

Preface

This book comprises the proceedings of the 23rd EuroSPI conference, held during September 14–16, in Graz, Austria.

Since EuroSPI 2010, we have extended the scope of the conference from software process improvement to systems, software, and service-based process improvement. EMIRAcle is the institution for research in manufacturing and innovation, which emerged as a result of the largest network of excellence for innovation in manufacturing in Europe. EMIRAcle key representatives joined the EuroSPI community, and papers as well as case studies for process improvement on systems and products will be included in future.

Since 2008, EuroSPI partners packaged SPI knowledge in job role training and established a European certification association (www.ecqa.org) to transport this knowledge Europe-wide using standardized certification and exam processes.

Conferences were held in Dublin (Ireland) in 1994, in Vienna (Austria) in 1995, in Budapest (Hungary) in 1997, in Gothenburg (Sweden) in 1998, in Pori (Finland) in 1999, in Copenhagen (Denmark) in 2000, in Limerick (Ireland) in 2001, in Nuremberg (Germany) in 2002, in Graz (Austria) in 2003, in Trondheim (Norway) in 2004, in Budapest (Hungary) in 2005, in Joensuu (Finland) in 2006, in Potsdam (Germany) in 2007, in Dublin (Ireland) in 2008, in Alcala (Spain) in 2009, in Grenoble (France) in 2010, in Roskilde (Denmark) in 2011, in Vienna (Austria) in 2012, in Dundalk (Ireland) in 2013, in Luxembourg in 2014, and in Ankara (Turkey) 2015.

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

- Establishing 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 examination systems.

EuroSPI has established a newsletter series (newsletter.eurospi.net), the SPI Manifesto (SPI = Systems, Software and Services Process Improvement), an experience library (library.eurospi.net) that 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 is reflected in a statement made by a company: “... the biggest value of EuroSPI lies in its function as a European knowledge and experience exchange mechanism for SPI and innovation.”

Since its beginning in 1994 in Dublin, the EuroSPI initiative has outlined that there is not a single silver bullet with which to solve SPI issues, but that you need to understand a combination of different SPI methods and approaches to achieve concrete benefits. Therefore, each proceedings volume covers a variety of different topics, and at the conference we discuss potential synergies and the combined use of such methods and approaches. These proceedings contain selected research papers under six headings:

- Section I: SPI and the ISO/IEC 29110 Standard
- Section II: Communication and Team Issues in SPI
- Section III: SPI and Assessment
- Section IV: SPI in Secure and Safety Critical Environments
- Section V: SPI Initiatives
- Section VI: Selected Key Notes and Workshop Papers

Section I presents three papers related to the new standard ISO/IEC 29110 for Very Small Entities. In the first paper Sanchez-Gordón et al. present educational issues with respect to ISO/IEC 29110. The second and third papers in this series present useful case studies on implementing ISO/IEC 29110 in industrial settings.

Section II presents three papers under the umbrella topic of “Communication and Team Issues in SPI”. In the first paper Clarke et al. examine the linguistic and terminological challenges in the industry, whilst the second paper examines the specific case of natural language in requirements, and finally the third paper, by Munoz et al., models highly effective teams for software development.

Section III explores the theme of “SPI and Assessment”, with Cortina et al. examining the area of IT service management and in particular ISO/IEC 15504-8, TIPa, and ITIL. In the second paper in this series, Biró et al. examine challenges of automating traceability assessment. In the final paper Picard et al. explore TIPa IT service management issues.

Section IV presents three papers dealing with associated issues surrounding the topic of Secure and Safety Critical Environments. In the first paper Rauter et al. examine processes for secure embedded control devices, whilst in paper 2 Nevalainen et al. explore Situational Factors in Safety Critical Software Development. In the final paper of this set, Macher et al. explore cyber-security challenges in an automotive context.

Section V discusses issues surrounding “SPI Initiatives” with the first paper discussing risk assessment in SPI. In the second paper Stolfa et al. present the area of automotive quality and education, whilst in the final paper Pekki studies critical success factors in SPI.

Section VI presents selected keynotes from EuroSPI workshops concerning the future of SPI. From 2010 onwards EuroSPI has invited recognized key researchers to present papers on the future directions of SPI. These key messages are discussed in interactive workshops and help to create SPI communities based on new topics. The first set of papers relates to the GamifySPI workshop and explores Gamification and Persuasive Games for Software Process Improvement, Information Technology, and Innovation Management.

The second collection of papers relates to the topic of Functional Safety and addresses a broad range of issues related to cyber security and functional safety. Rodic et al. describe the application of the AQUA (Automotive Quality Knowledge Alliance) at master level at different universities and explain the application of the quality principles based on an in-wheel electric motor design. Riel et al. describe the Automotive Engineer Project where young researchers get introduced to modern quality strategies in Automotive which will empower the motivation of young engineers to join this leading industry in Europe. Larrucea et al. discuss how the Goal Structured Notation (GSN) can be used to build a safety case based on the example of a hall sensor which is a most common sensor principle nowadays used in cars. In the final paper Mac Airchinnigh analyses the available information about functional safety and proposes to integrate the experiences with formal methods in Europe with this growing set of functional safety standards.

The final collection of papers addresses innovation strategies in Europe which will motivate researchers, engineers, and managers to build an environment which empowers creativity and innovation in Europe. Innovation is a core ability empowering new concepts for implementing SPI. Messnarz et al. provide an overview of different European innovation initiatives and create a vision of a European network for innovation integrating the different approaches into a European innovation knowledge cluster. Reiner et al. illustrate how innovation strategies can be supported at universities to empower spin offs of young entrepreneurs. Munoz et al. describe in their paper how improvement strategies depend on the organization's context and how to deal with that, and in the final paper Siakas et al. describe the concept of open innovation and customer integration and how this influences the success of and value creation of an organization.

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