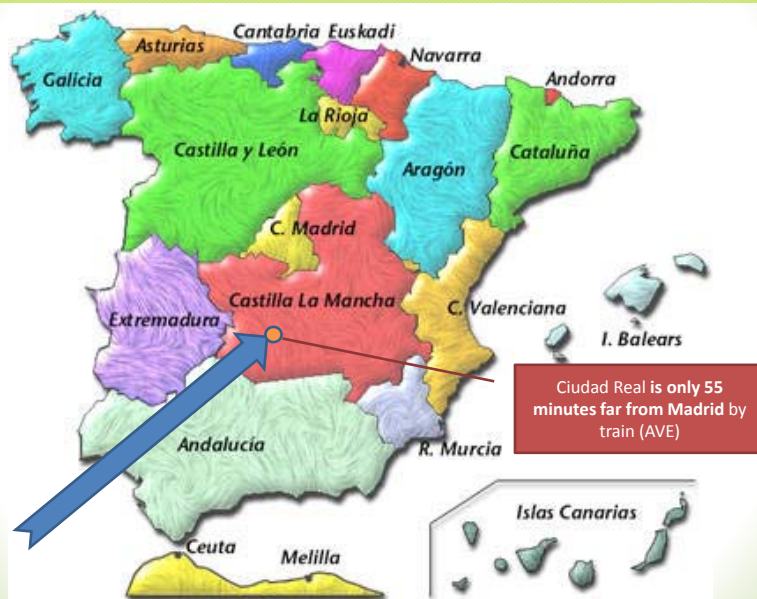




PRESENTATION

<http://alarcos.esi.uclm.es>

University of Castilla-La Mancha



University of Castilla-La Mancha



Provinces of Albacete, Ciudad Real(2), Cuenca y Toledo (2)
(6 campuses)

~30.000 students, 1.800 professors

Alarcos Research Group



University of Castilla-La Mancha



1000+ students, 65 professors

BSc, MSc., and Ph.D. courses in CS

Alarcos Research Group



Members

Alarcos Research Group: Full time professors



Manuel Serrano



Prof. Mario Piattini



Marcela Genero



Macario Polo



Marian Moraga

Eduardo
Fernández-Medina

Aurora Vizcaino



Félix García



David García



Ismael Caballero



José Cruz-Lemus



Prof. Coral Calero



Ignacio García



Prof. Francisco Ruiz

Members

- 14 (Full-time) PhD. in Computer Science
 - **Dr. Mario Piattini**
 - Dr. Ismael Caballero
 - Dr. Coral Calero
 - Dr. José Antonio Cruz Lemus
 - Dr. Eduardo Fernández-Medina
 - Dr. Félix García
 - Dr. David García
 - Dr. Ignacio García Rodríguez de Guzmán
 - Dr. Marcela Genero
 - Dr. M. Ángeles Moraga de la Rubia
 - Dr. Macario Polo
 - Dr. Francisco Ruiz
 - Dr. Manuel Ángel Serrano
 - Dr. Aurora Vizcaino
- Several researchers and Ph.D. students

Lab- ESI



Alarcos Research Group



Lab- ITSI



Alarcos Research Group



Research objectives



Research areas

- **Business engineering:** Application of model-driven engineering and service-oriented computing to enterprise governance and IT department: enterprise architectures, business process (BPM), IT strategic plans.
 - **Francisco Ruiz** (francisco.ruizg@uclm.es)
- **Global software development:** Study the problems that arise at different stages of global and distributed software development and propose methodologies, strategies and tools to help alleviating these problems or prevent them to appear.
 - **Aurora Vizcaino** (aurora.vizcaíno@uclm.es)
- **Quality in software development:** Propose and validate the techniques (methods, models, etc.) for measuring, evaluating and improving the quality of software artefacts produced across the software development lifecycle.
 - **Marcela Genero** (Marcela.genero@uclm.es)

Research areas

- **Modernization of legacy systems:** Investigate the latest trends on reengineering, such as the ADM (Architecture-Driven Modernization), business process retrieval and the extraction of services from legacy systems, or Business Process Archeology.
 - Ignacio García (Ignacio.GRodriguez@uclm.es)
- **Software process:** Propose and validate techniques for evaluating and improving software processes.
 - Félix García (felix.garcia@uclm.es)
- **Data and information quality:** Definition of techniques for assessing and improving data and information quality and management.
 - Ismael Caballero (Ismael.caballero@uclm.es)
- **Research methods:** Study and application of research methods for the validation of software technologies, Empirical and Evidence-Based Software Engineering
 - Marcela Genero (marcela.genero@uclm.es)



Research areas

- **Software sustainability:** Establish the bases of software sustainability and propose techniques that can contribute to the achievement of sustainable software.
 - Coral Calero (coral.calero@uclm.es)
- **Testing:** Implementation of advanced techniques for automating the testing process.
 - Macario Polo (macario.polo@uclm.es)
- **Security and Audit:** Use standards and best practices for improving and achieving information systems security management and audit of IT.
 - Eduardo Fernández (Eduardo.Fdezmedina@uclm.es)



Participation in standards organizations

- **Committee Name:** ISO/IEC JTC1/SC7 (AENOR 71/SC7)
Organization: ISO e IEC
Central Issue: Software Engineering
- **Committee Name:** ISO/IEC JTC1/SC27 (AENOR 71/SC27)
Organization: ISO e IEC
Issue: System Security
- **Committee Name:** ISO TC 184/SC4 WG13 (AENOR CTN 116)
Organization: ISO
Issue: Data Quality

Research Projects

- **COMPETISOFT:** Process improvement for increasing competitiveness of the small and medium software industry of Latin America. 120.000 €. UCLM, UNAM,... /12 countries
- **CALIPO:** Portal Quality. UCLM, UPV, UMU, UC3M, UPTC. 172.000 €
- **MÁS:** Agile Software Maintenance. UCLM, US. 149.000 €
- **ESFINGE:** Software Factories Evolution through Empirical Software Engineering. UCLM, UPV, UMU, UPTC. Evolución de Software Factories mediante Ingeniería del Software Empírica). 441.408 €
- **PEGASO:** Processes for the Improvement of Global Software Development. 724.306 €

Research Projects

- **GEODAS:** Global Software Development Management using Business Engineering and Advanced Collaborative Environments. UCLM, UA, UMU. 361.296 €.
- **SIGMA:** Security Governance and Secure Migration of Systems to Cloud Computing. UCLM. 108.856,80 €.

Technology Transfer Projects

- **MANTEMA:** An Information Systems Maintenance Methodology. Atos-Ods. 360.000 €.
- **MPM:** Maintenance Process Improvement. Atos-Ods. 222.000 €.
- **CALDEA:** Datawarehouse quality. Cronos Ibérica. 156.000 €
- **FAMOSO:** Model-driven Software Development and Modernization Fabricación. Soluziona, S.A. (Indra). 72.000 €
- **MECENAS:** Evidence-based Capability Improvement in Software Activities. Soluziona, S.A. (Indra). 169.000 €
- **SCMM-PYME:** Security Maturity Model for SMEs. SICAMAN, N.T. 40.000 €
- **ARMONÍAS:** Harmonization and Integration of Quality and Security Models. AUDISEC, S.L. 274.890 €

Technology Transfer Projects

- **BUSINESS:** Model-driven development for secure information systems. SICAMAN Nuevas Tecnologías. 93.775 €
- **DIMITRI:** Development and Implantation of Testing Methodologies and Technologies. KYBELE Consulting. 78.650 €
- **EVVE:** Verification and Validation Environment for Software Specifications. ALARCOS Quality Center, SL. 103.070 €
- **MEVALHE:** Alhambra-Eidos Outsourcing Virtual Model. Grupo Eidos. 147.859,00 €
- **TALES:** A Framework for Developing Data-quality-awareness Web Portals. Alarcos Quality Center, SL. 115.520 €
- **ORIGIN:** Innovative Intelligent Global Organisations. Indra, Sicaman Nuevas Tecnologías, SIGTEL, Treelogic, Grupo Eidos. 11.000.000 €



Technology Transfer Projects

- **MEDUSAS:** Evaluation and Improvement of Software Design, Usability, Security and Maitainability. Alarcos Quality Center, S.L.; Sicaman Nuevas Tecnologías, Audisec S.L. 402.751 €
- **W-INSOC:** Wireless Technology Integration in Urban Pavement for Incorporating Citizen-oriented Services. GCL Informática, Servinet Sistemas y Comunicación, ATPM, Box Capital España. 2.516.713 €
- **SMS_LP:** Framework for Software Product Lines of Secure Mobile Services. IBERLYNX Mobile Solutions, S.L. 67.750 €
- **MARISMA:** Systematic Risk Analysis Methodology based on Intelligent Asociative Models. SICAMAN Nuevas Tecnologías, S.L. 101.000 €
- **Innovation of the Software Development and Maintenance Environment.** Sistemas Técnicos de Loterías del Estado, S.A. 128.423 euros.

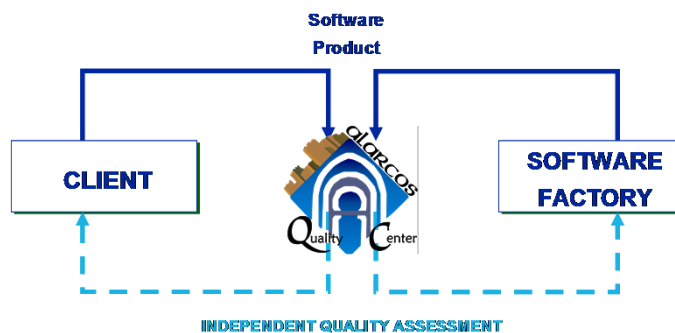


Technology Transfer Projects

- **MPSING:** Singular Project Management Model. Grupo Eidos Consultoría Informática SLU. 152.080 €
- **CLIPS-DDM:** Software Construction and Testing combining Software Product Lines and Model-driven Development. GCL Informática, S.L. 107.556 €
- **MAESTRO:** Modernization of Legacy Systems towards Business Processes. Alarcos Quality Center, S.L. 96.556 €
- **ENVIA:** Environment for Creating a Service Cloud for the Intelligent Street. Alarcos Quality Center, S.L., Via Inteligente, S.L., Enxeino, S.L., Softcrits, S.L. 2.042.681€

Technology transfer

Alarcos Quality Center, S.L. spinoff of UCLM






PUBLICATIONS


Alarcos Research Group



Books (English)



Alarcos Research Group



The grid of book covers includes:

- ADVANCED DATABASE TECHNOLOGY AND DESIGN
- INFORMATION AND DATABASE QUALITY
- Advances in Software Maintenance Management Technologies and Solutions
- Component-Based Software Quality: Methods and Techniques
- METRICS FOR SOFTWARE CONCEPTUAL MODELS
- Ontologies for Software Engineering and Software Technology
- HANDBOOK OF RESEARCH ON WEB INFORMATION SYSTEMS QUALITY
- Software Process Improvement for Small and Medium Enterprises: TECHNIQUES AND CASE STUDIES
- Web Services Security Development and Architecture: THEORETICAL AND PRACTICAL ISSUES
- IT Security Governance Innovations: Theory and Research
- Security Engineering for Cloud Computing: Approaches and Tools
- Uncovering Essential Software Artifacts through Business Process Archeology
- Green in Software Engineering

Books (Spanish)



Aircos Research Group



Books (Spanish)



Aircos Research Group



Publications

Software maintenance and reengineering

- Macario Polo, Mario Piattini, Francisco Ruiz, Coral Calero: **MANTEMA: A Complete Rigorous Methodology for Supporting Maintenance Based On The ISO/IEC 12207 Standard**. CSMR 1999: 178-181
- Macario Polo, Mario Piattini, Francisco Ruiz: **MANTOOL: a tool for supporting the software maintenance process**. Journal of Software Maintenance 13(2): 77-95 (2001)
- Macario Polo, Mario Piattini, Francisco Ruiz, Mar Jiménez: **Assessment of Maintenance Maturity in IT Departments of Public Entities: Two Case Studies**. PROFES 2001: 86-97
- Macario Polo, Mario Piattini, Francisco Ruiz: **Using Code Metrics to Predict Maintenance of Legacy Programs: A Case Study**. ICSM 2001: 202-208



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- Macario Polo, Mario Piattini, Francisco Ruiz: **Using a qualitative research method for building a software maintenance methodology**. Softw., Pract. Exp. 32(13): 1239-1260 (2002)
- Macario Polo, Juan Ángel Gómez, Mario Piattini, Francisco Ruiz: **Generating three-tier applications from relational databases: a formal and practical approach**. Information & Software Technology 44(15): 923-941 (2002)
- Francisco Ruiz, Aurora Vizcaíno Barceló, Mario Piattini, Félix García: **An Ontology For The Management Of Software Maintenance Projects**. International Journal of Software Engineering and Knowledge Engineering 14(3): 323-349 (2004)
- José Cristóbal Riquelme Santos, Macario Polo, Jesús S. Aguilar-Ruiz, Mario Piattini, Francisco J. Ferrer-Troyano, Francisco Ruiz: **A Comparison of Effort Estimation Methods for 4gl Programs: Experiences with Statistics and Data Mining**. International Journal of Software Engineering and Knowledge Engineering 16(1): 127-140 (2006)



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- Macario Polo, Ignacio García Rodríguez de Guzmán, Mario Piattini: **An MDA-based approach for database re-engineering**. Journal of Software Maintenance 19(6): 383-417 (2007)
- Ricardo Pérez-Castillo, Ignacio García, Ismael Caballero: **PRECISO: A reengineering process and a tool for database modernisation through web services**. SAC 2009: 2126-2133
- Ricardo Pérez-Castillo, Ignacio García Rodríguez de Guzmán, Mario Piattini: **Business process archeology using MARBLE**. Information & Software Technology 53(10): 1023-1044 (2011)
- Ricardo Pérez-Castillo, Ignacio García Rodríguez de Guzmán, Mario Piattini, Christof Ebert: **Reengineering Technologies**. IEEE Software 28(6): 13-17 (2011)
- Ricardo Pérez-Castillo, Ignacio García, Mario Piattini, Ángeles S. Places: **A case study on business process recovery using an e-government system**. Softw., Pract. Exp. 42(2): 159-189 (2012)



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- Ricardo Pérez-Castillo, José A. Cruz-Lemus, Ignacio García Rodríguez de Guzmán, Mario Piattini: **A family of case studies on business process mining using MARBLE**. Journal of Systems and Software 85(6): 1370-1385 (2012)
- María Fernández-Roperero, Ricardo Pérez-Castillo, José A. Cruz-Lemus, Mario Piattini: **Assessing the best-order for business process model refactoring**. SAC 2013: 1397-1402
- Francisco J. Pino, Francisco Ruiz, Félix García, Mario Piattini: **A software maintenance methodology for small organizations: Agile_MANTEMA**. Journal of Software: Evolution and Process 24(8): 851-876 (2012)
- Ricardo Pérez-Castillo, Ignacio García Rodríguez de Guzmán, Ismael Caballero, Mario Piattini: **Software modernization by recovering Web services from legacy databases**. Journal of Software: Evolution and Process 25(5): 507-533 (2013)
- Ricardo Pérez-Castillo, Mario Piattini: **Analyzing the Harmful Effect of God Class Refactoring on Power Consumption**. IEEE Software 31(3): 48-54 (2014)



Publications

Software measurement: **Database models**

- Mario Piattini, Coral Calero, Marcela Genero: **Table Oriented Metrics for Relational Databases**. Software Quality Journal 9(2): 79-97 (2001)
- Coral Calero, Mario Piattini, Marcela Genero: **Empirical validation of referential integrity metrics**. Information & Software Technology 43(15): 949-957 (2001)
- Oscar Díaz, Mario Piattini, Coral Calero: **Measuring Triggering-Interaction Complexity on Active Databases**. Inf. Syst. 26(1): 15-34 (2001)
- Coral Calero, Houari A. Sahraoui, Mario Piattini: **An Empirical Study with Metrics for Object-Relational Databases**. ECSQ 2002: 298-309

Publications

Software measurement: **ER models**

- Marcela Genero, Luis Jiménez, Mario Piattini: **Measuring the Quality of Entity Relationship Diagrams**. ER 2000: 513-526
- Mario Piattini, Marcela Genero, Luis Jiménez: **A Metric-Based Approach for Predicting Conceptual Data Models Maintainability**. International Journal of Software Engineering and Knowledge Engineering 11(6): 703-729 (2001)
- Marcela Genero, Geert Poels, Mario Piattini: **Defining and validating metrics for assessing the understandability of entity-relationship diagrams**. Data Knowl. Eng. 64(3): 534-557 (2008)

Publications

Software Measurement: **Datawarehouses**

- Manuel A. Serrano, Coral Calero, Mario Piattini: **Validating metrics for data warehouses**. IEE Proceedings - Software 149(5): 161-166 (2002)
- Manuel A. Serrano, Coral Calero, Juan Trujillo, Sergio Luján-Mora, Mario Piattini: **Empirical Validation of Metrics for Conceptual Models of Data Warehouses**. CAiSE 2004: 506-520
- Manuel A. Serrano, Juan Trujillo, Coral Calero, Mario Piattini: **Metrics for data warehouse conceptual models understandability**. Information & Software Technology 49(8): 851-870 (2007)
- Manuel A. Serrano, Coral Calero, Houari A. Sahraoui, Mario Piattini: **Empirical studies to assess the understandability of data warehouse schemas using structural metrics**. Software Quality Journal 16(1): 79-106 (2008)



Publications

Software Measurement: **COTS**

- Alejandra Cechich, Mario Piattini, Antonio Vallecillo: **Component-Based Software Quality - Methods and Techniques**. Springer 2003
- Alejandra Cechich, Mario Piattini: **Quantifying COTS Component Functional Adaptation**. ICSR 2004: 195-204
- Alejandra Cechich, Mario Piattini: **Filtering COTS Components Through an Improvement-Based Process**. ICCBSS 2005: 112-121
- Alejandra Cechich, Mario Piattini: **Early detection of COTS component functional suitability**. Information & Software Technology 49(2): 108-121 (2007)
- Maria Ángeles Moraga, Coral Calero, Manuel F. Bertoa: **Improving interpretation of component-based systems quality through visualisation techniques**. IET Software 4(1): 79-90 (2010)



Publications

Software Measurement: **UML models (Class)**

- Marcela Genero, Mario Piattini, M. Esperanza Manso, Giovanni Cantone: **Building UML Class Diagram Maintainability Prediction Models Based on Early Metrics**. IEEE METRICS 2003: 263-
- Marcela Genero, Mario Piattini, Coral Calero: **A Survey of Metrics for UML Class Diagrams**. Journal of Object Technology 4(9): 59-92 (2005)
- Marcela Genero, Daniel L. Moody, Mario Piattini: **Assessing the capability of internal metrics as early indicators of maintenance effort through experimentation**. Journal of Software Maintenance 17(3): 225-246 (2005)
- Marcela Genero, M. Esperanza Manso, Corrado Aaron Visaggio, Gerardo Canfora, Mario Piattini: **Building measure-based prediction models for UML class diagram maintainability**. Empirical Software Engineering 12(5): 517-549 (2007)



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Software Measurement: **UML models (STD)**

- José A. Cruz-Lemus, Marcela Genero, José A. Olivas, Francisco P. Romero, Mario Piattini: **Predicting UML Statechart Diagrams Understandability Using Fuzzy Logic-Based Techniques**. SEKE 2004: 238-245
- José A. Cruz-Lemus, Marcela Genero, M. Esperanza Manso, Mario Piattini: **Evaluating the Effect of Composite States on the Understandability of UML Statechart Diagrams**. MoDELS 2005: 113-125
- José A. Cruz-Lemus, Marcela Genero, M. Esperanza Manso, Sandro Morasca, Mario Piattini: **Assessing the understandability of UML statechart diagrams with composite states - A family of empirical studies**. Empirical Software Engineering 14(6): 685-719 (2009)
- José A. Cruz-Lemus, Ann Maes, Marcela Genero, Geert Poels, Mario Piattini: **The impact of structural complexity on the understandability of UML statechart diagrams**. Inf. Sci. 180(11): 2209-2220 (2010)



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Software Measurement: **UML models (Use Case)**

- Beatriz Bernárdez, Amador Durán, Marcela Genero: **Empirical Evaluation and Review of a Metrics-Based Approach for Use Case Verification**. Journal of Research and Practice in Information Technology 36(4): (2004)
- Amador Durán, Beatriz Bernárdez, Marcela Genero, Mario Piattini: **Empirically Driven Use Case Metamodel Evolution**. UML 2004: 1-11

Publications

Software Measurement: **UML models (OCL)**

- Luis Reynoso, Marcela Genero, Mario Piattini, M. Esperanza Manso: **Does object coupling really affect the understanding and modifying of OCL expressions?** SAC 2006: 1721-1727
- Luis Reynoso, Marcela Genero, Mario Piattini: **Using Verbal Protocols to Assess the Influence of Import-Coupling on the Comprehensibility of OCL Expressions**. IEEE ICCI 2007: 440-449
- Luis Reynoso, Juan Antonio Cruz-Lemus, Marcela Genero, Mario Piattini: **Formal definition of measures for UML statechart diagrams using OCL**. SAC 2008: 846-847
- Luis Reynoso, M. Esperanza Manso, Marcela Genero, Mario Piattini: **Assessing the influence of import-coupling on OCL expression maintainability: A cognitive theory-based perspective**. Inf. Sci. 180(20): 3837-3862 (2010)

Publications

Software Measurement: **generic issues**

- Javier Garzás, Mario Piattini: **An Ontology for Microarchitectural Design Knowledge**. IEEE Software 22(2): 28-33 (2005)
- Félix García, Manuel F. Bertoa, Coral Calero, Antonio Vallecillo, Francisco Ruiz, Mario Piattini, Marcela Genero: **Towards a consistent terminology for software measurement**. Information & Software Technology 48(8): 631-644 (2006)
- Francisco García, Manuel A. Serrano, José A. Cruz-Lemus, Francisco Ruiz, Mario Piattini: **Managing software process measurement: A metamodel-based approach**. Inf. Sci. 177(12): 2570-2586 (2007)
- María Díaz-Ley, Félix García, Mario Piattini: **Software Measurement Programs in SMEs - Defining Software Indicators: A Methodological Framework**. PROFES 2007: 247-261
- Beatriz Mora, Félix García, Francisco Ruiz, Mario Piattini: **Graphical versus textual software measurement modelling: an empirical study**. Software Quality Journal 19(1): 201-233 (2011)



Publications

Quality in model based development

- José A. Cruz-Lemus, Marcela Genero, Danilo Caivano, Silvia Abrahão, Emilio Insfrán, José A. Carsí: **Assessing the influence of stereotypes on the comprehension of UML sequence diagrams: A family of experiments**. Information & Software Technology 53(12): 1391-1403 (2011)
- Silvia Abrahão, Emilio Insfrán, José A. Carsí, Marcela Genero: **Evaluating requirements modeling methods based on user perceptions: A family of experiments**. Inf. Sci. 181(16): 3356-3378 (2011)
- H. James Nelson, Geert Poels, Marcela Genero, Mario Piattini: **A conceptual modeling quality framework**. Software Quality Journal 20(1): 201-228 (2012)



Publications

Quality in model based development

- Genero, M., Fernández-Sáez, A.M., Nelson, H.J., Poels, G., Piattini, M. (2011): **A Systematic Literature Review on the Quality of UML Models**. Journal of Database Management, 22(3): 46-70.
- Ana M. Fernández-Sáez, Marcela Genero, Michel R. V. Chaudron. (2013): **Empirical studies concerning the maintenance of UML diagrams and their use in the maintenance of code: A systematic mapping study**. Information and Software Technology 55(7): 1119-1142.
- Giuseppe Scanniello, Carmine Gravino, Marcela Genero, José A. Cruz-Lemus, Genoveffa Tortora: **On the impact of UML analysis models on source-code comprehensibility and modifiability**. ACM Trans. Softw. Eng. Methodol. 23(2): 13 (2014)

Publications

Data quality/Web quality

- Ismael Caballero, Mario Piattini: **CALDEA: A Data Quality Model Based on Maturity Levels**. QSIC 2003: 380-387
- Coral Calero, Julián Ruiz, Mario Piattini: **A Web Metrics Survey Using WQM**. ICWE 2004: 147-160
- Ismael Caballero, Angelica Caro, Mario Piattini, Coral Calero: **Improving Information Quality Management Using Caldea and Evamecal**. IQ 2005
- Angelica Caro, Coral Calero, Ismael Caballero, Mario Piattini: **Defining a Data Quality Model for Web Portals**. WISE 2006: 363-374
- Maria Ángeles Moraga, Coral Calero, Mario Piattini, Oscar Díaz: **Improving a portlet usability model**. Software Quality Journal 15(2): 155-177 (2007)
- Javier Espadas, Coral Calero, Mario Piattini: **Web site visibility evaluation**. JASIST 59(11): 1727-1742 (2008)

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- Maria Ángeles Moraga, Coral Calero, Javier Garzás, Mario Piattini: **Assessment of portlet quality: Collecting real experience.** Computer Standards & Interfaces 31(2): 336-347 (2009)
- Valeria de Castro, Marcela Genero, Esperanza Marcos, Mario Piattini: **Empirical study to assess whether the use of routes facilitates the navigability of web information systems.** IET Software 5(6): 528-542 (2011)
- Angelica Caro, Coral Calero, Maria Ángeles Moraga: **Are Web Visibility and Data Quality Related Concepts?** IEEE Internet Computing 15(2): 43-49 (2011)
- Francisco P. Romero, Ismael Caballero, Jesús Serrano-Guerrero, José Angel Olivas: **An approach to web-based Personal Health Records filtering using fuzzy prototypes and data quality criteria.** Inf. Process. Manage. 48(3): 451-466 (2012)



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Data quality/Web quality

- Ismael Caballero, Luís Enrique Sanchez, Alberto Freitas, Eduardo Fernández-Medina: **HC+: Towards a Framework for Improving Processes in Health Organizations by Means of Security and Data Quality Management.** J. UCS 18(12): 1703-720 (2012)
- Alfonso Rodríguez, Angelica Caro, Cinzia Cappiello, Ismael Caballero: **A BPMN Extension for Including Data Quality Requirements in Business Process Modeling.** BPMN 2012: 116-125
- Carmen Moraga, Maria Ángeles Moraga, Angelica Caro, Rodrigo Romo Muñoz, Coral Calero: **University educated users' data quality preferences in web portals.** IJIQ 3(2): 107-126 (2013)
- César Guerra-García, Ismael Caballero, Mario Piattini: **Capturing data quality requirements for web applications by means of DQ_WebRE.** Information Systems Frontiers 15(3): 433-445 (2013)



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IS Security: **Databases**

- Eduardo Fernández-Medina, Mario Piattini: **Designing Secure Databases for OLS**. DEXA 2003: 886-895
- Eduardo Fernández-Medina, Mario Piattini: **Extending OCL for Secure Database Development**. UML 2004: 380-394
- Eduardo Fernández-Medina, Mario Piattini: **Designing secure databases**. Information & Software Technology 47(7): 463-477 (2005)
- Rodolfo Villarroel, Eduardo Fernández-Medina, Mario Piattini: **Secure information systems development - a survey and comparison**. Computers & Security 24(4): 308-321 (2005)
- Belén Vela, Eduardo Fernández-Medina, Esperanza Marcos, Mario Piattini: **Model driven development of secure XML databases**. SIGMOD Record 35(3): 22-27 (2006)

Publications

IS Security: **Datawarehouses**

- Eduardo Fernández-Medina, Juan Trujillo, Rodolfo Villarroel, Mario Piattini: **Access control and audit model for the multidimensional modeling of data warehouses**. Decision Support Systems 42(3): 1270-1289 (2006)
- Emilio Soler, Juan Trujillo, Carlos Blanco, Eduardo Fernández-Medina: **Designing Secure Data Warehouses by Using MDA and QVT**. J. UCS 15(8): 1607-1641 (2009)
- Juan Trujillo, Emilio Soler, Eduardo Fernández-Medina, Mario Piattini: **An engineering process for developing Secure Data Warehouses**. Information & Software Technology 51(6): 1033-1051 (2009)
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- Belén Vela, Carlos Blanco, Eduardo Fernández-Medina, Esperanza Marcos: **A practical application of our MDD approach for modeling secure XML data warehouses**. Decision Support Systems 52(4): 899-925 (2012)

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- Carlos Gutiérrez, Eduardo Fernández-Medina, Mario Piattini: **Web Services-Based Security Requirement Elicitation**. IEICE Transactions 90-D(9): 1374-1387 (2007)
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- Daniel Mellado, Eduardo Fernández-Medina, Mario Piattini: **A common criteria based security requirements engineering process for the development of secure information systems**. Computer Standards & Interfaces 29(2): 244-253 (2007)
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- Daniel Mellado, Carlos Blanco, Luís Enrique Sanchez, Eduardo Fdez-Medina: **A systematic review of security requirements engineering**. Computer Standards & Interfaces 32(4): 153-165 (2010)
- Daniel Mellado, Haralambos Mouratidis, Eduardo Fernández-Medina: **Secure Tropos framework for software product lines requirements engineering**. Computer Standards & Interfaces 36(4): 711-722 (2014)

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- Alfonso Rodríguez, Eduardo Fernández-Medina, Mario Piattini: **Towards a UML 2.0 Extension for the Modeling of Security Requirements in Business Processes**. TrustBus 2006: 51-61
- Alfonso Rodríguez, Eduardo Fernández-Medina, Mario Piattini: **Analysis-Level Classes from Secure Business Processes Through Model Transformations**. TrustBus 2007: 104-114
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- Alfonso Rodríguez, Ignacio García, Eduardo Fdez-Medina, Mario Piattini: **Semi-formal transformation of secure business processes into analysis class and use case models: An MDA approach**. Information & Software Technology 52(9): 945-971 (2010)
- Alfonso Rodríguez, Eduardo Fdez-Medina, Juan Trujillo, Mario Piattini: **Secure business process model specification through a UML 2.0 activity diagram profile**. Decision Support Syst. 51(3): 446-465 (2011)



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