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South East Europe TCP

Best Practice Report

TrackGPS Business

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Good Practice Report

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Final approval	Name	Partner
Reviewer		

<p>1. Best Practice Title</p> <p>TrackGPS Business</p>
<p>2. Location of Best Practice</p> <p><i>Country, region, town</i></p> <p>Romania, Cluj, Cluj-Napoca</p>
<p>3. Best Practice Executive Summary</p> <p><i>Describe briefly (max 10 lines) the GP context (partnership, funding, objectives, approach followed, results)</i></p> <p>Following the experience with international prestigious companies, AROBS started developing a series of software solutions for the local market: sales force automation (SFA) on PALM and PDA's (Optimall by Arobs), GPS/GPRS (TrackGPS) fleet tracking / monitoring systems and tourism applications (ATOS/ABOS).</p> <p>TrackGPS Business, the fleet tracking / monitoring system, has been the most successful one – because of the growing necessity to make the fleet activities more efficient. TrackGPS Business, the vehicle tracking system, is helping thousands of fleet owners to drive down operating costs and increase earnings. It offers live vehicle tracking, fleet maintenance and risk management information to fleet operators of all sizes. There are over 500 companies with vehicle fleets in Romania that experience the benefits of reduced costs and increased productivity. Over 9,000 vehicles of all types are being monitored at the moment.</p>
<p>4. Best Practice Classification</p> <p><u>Best Practice Theme</u></p> <p><input checked="" type="checkbox"/> <i>Research Transformed to Innovative Product</i></p> <p><input type="checkbox"/> <i>Research Transformed to Innovative Service</i></p> <p><input type="checkbox"/> <i>Research Transformed to Innovative Methodology</i></p> <p><input type="checkbox"/> <i>Research Transformed to Innovative Production Process</i></p> <p><input type="checkbox"/> <i>Financial Mechanism for Transformation of Research to Innovation</i></p> <p><input type="checkbox"/> <i>Support Mechanism for Transformation of Research to Innovation</i></p> <p><input type="checkbox"/> <i>Other (describe)</i></p> <p><u>Best Practice Research / Application Areas</u></p> <p><input type="checkbox"/> <i>Industrial / Manufacturing Systems</i></p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> <i>Industrial Informatics and Communications</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Intelligent Devices</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Distributed Control Systems</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Flexible Manufacturing Systems</i></p> <p><input type="checkbox"/> <i>Embedded Systems</i></p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> <i>Industrial Embedded Systems</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Nomadic Environments</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Private Spaces</i></p> <p style="padding-left: 40px;"><input type="checkbox"/> <i>Public Infrastructures</i></p>

5. Description of Best Practice

5.1 Best Practice Context

Overall background of the Best Practice. Location, socio-economic, technical & policy background of the BP (max 10 lines)

AROBS Transilvania Software, as a known developer of software solutions for mobile applications, is specialized in the development of niche software solutions for GPS Tracking Systems. This orientation was justified and supported by some favorable conditions, the most important being:

- a local market in development, being in a process of stabilization and maturation;
- the important role played by the fleet tracking technology in the reduction of fuel consumption and for clear environmental benefits (by the reduction in carbon emission);
- the European goal to increase the road traffic safety.

The company is among the top dynamic technology companies from Central Europe.

TrackGPS developed by AROBS is located in the niche-market related to vehicle fleets and independent vehicle traffic management. Due to the fact that the towns are more and more crowded and the fuel price grows up continuously, better vehicle coordination is required.

This innovative system brings a considerable contribution to the improvement of the activity of companies that have a fleet of vehicles and for which delivery of products and services to the clients is of maximum importance: transport and distribution, retail, taxi and limousine companies, rent-a-car, public administration, car dealers, telecommunication.

TrackGPS is a system that allows tracking and coordination of fleet vehicles, using the most advanced tool for fleet maintenance cost control: real-time GPS tracking and GPRS data transfer. The system uses reports and vector maps which offer information about vehicles' location on the map, covered distances, number and duration of every stop, as well as a full range of detailed reports: daily activity report, speed report, digital tachograph and vehicle history report (tyre and oil change, service). The possibility of generating consumption reports guarantees a better fleet control. TrackGPS Business is a WEB-based vehicle tracking software which can be accessed from any computer or PDA with Internet connection. It has an easy, intuitive interface which requires minimum PC knowledge.

5.1.1 Policy Elements

What are the policy initiatives that have influenced the contextual environment of BP: innovation promotion policies, research funding policies, certification etc as well as relevant tools (max 10 lines)

The Romanian Government policy requires total exemption from taxing the incomes of the employees of the private companies having the object of their activity classified as development of computer programs. This allows a better income for high-skilled professional in the IT sector and a higher growth capacity for software-developers producers in Romania.

This policy that require reduced taxes for employees specialized and working in automation and computer fields leads to reduced expenditures for the current product development.

5.1.2 Socio-economic & Other factors

Other contextual factors such as customer / target market addressed, international validity, customer density, economic conditions, customer values, research area addressed (max 10 lines)

Almost all of the cities around the world have to face the increased vehicle traffic rates and the daily congestions. Fleet tracking and management software helps organizations to be more efficient and also safer. Guiding the vehicle fleets reduces the transportation costs. The guiding system reduces the driver's knowledge requirements related to city/town map. This allows shorter driver accommodation with the changes in infrastructure.

The targeted customers of TrackGPS are transportation firms. It is considered the ideal solution for transportation companies having more than 10-20 cars. Hundreds of companies (more than 450 in

Romania) in the fields of distribution, civil engineering, courier services, taxi cabs, car leasing and rental, telephony or pharmaceutical, as well as some multinational companies are interested to buy or to lease Track GPS. The software solution is installed in Austria and Germany and is sold or leased to many multinational companies.

TrackGPS tracking system was designed with a combination of managerial features and enhancements that allow the companies to reduce fuel consumption, reduce excessive overtime and paperwork with automated time sheets, eliminate unauthorized vehicle use, increase route efficiencies with live tracking and mapping, encourage safe driving techniques, and reduce fleet operational costs by 25%.

5.2 Objectives

Aim of the project, specific objectives & strategies to achieve these objectives (max 10 lines)

The aim of the project was to build an AVL (Automatic Vehicle Location) solution for companies, which would overcome the other existing solutions in Romania in terms of number of monitored vehicles. The purpose was to offer a best-buy solution, software and hardware, with all the features that customers need, and at a good price. One strategy was to build an application as user-friendly as possible, with a very easy to use user interface, since our users are not highly skilled in computers and they need to get easy and fast the information they want.

The main specific objective of the application was to create a web application, which allows the staff of the transport company to monitor and control the transport process using a PC connected to Internet, and mobile terminals such as PDAs with GPRS data cards. The communication between the implied parties had to be based on SMS or GPRS technology.

Other specific application objectives were:

- Increased activity efficiency,
- Reduced fuel expenses (10-20%),
- Decreased driver speeding,
- Decreased overtime,
- Reduced operational costs with fleet (15-25%),
- Elimination of timesheet fraud.

The main strategies taken into account for the current system development were:

- Gathering customer requirements,
- Adapting customer desires with the vehicle traffic system capabilities and information possibilities,
- Creating a flexible system that can be adapted to different client requirements,
- Creating an open system that allows further modifications, taking into account the changes of the roads structures,
- Creating a system that allows expanding with maps for different cities/towns,
- Collecting client opinions related to the current system for further maintenance.

The novelty brought by AROBS in the GPS Navigation Field is related to using maps (IGO and Destinator for Romania and Europe) not only for Track GPS, but also for mobile navigation solutions, these being the ones with the best performances in the field.

6. Process

Describe the project including key concepts and the overall approach followed. Indicate project end users, target market, main project phases, problems encountered and solutions, problem resolution (max 10 lines)

TrackGPS is a system that allows the users to precisely localise and coordinate the vehicle fleet, using the most advanced cost control mechanism for mobile employees. It aims to improve the activity of transport companies that have a number of vehicles and for which the products and service delivery to the clients are of maximum importance. TrackGPS uses detailed reports and maps and sends precise information regarding the vehicles positions, the exactly followed routes, the number of stops and the associated time.

The solution was first developed for clients from Austria and Germany and then adapted for the

necessities of Romanian transportation systems.

The end users of the current systems are transportation companies, and this concerns the drivers and their managers. The main difficulties were related to finding the user requirements for a system that was not known on the market. Another difficulty was to construct a system that is compatible with different kind of maps and different communication channels allowed by different countries. Some agreements of the use of different maps were necessary.

The promotion of the system requires the use of English as an international language, but national language would increase the user numbers.

Some international cooperation with foreign companies was involved for the aim to fulfill local requirements.

6.1 Project Design

Project design based on targeted market complete understanding, project structure, policies and procedures, management and implementation actions (max 10 lines)

TrackGPS Business is composed of two modules, one for communications and one for auto fleet control:

- **TrackGPS Mobile** - transmits the current GPS position to the communication server through GSM (GPRS) network, stores the data regarding vehicle location in the position registry, and allows the wireless control of the function mode (through GPRS).
- **TrackGPS Server** - runs on a server and receives messages from the devices installed on the vehicles, stores GPS coordinates in a database. The Web interface gives easy supervision of all mobile employees and fleet in motion.

The project started with the study of potential users of the system. The development team has had multiple discussions with some of the potential users to gather the system main requirements. The necessity to fulfill different requirements was a great challenge for the design team.

The project was decomposed in the development of the hardware and of the software. The codesign method was required. The system implementation needed knowledge from different fields like electronics, hardware, software, communication and control. The system testing was difficult due to the large number of function and requirements that have to be fulfilled.

The management of the project required the coordination of activities that was performed with different durations.

6.2 Project Management

Activities relevant to project coordination and management, project documentation and reporting, quality control, validation and verification (max 10 lines)

The project has a project manager who coordinates the development, testing and support teams. The communication between team members is done using an e-mail group so everyone is aware of what is happening with the project.

The team wrote the specification documents taking into account the collected and accepted requirements. The technical officer verified and gave his agreement for the specification. The implementation of all the requirements was verified before the acceptance of the new system.

AROBS hired high skilled designer and implementers for the system construction. The new innovation ideas were analyzed and accepted by all members of the team.

Quality control was done by dedicated testers who tested the software before each release to production. The bugs reported by the QA (quality assurance) team were tracked using bug tracking software. In order to deploy the software to production no bugs with higher priority than minor are allowed.

The documents concerning the detected bugs and their removal were analyzed and finally accepted by technical officer.

The AROBS company constantly gets improvement suggestions from customers. Also the company follows up with the trends in the GPS and AVL domain. With the use of this two information sources new features in the application are developed. A feature is approved for development when the company considers that it will be useful for at least 30% of the customers.

The new system was presented to the potential customers. The company international relations for the software products were used for the system advertising.

6.3 Project Implementation

Main elements associated with the project implementation. Realization of new idea, or new technological realization or improvement / novelty to known technology and means to achieve this. Innovation associated with the project realization in terms of new products, services, methodologies. Marketing, advertising and customer service. (max 10 lines)

The system developed by AROBS Transilvania Software incorporates recent technologies, such as GSM (Global System for Mobile communication) and GPRS (General Packet Radio Services). It allows real time data transmission, offering to the personnel present in the field simultaneous and instant access to all the information available at the main office (dispatch center).

The device for GPS fleet monitoring, together with GPS and GSM antennas, are mounted on the board of the vehicle to be monitored.

The communications module ("black box"), mounted on the vehicle, is tracking its movement and sends the calculated coordinates to the dispatch center. The data transfer to the dispatch center is done instantly, through SMS, and can be requested by phone, from the dispatch center, or it can be programmed to take place at the desired time.

Customers can also opt for the lack of such a transfer. Sending the information regarding the vehicles' positions generates no additional costs relative to the ones present prior to having this system in place. The communication module can also record the vehicle's route, which can be downloaded together with the trip record.

With the dispatch module, the entire fleet of vehicles can be controlled from a computer installed in an office of the company, which uses the system. After customizations, the module can generate a multitude of reports, useful to the company's staff and customers alike.

At customer's request, various maps can be integrated with the system, such as the widely spread digital ones (Microsoft Autoroute, RoutePlaner, Europe, etc.).

TrackGPS Business solution has the most detailed map of Romania with over 500 towns at street level and more than 27000 points of interest: gas stations, hotels, restaurants, parking spaces, monuments, hospitals etc.

TrackGPS Basic is the appropriate solution when only GPS location in case of theft is desired. If additional options are needed, other solutions are offered by AROBS:

- Using Timesheet report from Reports menu of TrackGPS Business Solution, information about working periods can be obtained (periods when the vehicle had the engine started being in movement or parked, for a selected time period). The report displays the time when the engine has been started for the first time, the time when the engine was last stopped that day, the time between the two events and the total time when the vehicle had its engine running.
- By choosing TrackGPS Business Plus from AROBS, a number of other supplemental reports are available, such as: real fuel consumption, fuel refill and fuel theft. The "Fuel Level" report displays the fuel level of a selected vehicle. The "Refill" report displays events like refilling/stealing and the quantity of fuel added/removed from the tank. The "Engine Parameters" report displays the speed and temperature graph of a vehicle's engine in a chosen time interval.

An on-line help is available for system users.

6.4 Project Evaluation

Project feedback mechanisms and evaluation mechanisms. (max 10 lines)

The company gets constant feedback about TrackGPS via e-mail or direct conversation with the customers.

From time to time the company runs customer surveys to identify their satisfaction and their future needs, what they consider works well in the application and what doesn't. The technical chief officers analyze the customer opinions and propose changes, new features and services. Based on these feedbacks, the system was analyzed from the point of view of extending it with new features.

The managers evaluate the benefit of the new services for the customers. New potential services provided by the system are taken into account for further development, such that the company is able to improve the applications and processes for a new version.

The similar international markets in the field are also permanently monitored. New technologies are studied if they have the potential to be integrated.

The performances are compared with the ones of the existing or new products.

7. Description of Research team/Institution

Short description of R&D team and institution (max. 10 lines)

AROBS Transilvania Software is a Romanian-Finnish Joint Venture having more than 11 years of experience in offshore/nearshore software outsourcing and custom software development. The software centre successfully handles all major programming languages and technologies: Java, C++, .Net, Mobile, PHP, as well as Unix/Linux, web and database based technologies. Among its main products can be mentioned:

- TrackGPS - Fleet Tracking and Management (AVL + GPS)
- Optimall by AROBS - a system for Sales Force Automation using mobile terminals (Personal Digital Assistants)
- Optimall WMS - Web based Warehouse Management System solution
- iPhone Travel Application
- iPhone Speed Traps
- Smailo - First Romanian brand of GPS Navigation Systems.

Some of the services provided are:

- Development of client/server applications in different fields (Travel, FMCG Distribution, Transportation, eCommerce, Health Care, Education, Banking, Mobile)
- Consultancy on software development
- Maintenance and testing of software systems
- Technical support
- GPS systems distribution.

With a company culture that emphasizes customer success, innovation and responsibility, **AROBS Transilvania Software** has grown from a start-up business with a few employees to a global company with more than 190 specialists in 2 offices in Romania (Cluj and Bucharest) and 6.5 million EUR revenue. Due to its significant growth over the past few years, AROBS ranked 8 in the Deloitte Central Europe Technology 50, the top of the first 50 fastest growing technology companies in the region. AROBS' mission is to provide value added services to our customers and deliver the most innovative, high-value software solutions on time and on budget.

AROBS operates on the international markets since its foundation in 1998. Our clients range from mid to large companies active in sectors such as travel, transportation, banking and insurance, ecommerce, mobile, staff management, health.

Companies from Germany, Finland, Austria, the Netherlands, Switzerland, UK and the U.S. have chosen AROBS as their trusted partner in software development

8. Applied Financial Mechanism

Describe financial mechanisms applied in transformation of research into innovation within BP, as well as means of connecting scientific research team and financiers (max. 1000 char.)

AROBS Transilvania Software sustained all the design and implementation costs of TrackGPS and sold the final product and system. No external financial capital was used. AROBS analyzed its financial potential and the required system development costs. The company decision was to avoid external financial implications. The final system development costs have not exceeded the estimated needed funds. The company could partially use some of the existing hardware and software tools.

The company technical chief officers decided to not externalize some of the development activities. Instead of this, they decided to extend the design team with new members to cover the implementation necessities. This guarantees availability of the specialist for further system improvement.

The system development costs were evaluated and compared to the expected financial benefits in the three years to come. All the conclusions were positive and encouraged the future system developments. Furthermore, the revenue generated from this and other developed systems will allow the company to expand, by purchasing a supplier from a GPS system market.

The company has in its ownership structure the Finnish fund Berling capitals, with a participation of 10 percent. "It is possible that another Investment Fund to enter ownership in the near future", admits Oprean Voicu, general manager and majority shareholder in AROBS Transilvania.

9. Impact and benefits

Describe achieved benefits of R&D team and/or enterprise implemented innovation, as well as impacts on institutional and policy levels. (max. 1000 char.)

TrackGPS Business fleet tracking system offers companies many benefits that can substantially help businesses to manage their fleet of vehicles and mobile workers, while reducing their operating costs at the same time. Here are some of the benefits that can be derived from this Vehicle Tracking and Fleet Management solution: increased efficiency of fleet activity, cost reduction with fuel (up to 15%), cutting out cases of excessive speed, reduction of additional hours, operational cost reduction with fleet (up to 20%), elimination of fraud related to the effective working time, easy to use, free periodical updates.

TrackGPS Business can help both small and large service companies manage their employee's time and productivity to help reduce expenses. By improving customer service and satisfaction, service companies of all sizes can enhance revenue and profits.

The system is applicable in any business/industry that needs to manage mobile personnel and assets: track and manage car fleets, truck fleets, delivery vans, install and service vehicles, mobile generator sets, construction equipment, bus fleets, motorcycles, ATVs, trailers, yard equipment, roll-off boxes and other mobile assets

10. Sustainability

Provide information on sustainability of innovation after financial aid within implemented financial mechanisms, and some multiplier effects as replication and extension of the action performed in BP. Expected use of Best Practice and lifecycle considerations. (max. 1000 char.)

The product is multiplied and updated for each beneficiary. The system is flexible and can be modified for different clients.

The benefits obtained by clients encourage the system development.

All the investments for the current system development can be used for similar system developments. The company income for the current system covers the expenses for the development, maintenance and future improvement.

TrackGPS Business solution can be rented in exchange for a monthly rental fee charged for each car monitored.

Taking advantage of the experience acquired while collaborating with prestigious companies from developed countries, the AROBS team have developed a series of solutions by itself. The Arobs team has already identified three promising business directions for the Romanian market, which they are already following successfully. Their common denominator is the use of the modern technologies that define the present of Informatics (mobile technologies, the Internet, etc).

The well shaped strategy guiding our way states that Arobs team must channel their efforts toward identifying and satisfying the customer's real needs and requirements. Arobs team does this by maintaining a close contact with the market and actively involving the customers in the shaping and implementation of their solutions.

11. Repeatability and transferability

Lessons learned from the project implementation team. Repeatability and transferability of the project. (max. 1000 char.)

The AROBS company has had experience in the development of electronic devices and software embedded products, and it improves its experience with every new product it develops. The experience of digital communication obtained in the development of some previous products could be applied to the current system.

The system was designed and implemented using object oriented modeling and programming. Many of the functions and services implemented in the current system can be used further for similar products, services or systems developments. In parallel with the system development the output documents necessary for maintenance and future update were created.

The team experience in the development of the current system can be extended to the development of the similar products. The project and financial management were correct and was evaluated by company managers as efficient.

Partially based on the experience gained with GPRS Track, Smailo, the first Romanian brand of navigation systems was launched by AROBS Transilvania Software in 2008. The brand Smailo – the first Romanian brand of GPS navigation systems was launched in April 2008 and comprises 6 models. The latest range of products, Smailo HD, was launched in December 2009 and impresses both by its revolutionary design and by the advanced functionalities. The GPS navigation systems are available through the company network of distributors, online shops and the main retail networks.

12. Evaluation

Describe reasons and evaluation criteria why the described example is a best practice. (max. 1000 char.)

TrackGPS Business is an innovative GPS and vehicle tracking and locator system that optimizes fleet utilization, gains real-time operational enhancements, dynamically manages fleets remotely. The system was developed for all kind of organizations, from small businesses that require a simple, instantly deployable, cost effective fleet tracking solution to large multi-site organizations looking for business changing telematic solutions and data to enhance strategic business decision making.

The system is specifically designed to increase the fleets monitoring efficiency, reduce fuel costs and overtime hours, and maximize revenue, productivity and customer service. The fleet are monitored and controlled from the comfort of one's desktop, through any computer connected to the Internet. It allows the enterprises to monitor their remote assets effectively and efficiently.

13. Contact of research team/institution

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