Editorial

# Application themes of software process assessment and improvement

## 1. INTRODUCTION

EuroSPI is an initiative with the following major goals <http://www.eurospi.net>:

- an annual EuroSPI conference supported by Software Process Improvement Networks from different EU countries;
- establishing an Internet-based knowledge library, newsletters, and a set of proceedings and recommended books;
- establishing an effective team of national representatives (from each EU country) growing step by step into more countries of Europe;
- establishing a European Qualification Framework for a pool of professions related with SPI and management – this is supported by European certificates and exam systems;
- an annual EuroSPI conference supported by Software Process Improvement Networks from different EU countries; and
- establishing a worldwide newsletter with articles from key industry and key European research associations helping to implement the SPI manifesto worldwide.

EuroSPI established a newsletter series (newsletter.eurospi.net), the SPI Manifesto (SPI – Systems, Software and Service Process Improvement), an experience library (library.eurospi.net), which is continuously extended over the years and is made available to all attendees, and a Europe wide certification for qualifications in the SPI area (www.ecqa.org, European Certification and Qualification Association).

A typical characterization of EuroSPI was stated by a company using the following words: ' the biggest value of EuroSPI lies in its function as a European knowledge and experience exchange mechanism for SPI and innovation'.

EuroSPI[2]2011 was held in Roskilde, a historical city in Denmark. Roskilde University was founded in 1972 with the objective of providing research and education at the highest level in the fields of natural science, social science, and the humanities.

This year, EuroSPI continued with the open workshop communities aligned with the conference and focusing on specific SPI topics. This included creating Environments Supporting Innovation and Improvement, Integrated Design Principles, SPI in SMEs, Different Standards and Experiences with the Implementation of Functional Safety, Exchanging Experiences across Assessment Models, Researcher – Entrepreneur Qualification and Workshop, and Sourcing IT Workshop.

Also, at EuroSPI 2011, we continued to extend the scope of the conference from software process improvement to systems, software service-based process improvement.

Networking, experience exchange, and continuous improvement can help to create a competitive advantage on the market.

Among the 26 countries represented at EuroSPI'2011, the contributions were highly relevant for the European and worldwide industry also appearing in this special issue. The SPI manifesto from 2009 created a future vision, the extension of SPI to the systems and product level led to involvement of major European manufacturing firms, the building of workshop communities for specific topics created further networking opportunities, and the contributions included good practices about how to achieve that.

System, Software, and Service-based Process Improvement meanwhile is a major learning and success factor worldwide to stay competitive on a global and dynamically developing world market.

## 2. EUROSPI BOARD

Since 1994, the EuroSPI initiative is financed and coordinated by a group of leading applied research companies and quality networks. Since 1998, the following board members have been important drivers for the initiative:

- American Society for Quality Software Division, http://www.asq.org;
- German SW Quality Association ASQF, http://www.asqf.de;
- DELTA, Denmark, http://www.delta.dk;
- ISCN, Ireland and Austria, http://www.iscn.com;
- SINTEF, Norway, http://www.sintef.no;
- STTF and FiSMA (Finish Software Measurement Association), http://www.sttf.fi; and
- in 2011, the Roskilde University of Technology, Denmark, collaborated with this board to coordinate EuroSPI²2011.

## 3. ABOUT THE SPECIAL ISSUE

The value of this selection of papers lies in the fact that they present actual industrial experiences. Research-oriented EuroSPI²2011 papers were published in separate proceedings.

Since its beginning in 1994 in Dublin, the EuroSPI initiative outlines that there is not a single silver bullet to solve SPI issues, but you need to understand a combination of different SPI methods and approaches to achieve real benefits. Therefore, each proceeding covers a variety of different topics, and at the conference, we discuss potential synergies and combined use of such methods and approaches. This proceeding contains selected industrial experience papers for different complementary themes, such as

- SPI and Assessments (3 papers),
- SPI and Medical (1 paper),
- SPI and Engineering (3 papers),
- SPI and Global Software Development (1 paper), and
- SPI and Social Responsibility (1 paper).

This strategy reflects the EuroSPI multi-dimensional approach in which there are three fundamental components of process improvement known to be people and skills, process, and technology. A further component, which is considered in several papers in this special issue, is 'business'. We will use these general components and their special approach to categorize the papers.

Tim Kasse and Jørn Johansen discuss outsourcing relationships and how to deal with a situation where there is a difference between the maturity of the customer and the maturity of the supplier. This difference has an impact on the outsourcing business.

Motoko Takeuchi, Yumi Koishi, and Kazunori SHIOYA discuss the ISO/IEC 29110 standard for Life Cycle Profiles for Very Small Entities and illustrate that in Japan, this is also used as a lean SPICE-based improvement method for departments in large enterprises.

Péter Balázs Polgár and Ferenc Kazinci present experiences from the medical industry and show how the Eclipse Process Framework was used for establishing development processes. They also describe the standards, which are specific to the medical industry, and how they were considered in the modeling efforts.

Badari Kotejoshyer, Birendra Singh, and Suhas Tittibha present experiences with requirements management in large Automotive and aerospace projects. They propose a specific set of attributes and relationships in a requirement management system, which allows to automatically analyze gaps and non-compliances.

Javier Saldaña-Ramos, Ana Sanz-Esteban, Javier García-Guzmán, and Antonio Amescua-Seco look at Global Software Development from the viewpoint of skills and required roles. They describe a framework of roles, communications and skills as well as the role of a GSD expert/coach.

Diego Martín, Javier García, Julián Urbano, and Antonio Amescua present a method to re-use process patterns and to build development processes from such process patterns. This re-use approach allows configuring and adapting processes to companies in a shorter time.

Miguel-Angel Sicilia, Richard Messnarz, Miklos Biro, Elena García-Barriocanal, Miguel Garre-Rubio, Kerstin Siakas, Adrienne Clarke, and Sonja Koinig describe the new ISO 26000 standard for social responsibility and illustrate how this will impact SPI in the future.

Tomas Schweigert and Andreas Nehfort present the new Test SPICE assessment model and discuss specific technical issues such as test automation, test environments, and test data.

Timo Varkoi, Risto Nevalainen, and Timo Mäkinen discuss the Nuclear SPICE model and how it combines both SPICE-related generic requirements with functional safety and nuclear specific elements. Nuclear power industry is one of the most challenging domains worldwide because of its extreme safety requirements.

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