

2nd Period Publishable Summary

INTEGRIS Project



Grant Agreement no.: 247938

Partners:



Coordinator:



Deliverable Name

- INTEGRIS second periodic publishable summary

Track changes:

Version	Date	Description	Revised	Approved
V1r0	27/12/2011	First draft of the report	EEE	All
V2r0	24/01/2012	Publishable summary	EEE	All

1 PUBLISHABLE SUMMARY

INTEGRIS is a cross thematic research project integrating knowledge and partners from ICT and Energy fields that started the first of February 2010. This is the 2nd periodic report and consequently this publishable summary describes the work done during both the first and the second review periods which comprises from the 1st of February 2010 to the 30th of November 2011.

The administrative data of the INTEGRIS project is the one indicated in the following table.

Acronym	INTEGRIS
Title	INTElligent Electrical Grid Sensor communications
Theme	ICT-Energy-2009-1
Type of project	STREP
Grant Agreement	247938
Starting date	1st February 2010
Duration	30 months
Web	http://www.fp7-integrism.eu
# of partners	9
Coordinator	ENEL ENERGY EUROPE – EEE (ES)
Partner 2	INDRA (ES)
Partner 4	Fundació Privada Universitat i Tecnologia - La Salle (ES)
Partner 5	Schneider Electric - SCHN (FR)
Partner 6	Current Technologies International - CTIG (CH)
Partner 7	Ilight SRL – ILIGHTSRL (IT)
Partner 8	A2A Reti Elettriche - A2A (IT)
Partner 10	Tampere University of Technology (TTY-SAATIO) (FI)
Partner 14	Marvell Hispania – MHSL (ES)

Table 1. Administrative data of the INTEGRIS project

INTEGRIS project proposes the development of a novel and flexible ICT infrastructure based on a hybrid Power Line Communication-Wireless integrated communications system able to fulfill the communications requirements foreseen for the Smart Electricity Networks of the future in a complete and efficient way.

This includes encompassing applications such as monitoring, operation, customer integration, voltage control, quality of service control, control of Distributed Energy Resources and asset management, and can enable a variety of improved power system operations, some of which are to be implemented in field trials that must proof the validity of the developed ICT infrastructure.

Focus is on interoperability of the PLC, Wi-Fi, Wireless Sensor Network and Radio Frequency Identification, technologies that together are able to achieve the indicated goal with reasonable cost. The system will require an adequate management system that is also an objective of the project. Such system will be based on beyond the state-of-the-art cognitive techniques to provide the system with the adequate flexibility, scalability, availability, security, enhanced system life-time and self-healing properties as is necessary in complex and dynamic systems.

A further objective is to research on the limits and benefits of distributing smart grid applications in the newly designed INTEGRIS system. This will have an impact on the availability of those applications and influence the developed devices and platforms since they will require a certain level of storage and computing capabilities.

The final aim of the INTEGRIS project is to provide an ICT system that enables the improvement of the performance of the electricity distribution grid in agreement with the impact foreseen in the work program.

The work performed so far includes the description of the state-of-the-art in electrical distribution in Europe including the ICT technologies used for monitoring and control, a research on the usage and opportunities in the electrical distribution domain, the corresponding requirements and the definition of scenarios, use cases and global architecture and the complete detailed specification of the ICT INTEGRIS system, including the I-NMS (Network Management System). Besides, the development of the system based on the aforementioned specifications is underway.

The work has followed a top down analysis following the so called domain analysis procedure and has produced formal UML models for the relevant stages.

As an example in Figure 1 and 2 it is reproduced the UML model for Use Cases in LV and MV network.

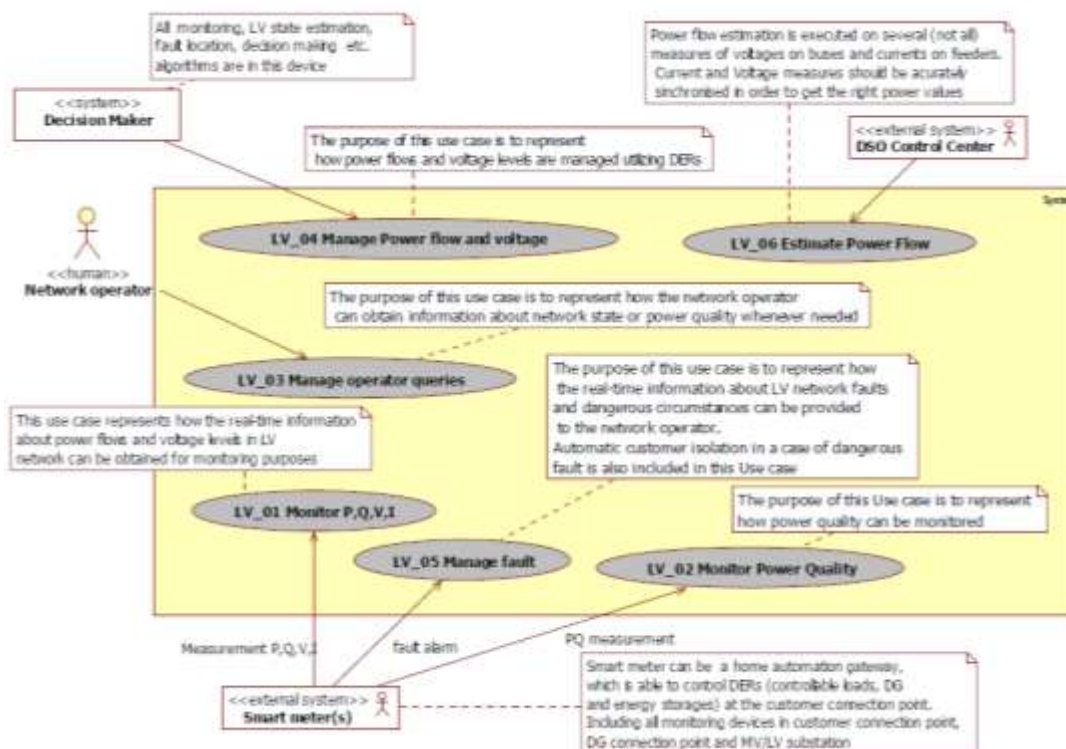


Figure 1. Use case diagram of LV network management

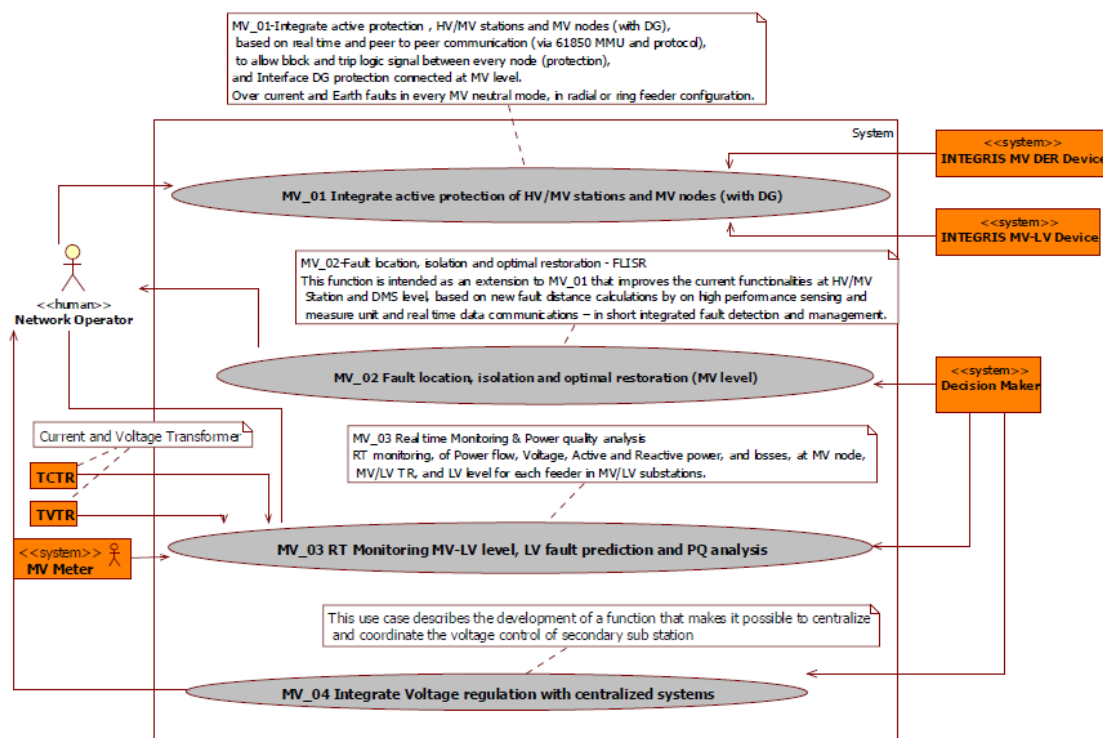


Figure 2. Use case diagram of MV network management

This work has been the root for the detailed UML based specification already carried out.

Dissemination activities during this first and second review periods have been carried out as well and include the following:

- Publications during 2011 in the following renowned magazines: IEEE Network, International Journal on Advances in Networks and Services and Scientific Journal on Scalable Computing: Practice and Experience.
- Presentation of INTEGRIS related papers in the following conferences: IEEE PES ISGT2011 Innovative Smart Grid Technologies, IEEE Symposium on Computers and Communications 2010, conference "Redes Eléctricas Inteligentes" (Smart Grids), OPNETWORK conference, XIX Jornadas de Concurrencia y Sistemas Distribuidos, JITEL2011, 2nd Workshop on Software Services: Cloud Computing and Applications based on Software Services, Distribution systems of the future, and The sixth International Conference on Software and Data Technologies (ICSOF2011).

Besides, INTEGRIS has been presented in several dissemination events, like La Salle's PARK 2.0, Newcom++ Emerging Topic Workshop on Smart Grids, Novel solutions of the information and communication technology as the backbone of Smart Distribution, National Congress of the AEIT 2011 – economical prospective and industrial strategies, IEEE AMPS 2011 - International Workshop on Applied Measurements for Power Systems or the IEEE SMFG 2011 – 2011 IEEE Conference on Smart Measurements for Future Grids.

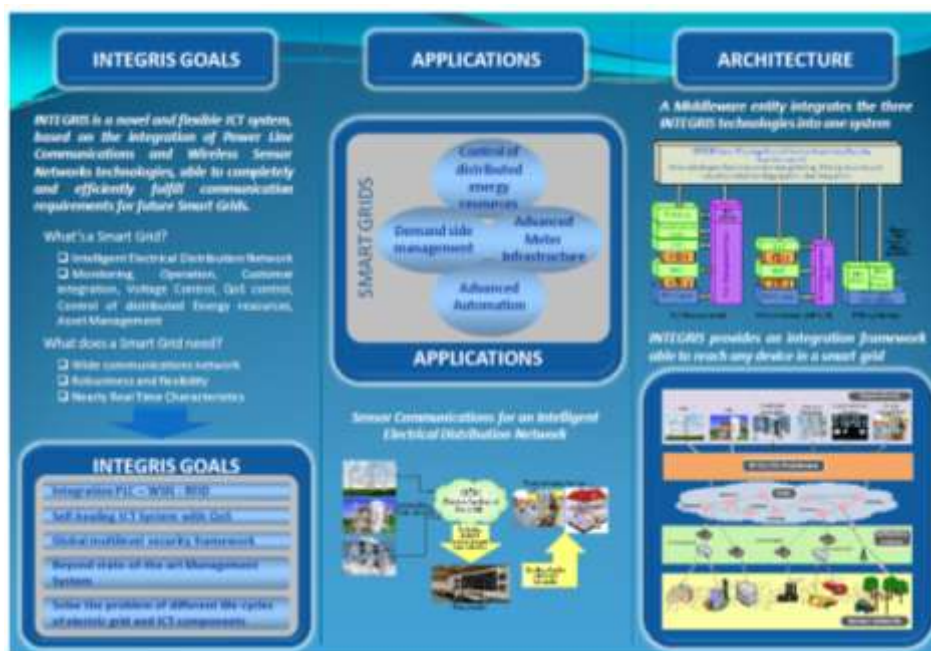


Figure 3. INTEGRIS triptych for dissemination activities

For further details please see <http://www.fp7integrism.eu>