

Systemic Innovation in Small and Medium Sized Enterprises (SMEs)

AMI-4-SME provides results, enabling SMEs to take advantage of new Information and Communication Technology (ICT) potentials. To achieve this, the project harmonised and jointly coordinated the development of the AmI building blocks, the AMI-4-SME software platform and the AMI-4-SME Methodology. They can be used in combination or as single modules – **highly facilitating the realisation of AmI based solutions.**

To benefit from these AMI-4-SME results, SMEs, consultancies as well as ICT providers can use them based on different license models. Several components are provided free-of-charge, while others as well as the AMI-4-SME partners' individual consultancy are offered at moderate costs. Specifically the following consultancy and products can be provided:

- **AmI turn-key solutions**, highly responding to user requirements.
- **AmI software services & hardware** easy to be integrated in SMEs infrastructures. Also ICT providers can use these solutions, to combine them with their product portfolio.
- **Consultancy, based on the AMI-4-SME Methodology**, enables the realisation of AmI based & human centred solutions.

The CERP Cluster

AMI-4-SME is part of the "Cluster of European RFID Projects" (CERP), initiated by the European Commission: to facilitate networking of different European projects; to coordinate research activities; to assure coherence of work in Europe; to establish synergies between projects as well as to leverage expertise, talents, and resources and maximize impact.

<http://www.rfid-in-action.eu/cerp>



Project Co-ordinator,
Research Partner & Solution
Provider – Germany



Research & Consultancy Partner
Ireland



Research & Consultancy Partner
Spain



ICT-Provider: Speech Recognition
on PDA – Germany



ICT-Provider: RFID Hardware
Spain



ICT-Provider: Mobile Technology
Spain



Business Case: Manufacturing,
Automotive – Germany



Business Case: Manufacturing,
Automotive – Poland



Business Case: Maintenance,
Weighing Systems – Germany



Business Case: Maintenance,
Metrology Systems – Spain



Business Case: Manufacturing,
Coach Builder – Ireland



Business Case: Manufacturing,
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Ambient Intelligence Solutions for Systemic Innovation in Manufacturing SMEs



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Further Information:
<http://www.ami4sme.org>

Project Rational

Ambient Intelligence (AMI) technology is oriented to surround people with electronic environments, sensitive and responsive to their desires. It offers a multitude of process innovation potentials for manufacturing industry and it promises a revolutionary next step for systemic innovation of the whole industrial working environment. Furthermore, **AmI enables realisation of new interaction paradigms** and collaborative working environments for the employees. It facilitates collaboration between humans themselves and with their infrastructure such as machines on the shop floor or existing IT systems (e.g. ERP, PPC, MRP), **enabling the creation of new networked applications and services** capable of interoperation across technological and organisational boundaries.

AMI-4-SME aims at realising a new scheme to exploit such potentials. Beyond a pure technical dimension, the RTD activities address development & validation of new models of business processes for **flexible manufacturing**, specifically tailored to SME needs, based on an "Ambient Intelligence philosophy" – Asking the question: **"What can be achieved by AmI Technology in SME reality?"**

Human Centred View

Focusing on the human actor requires the consideration of **heterogeneous cultural behaviour and environments** as well as including diverse competencies from industrial SMEs, RTD & ICT development. Hence, AMI-4-SME involves partners from Germany, Ireland, Poland and Spain as well as global partners from Australia.

Test & Validation in Business Cases

AMI-4-SME incorporates 5 Business Cases (BC), in which AmI features are used in SME environments (i.e. using the AMI-4-SME building blocks for realising AmI based ICT services). The BC1 and BC5 are applications for advanced production control, while BC2 and BC3 focus on maintenance. BC4 supports customer requirements specification & update.

- BC 1: Dynamic reconfiguration of Build to Order driven assembly processes with high product diversity in an Extended Enterprise environment.



- BC 2: Improvement of management and control of mobile maintenance services for process industry.

- BC 3: Dynamic reconfigurability of highly precise measuring systems at the end-user site to facilitate product multi-applicability & enriched maintenance services.



- BC 4: Rescheduling & update of product specification, due to evolving customer requirements, in parallel to product realisation.

- BC 5: Dynamic reconfiguration of worker's manufacturing tasks, based on current order progress and available human resources/ expertise.



AmI Products & Services

AMI-4-SME ICT vendor partners are keen on an answer to the question: "How to penetrate the SME marketplace with innovative AmI solutions?" Therefore, the project intensively analysed the SME innovation needs within the business cases. This clearly indicated the **SMEs' need for highly tailored turn-key solutions**, required to guarantee the realisation of business benefits and competitive advantage.

To effectively serve those SME needs with turn-key solutions in a suitable price range, the AMI-4-SME project elaborated the following results:

- **Building Blocks** as enablers for realising innovative "AmI" (Ambient Intelligent) as well as human centred solutions:
 - **RFID based sensor system**, mobile readers & middleware, highly compatible for integration with SME infrastructures.
 - **Speech recognition system**, for implementing configurable natural human interaction on mobile devices; easy to generate & maintain; using standard interfaces.
 - **AmI system adaptor** for mobile device, service & system integration. Enabling a flexible, secure & efficient configuration, mapping & interfacing of legacy systems, AmI services as well as mobile devices.
- **AMI-4-SME Software Platform:** to easily set-up the required runtime environment as well as software infrastructure to provide a cost and time efficient realisation of a human centric turn-key solution.
- **AMI-4-SME Methodology:** providing clear instructions, guidelines and templates for realising the successful utilisation of new AmI technologies. It is based on a traceable improvement process, driven by the company staff, enabling informed decisions of the management.