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Best Practice Report

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Mobile Asset Management Platform

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Contact : Martin Weinschenk /Fotec
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Everybody please state revision index and short description of what has been done + partners involved and date.

Final approval	Name	Partner
Reviewer	Manfred Radlwimmer	Fotec
Reviewer	Martina Dürauer	Fotec

1. Best Practice Title

Mobile Asset Management Platform

2. Location of Best Practice

Country, region, town

Austria, Lower Austria, Wiener Neustadt

3. Best Practice Executive Summary

Describe briefly (max 10 lines) the GP context (partnership, funding, objectives, approach followed, results)

Our industrial partner keeps and provides centralized geospatial information data such as transfer information, switch point information, plot information, customer information and much more in a Geospatial Information System (GIS) as part of a Network Information System (NIS). This system is used by the Telekom Austria TA AG for all of Austria as field of activity.

The idea of this project is to provide field force agents with a part of this information out of the GIS to alleviate their work and shorten their overall lead time. For the benefit of the field agents and the customers and therefore for the whole company.

This information will be provided in form of a web application in well-defined information layers and intuitive user controls. The web application grants access with common smart phones, which are already used by most companies in the field.

4. Best Practice Classification

Best Practice Theme
☒ *Research Transformed to Innovative Product*
☒ *Research Transformed to Innovative Service*
☐ *Research Transformed to Innovative Methodology*
☐ *Research Transformed to Innovative Production Process*
☐ *Financial Mechanism for Transformation of Research to Innovation*
☒ *Support Mechanism for Transformation of Research to Innovation*
☐ *Other (describe)*

Best Practice Research / Application Areas
☒ *Industrial / Manufacturing Systems*
    ☒ *Industrial Informatics and Communications*
    ☒ *Intelligent Devices*
    ☒ *Distributed Control Systems*
    ☐ *Flexible Manufacturing Systems*
☒ *Embedded Systems*
    ☒ *Industrial Embedded Systems*
    ☐ *Nomadic Environments*
    ☐ *Private Spaces*
    ☒ *Public Infrastructures*

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)

Our industrial partner maintains and continuously enhances a system called **G**eo**sp**atial **I**nventory (GSPI) as part of a **N**etwork **I**nformation **S**ystem (NIS) for the Telekom Austria TA AG.

This GSPI represents a complete, efficient and extensive mapping of all electrical installations (infrastructure like network, real estate, customer, etc.) in an IT system with spatial correlation.

As an integration platform the GSPI affiliates following aspects:

1. All data with a direct or indirect reference regarding to an electric installation

2. Professional information for installation management (GIS, CRM,DMS, ERP, OSS, etc.)

3. And business processes for operators of a facility

Due to these aspects the GSPI delivers fundamental and holistically information which are extremely relevant for fast and substantiated decision not only in the technical domain but also in the financial domain.

This information is provided in a standardized form for all applications of the GSPI system and can be retrieved via a desktop or web application.

In some circumstances it is necessary to retrieve this information via a mobile phone, smart phone or a PDA. This refers especially for outdoor staff like maintenance technician or customer service. This two branches can only benefit from such an easy access of information regarding there field.

A solution for such cases would relieve not only the indoor services but it would also improve the overall service (e.g. faster processing, higher quality of service, etc.). The company therefor profit from satisfied customers.

The challenge of this project was to gather and provide information out of the GSPI system via well-defined web services and web applications to a mobile device. A part of this challenge lies in the vast variety of mobile devices and the varying resolution of their displays.

Emanating from the point above is an analysis of web technologies and web applications usability for mobile devices. This should simplify the mechanism to provide the data and also minimalize the amount of data which will be sent to the mobile device.

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)

Fotec participates in various events and forums promoting its innovative ideas and R&B activities.

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)

The process of incident management requires not only a flexible and efficient acting in the field, but is also key to customer satisfaction.

5.2 Objectives

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

The active management of installations, equipment and devices at municipalities, landowners and pipeline operators is mainly performed by field force agents. Their basic equipment is a mobile phone with the possibility of automatic positioning and wireless communications. If the company also owns a service-oriented network information system (NIS) then this combination of mobile devices and the NIS available geospatial technologies increase the possibility for optimization of sales processes for infrastructure operators.

The aim of rmDATA GmbH ,the university of applied sciences Wiener Neustadt (Course Information Technology - Geoinformatics) and the FFG-research project was therefore:
(1) Evaluation of the real optimization potential of these processes
(2) A proof of concept for the mobile NIS backed investment management in general and the fault management as a prototypical field service process in particular.

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)

An analysis of the business processes of infrastructure operators as well as interviews with their employees have shown that geospatial technologies in the context of process optimization, can both implicitly (without employees noticing) and explicitly (through cartographic visualization) be used. Geospatial technologies such as implicit in the direct selling (the client will only be offered those services that are available at his location) and are used in fault management (e.g. to identify the concerned clients). The use of maps and technical plans supports the employees not only at the path optimization by the combined navigation of infrastructure and road map, but also in the infrastructure documentation. This can be done directly on site, the review at the office is kept to a minimum.

The process of incident management requires not only a flexible and efficient acting in the field, but is also key to customer satisfaction. The main steps in a NIS supported incident management such as telecommunications are:

1. Acquisition of incident - field staff takes on several problems that he, if there are no other priorities, can achieve the fastest.

2. Routing - the failure is associated with a customer or a plant, so the field staff agent can have the optimum route displayed for navigation.

3. Filtering – information on the customer or the plant such as the supplying switching, the logic supply to switchboards etc. can be provided at the push of a button. The information can be displayed as lists, text and plans. This view further supports a "drill-down" like the layout plans indicating the switching exchange. The staff is just a few clicks away from all the necessary information on fault clearance available.

4. All-clear message - the successful rectification of the fault is entered into the system on site and thus is immediately available in the NIS, so that other Customers also affected by this problem can automatically be notified of the problem's solution.

The advantage over a fault management without mobile support NIS is mainly the on-site availability of the NIS information. The preparation process by experts in the office can almost be completely eliminated. Since all information is available in real time, time-consuming queries with the office employees and dwell time can be reduced to a minimum.

6.1 Project Design

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

A platform for mobile asset management must primarily ensure the optimum support of field service processes of a plant operator, but be created in awareness of dependencies between requirements NIS services from the expert information systems in the plant management (NIS, CRM, DMS, ERP, etc.) and services from external providers (e.g. data-, mapping-, geocoding-, routing-services).

This specifically for mobile devices prepared integration not only allows creation of an added value through the combination of existing local services but also the deployment of applications on-site.

These are user- and processes optimized and thus ensure rapid and informed decisions and this enhance a faster processing of a possible case and also entails a higher quality of service.

6.2 Project Management

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

We use an agile project management tool named Scrum for all our projects. We have adapted this project management tool just to our needs.

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)

In the research project, a prototype was developed to make use of the NIS-assisted mobile support fault management in telecommunications. For the integration of services (in this case from the NIS and Google Maps) in an application for the mobile fault management the following technologies were used:

- WCF - Windows Communication Foundation is used for communication between services.
- ASP.Net is used to integrate the services in a web application for field staff agents.

To use the application the field staff agent will navigate with the web browser of the mobile device to a specific URL. He then authenticates with username, password and security token and goes to a very simple constructed website. There he can retrieve pending failures and navigate to the switchboard or use the search box to look for a specific switchboard. The search function also allows the use of wildcards.

The results provide a preliminary overview of the found control points and their most important attributes. By clicking on a link of the web site created for the mobile devices the full details of switching points is displayed.

6.4 Project Evaluation

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

The research project has been carried out in a way so that is possible through the combination of mobile devices and geospatial technologies to optimize field services for infrastructure operators. Resources and costs can be reduced or optimized and the quality of service will increase steadily.

7. Description of Research team/Institution

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

The R&D teams that cooperated during the first (pilot) operation of the funding mechanism are:

- Fotec

- FFG

- Industrial Partner

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.)

The first step was supported by Austrian Research Promotion Agency (FFG) and by our industrial partner. The next and second step will be a bigger supported project type from the FFG.

Discussions already exist to launch a derived project with international partners after this second step.

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.)

The involved company benefits from significant results, in terms of quality of products, new products and technologies.

The GPIS Mobile also known as **M**obile **A**sset **M**anagement **P**latform (MAMP) not only relieves the indoor services but it would also improve the overall service (e.g. faster processing, higher quality of service, etc.).

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 first step of the project ends in 2009. Next year a new project is in the starting phase. For the first step a functional model already exists. This prototype is now under evaluation by our industrial partner.

11. Repeatability and transferability

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

The concept of this project can be used and transferred to any company which possesses a field force department.

Furthermore these company relays on essential information from a Network Information System which can be necessary to a field force agent to enhance a faster process and also higher quality of service. In a greater view it improves the overall service of this department.

12. Evaluation

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

The concept of integration of existing NIS and other available services (e.g. Google and other professional information systems) shows that per se, a technical solution does not have to be complex but can relatively easily add value to existing IT infrastructure and NIS services. The feasibility of such flexible solutions confirmed the proof of concept for fault management. The approach is applicable to any further field service processes.

13. Contact of research team/institution	14. Contact of financial mechanism facilitator
Name, address, tel., fax, e-mail, URL	*Name, address, tel., fax, e-mail, URL*
Martin Weinschenk Fotec Forschungs- und Technologietransfer GmbH Viktor Kaplan-Straße 2 A-2700 Wiener Neustadt Tel. +43 (2622) 90333-0 Fax + 43 (2622) 90333-99, E-Mail: weinschenk@fotec.at, www.fotec.at	FFG - Austrian Research Promotion Agency Sensengasse 1 1090 Wien Tel +43 (0)5 7755 - 0 e-mail: office@ffg.at, www.ffg.at