

## Project Note

### Model Driven Development with IBM Rational Rhapsody® – less risk, short time-to-market Efficient software development for portable hearing aid accessory

A complex development task, limited resources, and deadline pressure. These are the conditions under which Phonak began development on its new product generation based on dynamic FM technology. Using Model Driven Development with Rational Rhapsody® allowed them to bring the inspiro transmitter device based on completely new technology to a state of market readiness in just 12 months. EVOCEAN supported the project team as of the beginning, from the evaluation of the development environment through to design of the software architecture to system integration.

**PHONAK**

life is on



#### Phonak inspiro FM transmitter

New dynamic FM technology for enhanced language comprehension in situations with excessive noise.

For more information, visit [www.phonak.com](http://www.phonak.com)

#### Challenge

Phonak Communications AG is a leading manufacturer worldwide of highly miniaturized wireless communication systems. At the end of 2006, the company started development of the inspiro, a new transmitting device for instruction in classrooms with hearing-impaired students. inspiro is based on the revolutionary “Dynamic FM” platform, which has increased language comprehension in situations with excessive noise to a level previously considered impossible. inspiro combines a graphical interface with digital audio signal processing and a number of wireless links. The corresponding complex, completely new software had to be developed within a very short time and using existing internal resources.

#### Solution

A comprehensive analysis of the initial situation showed that the only way to reach the desired goals was by using completely new development tools and target hardware:

- UML with Rational Rhapsody® from IBM
- Target platform with ARM9, USB, 3 proprietary wireless links, digital audio signal processing
- RTOS Sciopta, GUI with Peg++, C++.
- The critical element for the success of the project was applying Model Driven Development (MDD) using Rhapsody®:
- Incremental iterative process
- Graphical display of the new application (UML) in reusable models
- Code generating from models to target platform
- Fast prototyping for early validation of target hardware
- Complete integration of development tools
- Parallel development at multiple locations.

	Model Driven Development	Requirement Management	Product Line Engineering	Testing Solutions
Consulting / Coaching				
Training				
Tools				

### The role of EVOCEAN

EVOCEAN is an “Advanced Business Partner” of IBM in Switzerland. As the official Rational Rhapsody® competence center, we have not only access to all tools, but also to the internal know-how and knowledge pool of the Rhapsody® developers. Our team of consultants has broad technical knowledge and many years of experience in the area of MDD.

We offered Phonak support in the following areas of concern:

- Consulting to select a development environment
- Coaching for introducing MDD (UML) and using Rhapsody®
- Onsite support as Lead Software Architect and in developing various key components
- Support in project management
- Responsibility for integrating all components into the application
- On-the-job training for Rhapsody® and MDD method
- Know-how transfer and exchange of experience.

**Dr. Rainer Platz,**  
**Director of Research & Development,**  
**Phonak Communications AG, Murten**  
 “Model Driven Development with Rhapsody® was a critical success factor for developing inspiro within the required schedule and market needs. Thanks to EVOCEAN’s support, we were able to implement the tool quickly and efficiently.”

### Added value for the customer

Model Driven Development and Rhapsody® allowed the team to keep a handle on the complexity of the project and decrease the error rate significantly: The team met the ambitious goals related to functionality and quality.

- Launch on schedule with existing internal resources
- High market acceptance of the new product
- No major product improvements required after the market launch
- Kick-start for employees in Model Driven Development (method and software competence)
- Solid software architecture for subsequent developments
- Well established development environment for follow-up projects
- Universally comprehensible models and current documentation; very easy to train new employees.