DEWI

Dependable Embedded Wireless Infrastructure

EXECUTIVE *summary*

DEWI will provide key solutions for wireless seamless connectivity and interoperability in smart cities and infrastructures by considering everyday physical environments of citizens in buildings, cars, trains, as well as airplanes, which will significantly contribute to the emerging smart home and smart public space.

CONTRIBUTION *to SRA*

DEWI addresses specific societal challenges, as supported by ARTEMIS, such as "Green, safe & supportive transportation" and "Smart buildings & communities of the future". The solutions generated by DEWI will allow citizens (in their private and professional lives) more local personal control, less stress, lower overhead and increased comfort and safety in everyday life. DEWI will significantly contribute to employability in Europe, by opening up novel business opportunities and new markets, especially for European SMEs in cooperation with large enterprises that have direct global market access (DEWI's ratio of SMEs to LEs is 2:3). Thus DEWI will create new high-quality, sustainable jobs, and will also foster academic education in the area of wireless sensor networks and wireless communication.

MARKET INNOVATION *& impact*

DEWI introduces the concept of a locally adaptable wireless "sensor & communication bubble", featuring:

> Locally confined wireless internal and external access.
> Secure and dependable wireless communication and safe operation.
> Fast, easy and stress-free access to smart environments.
> Flexible self-organisation, re-configuration, resilience and adaptability.
> Open solutions and standards for cross-domain reusability and interoperability.

Based on more than thirty clear business needs identified by DEWI industrial partners, the concept of the "sensor & communication bubble" is being realised in industry-driven use cases, twenty-one in all, that will tackle challenges including:

> Dependable, auto-configurable, optionally secure, short-range communication.
> Local energy-management: efficiency, harvesting, storage.
> Localisation of sensors and mobile devices.
> Smart composability and integration of wireless sensor networks.

RELEVANCE & CONTRIBUTIONS *to Call 2013*

Over recent decades, wireless communication technology has made life for citizens more convenient, in private, public and business context. However, wireless connections may extend far beyond mere communication needs for citizens, in particular in combination with information retrieval from the close environment via wireless sensor networks. This will significantly increase the level of flexibility for citizens, including professional users, in their environments where wired technologies are still dominant, mainly due to the lack of reliability, security, safety, privacy or auto-configuration for wireless networks. Furthermore, current wireless solutions do not have the common reference design and service-oriented architecture that is needed to build a market environment where competition enables affordability for citizens. DEWI aims to make this possible by providing key solutions for wireless seamless connectivity and interoperability in smart cities and infrastructures, by taking account of the everyday physical environments of citizens in buildings, cars, trains and aeroplanes, and thus significantly contributes to the emerging smart home and smart public spaces.

The many and various use cases will clearly highlight the advantages of replacing wired solutions by wireless:

> Reducing of weight in weight-sensitive environments.
> Increasing flexibility and re-configurability.
> Facilitating easy, cost-effective feature updates.
> Enabling novel "bring your own device" applications.
> Providing redundant backups to wired solutions.
> Easing configuration and self-configuration.
> Increasing reliability through monitoring for reduced tear and wear.
> Eliminating errors from faulty wiring, by self-managed wireless networks.
> Reducing installation costs, by simplified deployment procedures.
> Enabling easy switching of network topologies, etc.

R&D INNOVATION *and technical excellence*

DEWI, with its four industrial domains (Aeronautics, Automotive, Rail, Building), will add clear benefits for interoperability and cross-domain issues in the area of wireless sensor networks & wireless communication in terms of re-usability of technological building bricks (for flexible data acquisition, aggregation & fusion; HW/SW co-design; security, privacy and authorisation; re-/auto-/self-configuration; smart energy management and harvesting; dependability, robustness & safety; wireless sensor/device detection & localisation; and wireless standards) as well as architecture, processes and methods.

The key results of DEWI will be shown in attractive real-life demonstrators of the DEWI "sensor & communication bubble", such as: wireless sensor networks for civil rocket launchers, off-highway vehicle for wireless vibration monitoring on operators, wireless technology for easier rolling stock maintenance, wireless sensor networks for improving building energy efficiency, for operation, maintenance and access control. The project will contribute to emerging international standards, influence new regulations and lay the basis for efficient certification processes.

In addition, DEWI will make a significant contribution to and benefit from existing ARTEMIS Tool Platforms, the ARTEMIS Repository and ARTEMIS Sub-programmes, providing not only concrete input through its well-defined technology items, but also strategic input to other fields of application, such as healthcare.

PROJECT *partners*

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START
1 March 2014

DURATION
36 months

TOTAL INVESTMENT
39.61 M€

PARTICIPATING ORGANISATIONS
58

NUMBER OF COUNTRIES
11