeholder 3** - SC Johnson Controls Romania SRL has contract with RAT for commuters transportation
- **Stakeholder 4** - SC Cooper Standard Romania SRL SA has contract with RAT for commuters transportation
- **Stakeholder 5** - POLITIA LOCALA Craiova
- **Stakeholder 6**- COMPLEXUL ENERGETIC OLTENIA
- **Stakeholder 7**- SC AVIOANE CRAIOVA SA
- **Stakeholder 8**- SC OMV PETROM SA
- **Stakeholder 9**- SC CUMMINS GENERATOR
- **Stakeholder 10**- TEHNOLOGIES ROMANIA SA
- **Stakeholder 11**- SC TEXMODEL GROUP SRL
- **Stakeholder 12**- SC ELECTROPUTERE SA

D.4 Recommendations

D.4.1 Recommendations: measure replication

- **Better marketing approach** - Better marketing approach by diversification of transportation mode. Instead of long term contract, RAT Craiova accepted daily requests or transportation on demand
- **Gradual extending to all business partner companies** - Considering the measure results and the advantages offered by the system (special the software tool developed and on board equipment for GPS/GPRS tracking) it is important to mention that RAT intent to extend this service to all business partner companies using of course the entire dedicated fleet for companies employees transport service. This will be gradually extended according to the own financial resources. In this regard, all potential client companies can access the special software for routes configuration by using RAT or Municipality website.

D.4.2 Recommendations: process (related to barrier-, driver- and action fields)

- **Recommendation 1** - Orientation towards smaller and medium sized companies involving a number of buse almost equal to that for a single large company.

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Annex 1 – Sample size calculation for ex-ante and ex-post survey on commuters

Variables name and explanations		Variables values
	measure	4.08
n	sample size for ex-ante survey	200
t	z-score: the abscissa of the Normal distribution for probability α	1.53
α	confidence level , is a percentage and represents how often the true percentage of the population who would pick an answer lies within the confidence interval (margin of error).	87.50%
P	percentage of your sample that picks a particular answer	0.5
Q	(1-P)	0.5
d	confidence interval (also called margin of error)	0.05
N	Total number of commuters in September 2011	2'302

Sample size

$$n = [t^2PQ/d^2] / [1 + (t^2PQ/d^2 - 1)/N] \quad (1)$$

where: t = the abscissa of the Normal distribution for probability α
 P = expected population value of the proportion
 Q = (1-P)
 d = margin of error
 N = population total

α - in mod obisnuit se foloseste 95%

A preliminary estimate of P (called p) is made from prior information or as an informed guess; so then q = 1-p.

If N is large, a first approximation of n is given by:

$$n_0 = t^2pq/d^2 \quad (2)$$

or $n_0 = pq/V$ (3)

where $V = d^2/t^2$ is the desired variance of the sample proportion

In practice, n_0 is calculated first and so long as n_0/N is quite small, n_0 provides a satisfactory estimate of n. If not, then from equations (1) and (2) above:

$$n = n_0 / [1 + (n_0 - 1)/N]$$