SOFTWARE MEASUREMENT NEWS

Journal of the Software Metrics Community

Measurement

Analyzing

Validation

Modelling

Assessment

Estimation

Improvement

Controlling
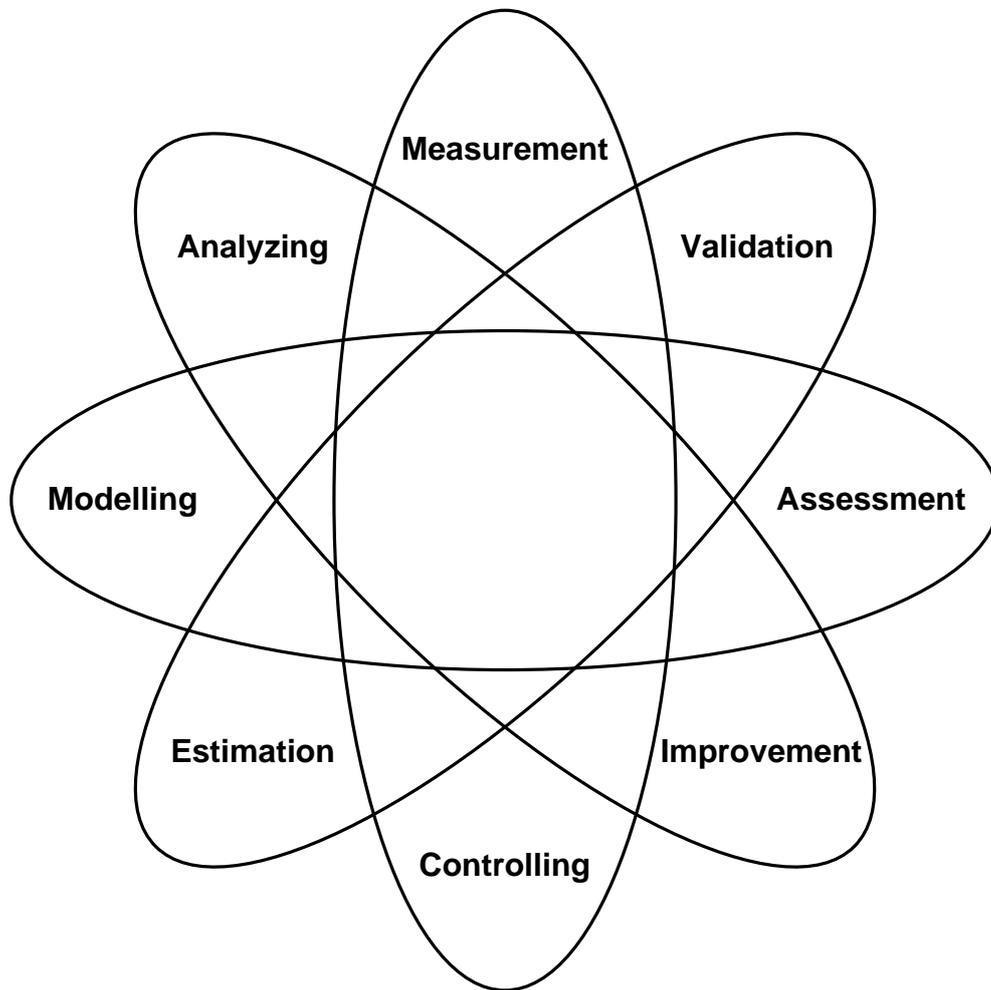
Editors:

Alain Abran, Manfred Bundschuh, Reiner Dumke, Christof Ebert, Horst Zuse

The *SOFTWARE MEASUREMENT NEWS* can be ordered directly from the Editorial Office (address can be found below).

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Announcements

CALL FOR PAPERS
IWSM 2009
19th International Workshop on Software Measurement – **Nov. 4, 2009**
MENSURA 2009
International Conference on Software Process and Product Measurement

5-6 November 2009, Amsterdam, Netherlands

THEME & SCOPE:

Software measurement is a key technology to manage and to control software development projects. Measurement is essential of any engineering activity, by increasing the scientific and technical knowledge for both the practice of software development and for empirical research in software technology.
This congress facilitates the exchange of software measurement experiences between theory and practice.

TOPICS OF INTEREST:

We encourage submissions in any field of software measurement, including, but not limited to:

- *Software measurement foundations*	- *Measurement for integration, and testing*
- *Practical measurement application*	
- *Measurement processes and resources*	- *Measurement databases*
- *Empirical case studies*	- *Measurement validation*
- *Measurement acceptance*	- *Measurement services*
- *Functional size measurement*	- *Measurement tools*
- *Software estimation*	- *Measurement experience and guidance*
- *Software process improvement*	- *Theory of measurement*
- *Measurement for specific areas, e.g. web services*	- *Measurement paradigms*
	- *Enterprise embedded solutions*
- *Measurements for system engineering*	- *Software benchmarking*

SUBMISSIONS:

Authors should send proposals of Full papers or Abstract for short industry papers *(2 to 4 pages)*
by e-mail to **alain.abran@etsmtl.ca** (see Timetable below)

Papers should not have already been published elsewhere. Nor should they have been submitted to a journal or to another conference. At least one among the authors of each paper accepted must register for the conference and commit to paper presentation.

The final Full papers must use the format of the Springer Verlag – Lecture Notes template.
Conference language is English.

TIMETABLE - Deadlines:

Items	Full papers	Short papers	Workshop proposal
Submission	May 31, 2009	Abstract: June 30, 2009	June 30, 2009
Notification of acceptance	July 15, 2009	July 15, 2009	July 15, 2009
Final version	September 1st, 2009	September 15, 2009	N/A

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FURTHER INFORMATION

Web site address to be added
http://www.

Announcements

MetriKon 2009
DASMA Software Metrik Kongress
19. / 20. November 2009

Fraunhofer IESE Kaiserslautern

Deutschsprachige
Anwendergruppe für
Software-
Metrik und
Aufwandschätzung e.V.

GI-Fachgruppe 2.1.10
"Software Messung
und Bewertung"

CALL FOR PAPERS

Veranstalter

DASMA e.V. und GI-Fachgruppe 2.1.10

Kontaktadressen für

MetriKon-Beiträge:

   metrikon-beitraege@dasma.org

Ausstellungsreservierungen:

   DASMA e.V.
   E-Mail: info@dasma.org

Programmkomitee

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Harry Sneed
SES, München/Budapest

Dr. Cornelius Wille
FH Bingen

Prof. Dr.-Ing. Horst Zuse
Technische Universität Berlin

Themenstellung & Abgrenzung

Software-Messverfahren und Metriken sind Schlüsseltechnologien für Controlling und Management von Software-Entwicklungsprozessen und -Produkten. Messen ist eine wichtige Grundlage für jede Ingenieurtätigkeit und die Gewinnung neuer Erkenntnisse in Wissenschaft und Technik. Es ist damit sowohl für die Praxis der Software-Entwicklung als auch für die empirische Forschung zur Software-Technik unverzichtbar. Die MetriKon bietet für den notwendigen Erfahrungsaustausch zwischen Theorie und Praxis eine ideale Plattform.

Wir laden Sie herzlich ein, sich aktiv an diesem Austausch zu beteiligen.

MetriKon-Beiträge

Gewünscht werden **Erfahrungsberichte aus der industriellen Praxis** zur Einführung und Anwendung von Messprogrammen und zur Umsetzung von Messmodellen, sowie **Forschungsbeiträge** zur fachlichen Fundierung, Anwendung und Validierung von praxisrelevanten Softwaremetriken.

Ebenso können am Vortag der Tagung (18. November 2009) **Tutorien oder Workshops** zur Einführung oder Vertiefung komplexer Themen oder Verfahren der Software-Messung und Aufwandschätzung angeboten werden. Vorschläge mit einer Kurzbeschreibung bitte bis zum 22. Juni 2009 einreichen.

Begleitend zur Tagung wird eine **Ausstellung** organisiert, in der Dienstleister und Werkzeughersteller den Teilnehmern ihre Angebote zur Unterstützung von Softwaremessung und Aufwandschätzung vorstellen. Aussteller sollten Ihren Teilnahmewunsch spätestens bis Ende August beim Veranstalter anmelden.

Themenfelder

Generell sind Beiträge zu allen Themen rund um Software-Metriken und Aufwandschätzverfahren erwünscht. Das Programmkomitee behält sich bei der Auswahl der eingereichten Beiträge vor, auf eine ausgewogene Mischung von Praxis und Theorie zu achten.

Zur Orientierung hier einige Stichworte zu erwünschten Vortragsthemen:

- Software-Metriken, Vergleich von Metriken, Einführung von Metriken etc.
- Zielorientierte Metriken zur Verfolgung und Erreichung von Projekt- und Verbesserungszielen
- Einsatz, Einführung und Erfahrungen mit Aufwandschätzverfahren und
  -Tools
- Quantitatives Projektmanagement, Projektcontrolling
- CMMI- / SPICE-konforme Messprogramme und Metriken
- Verwandte Themen wie Benchmarking von Prozessen und Projekten
- Einsatz von Mess- und Aufwandschätzverfahren im Zusammenhang mit Embedded Systems, SOA, Testen, Anforderungsmanagement, etc.

Weitere Informationen

Zur DASMA e.V. und zur MetriKon 2009 -Tagung finden Sie weitere Informationen im Web unter **http://dasma.org** und **http://www.metrikon.de**, zur GI-Fachgruppe 2.1.10 unter **http://ivs.cs.uni-magdeburg.de/sw-eng/us/giak**.

Beachten Sie bei der Ausarbeitung von Beiträgen für die MetriKon 2009 bitte die „Richtlinien zur Einreichung von Beiträgen zur MetriKon 2009". Sie finden diese Richtlinien und auch den Call for Papers im Internet auf den Seiten der MetriKon unter der oben angegebenen Adresse.

Wichtige Termine

15. Juni 2009	Abgabeschluss einer aussagekräftigen Kurzfassung
bis 3. August 2009	Benachrichtigung über die Annahme
21. September 2009	Abgabe des druckfertigen Beitrages

**Ankündigung des 4. Workshops
„Bewertungsaspekte serviceorientierter Architekturen"**

18. November 2009 Darmstadt (Gastgeber: Software AG)

MOTIVATION

Für die erfolgreiche Einführung und Nutzung serviceorientierter Architekturen sind qualitative und quantitative Bewertungen im Kontext prozess-, produkt- und ressourcenbezogener Aspekte unerlässlich. Die BSOA-Initiative greift diese Herausforderung auf und führt dazu jährlich einen entsprechenden Workshop durch. Der kommende Workshop wird sich insbesondere mit den folgenden Themen auseinandersetzen.

- Modelle zur Bewertung der SOA-Tauglichkeit einer Organisation,

- Aufwands- und Risikobetrachtungen bei SOA-Entwicklungsprojekten,

- Möglichkeiten zur Bewertung der Serviceentwicklung und Servicekomposition,

- Wirtschaftlichkeitsbetrachtungen bei der SOA-Einführung,

- Bewertungsaspekte beim Management serviceorientierter IT-Infrastrukturen,

- Bewertung der Beeinflussung des Business-IT-Alignments durch eine SOA.

Selbstverständlich geben die dargestellten Themen nur einen ausgewählten Teil möglicher Herausforderungen bei der Bewertung serviceorientierter Architekturen wieder. Dem entsprechend dienen diese der Orientierung und nicht der Einschränkung für potentielle Beiträge.

WORKSHOP-BEITRÄGE

Praktiker und Wissenschaftler, die auf dem Gebiet der Konzeption, Entwicklung und Management serviceorientierter Architekturen tätig sind, werden gebeten, Beiträge im doc- oder pdf-Format einzureichen. Der Umfang der Beiträge sollte 3000 Wörter nicht übersteigen. Die Formatierungsrichtlinien werden auf der unten genannten Webseite veröffentlicht. Angenommene Beiträge werden innerhalb eines 30-minütigen Vortrags präsentiert bzw. in Form eines Posters (innerhalb der Workshoppausen) vorgestellt. Alle angenommenen Beiträge des Workshops erscheinen in einem Tagungsband.

Bitte senden Sie ihre Beiträge per E-Mail an

schmiete@ivs.cs.uni-magdeburg.de

PROGRAMMKOMITEE

S. Aier, Universität St. Gallen	J. vom Brocke, HS Liechtenstein	E. Dimitrov, T-Systems
R. Dumke, Universität Magdeburg	M. Fiedler, Software AG	T. Grawe, Advicio
J. M. Gomez, Uni Oldenburg	W. Greis, TPS Data & CECMG	M. Irtmann, IBM
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F. Victor, FH Köln	C. Wille, FH Bingen	R. Zarnekow, TU Berlin

TERMINE

01.09.2009 Einreichung von Beiträgen
25.09.2009 Annahme/Ablehnung
30.09.2009 finales Workshop-Programm
15.10.2009 Abgabe der druckreifen Beiträge
18.11.2009 Workshop in Darmstadt

WEBSEITE ZUM WORKSHOP

http://ivs.cs.uni-magdeburg.de/~gi-bsoa

Our International Workshop on Software Measurement (IWSM 2008) and the DASMA Metrik Kongress (MetriKon 2008) and the International Conference on Software Process and Product Measurement (Mensura 2008) took place in Munich, Germany in November 2008. The following report gives an overview about the presented papers. Furthermore, the papers are published in Springer Verlag (ISBN 978-3-540-89402-5):

Reiner R. Dumke René Braungarten
Günter Büren Alain Abran
Juan J. Cuadrado-Gallego (Eds.)

LNCS 5338

Software Process and Product Measurement

International Conferences
IWSM 2008, MetriKon 2008, and Mensura 2008
Munich, Germany, November 2008, Proceedings

Springer
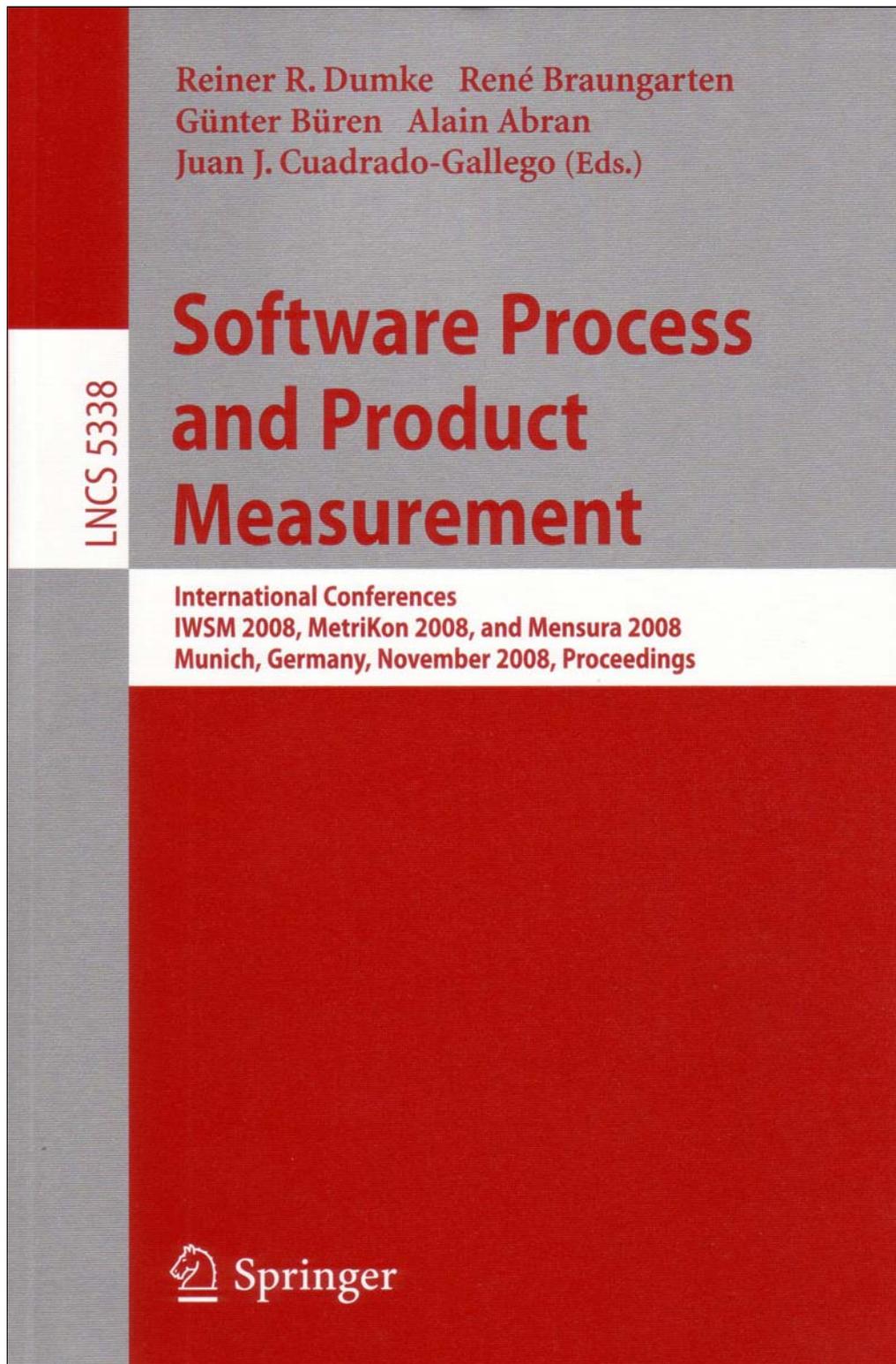
Project Sizing and Estimating: A Case Study Using PSU, IFPUG and COSMIC

Luigi Buglione[1], Juan J. Cuadrado-Gallego[2], and J. Antonio Gutiérrez de Mesa[2]

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Abstract. From the late '70s on, Albrecht's Function Point Analysis provided an insightful way to size a software system moving from the elicitation of Functional User Requirement (FUR), making an evaluation more objective than done before using Lines of Code (LOC). This technique has currently a plenty of variants, some of them become international de jure standards (e.g. COSMIC, NESMA, Mark-II and FISMA) - called FSM (Functional Size Measurement) methods - and they are widely adopted worldwide. A common problem when using a FSM for estimation purposes is that the software size (that is a product measure, referring only to its functional side) is used as the solely independent variable to estimate the overall project effort, that includes the effort of both the functional and non-functional activities within the project's boundary, as currently stressed more and more in the Scope Management field, also in the Software Engineering domain (see NorthernScope and SouthernScope approaches), not knowing neither the approximated distribution between the two parts. This missing information, usually not gathered in projects' repositories, can be one of the reasons leading to a lower capability in estimating project effort.

In 2003, a new technique called PSU (Project Size Unit) come out with the aim to size the 'project' entity from a Project Management viewpoint. It can be used alone or jointly with a FSM unit. In the second case, the joint usage of the two values can improve what a FSM cannot measure and therefore estimate, that is the non-functional side of a software project. This paper presents a case study with 33 projects measured both with IFPUG FPA and COSMIC methods as well as with PSU, showing the obtained results using the different sizes for estimating the overall effort, and providing a rationale for the better results with PSU.

Keywords: Estimation, Function Points, Project Size Unit (PSU), Case Study, Non-Functional Requirements, Scope Management.

Proposals for Increasing Benchmarking Data Quantity

and Quality of Projects Measured in COSMIC

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Abstract. With the release of the COSMIC (Common Software Measurement International Consortium) measurement method version 3.0 in September 2007, the COSMIC Functional Size Measurement (FSM) method [1] has reached a stable and mature status. Almost 10 years after its inception, COSMIC has proven itself to be a valuable functional sizing method for a broad range of different software types and domains, including business applications, telecommunication software, real-time systems, and hybrids of these, with any kind of logical architectural structure. Even though many organizations worldwide have already adopted the method (now known briefly as COSMIC Function Points) in their operations, still a significant lack of external benchmarking data is perceived in the industry. For instance, organizations that are measuring in COSMIC have less projects to benchmark themselves to, within the well-known ISBGS (International Software Benchmarking Standard Group) benchmarking database [2] (currently at version 10), with respect to older generation measurement methods and measures, as IFPUG or NESMA Function Points.

In this paper the COSMIC Benchmarking Committee, led by the authors, will be introduced to the public and its goals and intents will be outlined. Topics covered in the paper are, among others, suggestions to improve the current ISBSG data collection questionnaire(s) for better usage, possibly higher data collection accuracy, and/or for compliance to the recently-issued topics of levels of decomposition and levels of granularity, and the possibilities to convert old generation measures (as IFPUG and COSMIC) to COSMIC measures for practical project benchmarking and estimation purposes.

Keywords: COSMIC, Functional Size Measurement, Benchmarking, ISBSG, size conversion.

Quality-Driven Orchestration of Services

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Abstract. The importance of providing integration architectures in every field of application is beyond controversy these days. Unfortunately existing solutions are focusing mainly on functionality. But for the success of Systems Integration in the long run, the quality of developed architectures is of substantial interest. Therefore a framework for quality-driven creation of architectures is proposed in this paper. Besides these quality-oriented

characteristic the usage of semantic knowledge and structured process descriptions enable an automatic procedure. Especially the combination of both is a promising approach.

Keywords: software quality, quality driven design, service orchestration.

Field of Software Engineering

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Abstract. Process improvement in software engineering typically means introducing best practices. However, with increasing maturity of software engineering organizations the focus shifts from introducing industry best practices to optimizing the already implemented procedures and tools. But while in the field of software engineering a lot of best practice material exists, there is no proven and concise methodology for effective optimization.

The situation is similar to the one in the field of manufacturing some decades ago. They created Six Sigma, which is a problem solving and optimization methodology that is widely used today. But there are crucial differences between the disciplines manufacturing and software engineering. Whereas software artifacts are never developed twice and software processes are executed by humans, manufacturing is mostly machinery driven and usually deals with high quantities of identical output.

We applied Six Sigma in the field of software engineering and obtained promising results.

Keywords: Six Sigma, process, improvement, problem solving, optimization.

First Steps towards Validating a Cost-Benefit Model of Reviews and Tests

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Abstract. Software project managers' decisions on reviews and tests are difficult. This paper describes a cost-benefit model for specific decisions on quality assurance. The quantitative model is based on single relationships and is quantified with historical data. Its results are shown and are compared with cost estimations. The model is able to reflect reported results of process improvement. Data collected in student projects is used to evaluate the model. Project averages and single projects are considered. Furthermore, results of a cross-validation are shown.

Field Study: Influence of Different Specification Formats

on the Use Case Point Method

Stephan Frohnhoff and Thomas Engeroff

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Abstract. The Use Case Point method (UCP method) allows early, easy estimation of the anticipated effort during a software development project. The basis for such estimation in real industrial projects is commonly a number of rough specifications in different formats and of differing granularity. The success of the UCP method and comparability of the results depend above all on whether and how good use cases can be identified and weighted from the specifications. Within a field study, a total number of more than 200 UCP estimations based on eight different specification formats have been performed.

The estimations have been compared quantitatively and qualitatively with regard to the reproducibility of effort estimation and with regard to expert valuations. With the help of statistical methods a mean variance (variation coefficient) between 13 % and 48 % was found depending on the specification format. Thus, a valuation of specification formats for improving estimation accuracy could be derived with the help of variance analysis.

Keywords: project effort estimation, top-down estimation, use case points, UCP, specification, estimation reproducibility, field study.

Software Measurement @ Siemens – A Practical Approach Allows Best Practice Sharing of Various Organizations

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Abstract. The Siemens Measurement System for Software-based Systems (SMS) was set up in 2004 (see Keynote of F. Paulisch at the Metrikon 2006) and until now information of more than 440 projects has been collected. The active contribution of almost all software developing organizations within Siemens to the company-wide Measurement System provides a good data base to compare and analyze performance data such as "Budget Deviation" and the various success-critical influencing factors such as review practices, "Team Size" or "Unplanned Team Changes" between various organizations. This way, areas of interest can be objectively identified, where organizations could benefit from Best Practice Sharing.

Keywords: Measurement System, Benefits, Success Factors, Statistical Analyses, Organization-wide Best Practice Sharing.

Measurement Support for Effective Supplier Management

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Abstract. Many companies work with suppliers to either increase flexibility, focus on their own core competencies or reduce cost. Often, after a while into such externalized engineering or supply activities they realize that savings are much smaller and problems are more difficult to cure than before. Others realize that suppliers do not deliver according to initial commitments. This article provides experiences and empirical evidence from global software engineering and supplier management over several years in different context and companies.

Keywords: Supplier management, global software engineering, risk management, process improvement.

Measuring Distances for Ontology-Based Systems

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Abstract. Nowadays, measurement and assessment of artifacts within the area of software development are of high concern for scientific institutions. With the increasing usage of the Web 2.0, together with service-oriented applications, the importance of Web-based systems is still growing. Ontologies as a fundamental concept of the Semantic Web as envisioned by Tim Berners-Lee, play an important role for current and future applications.

To promote the high flexibility of this technology for international dynamics, additional concepts for the Semantic Web are necessary. Ontology metrics are used to measure certain aspects of ontologies. In this paper, a set of novel distance metrics is introduced and their applicability is proven by the presentation of an example.

Keywords: Semantic Web, Ontology, Metric.

Challenges in Evaluating SOA Test Processes

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Abstract. Service-oriented architecture enables creation of enterprisewide and cross-enterprise flexible, dynamic business processes and agile applications. The performance, reliability and other quality aspects of such systems, thus, become very important for the success of businesses. Testing is a way to evaluate these quality attributes. However, the new unique architecture style of SOA-based systems calls for reorienting testing procedures, methods, techniques, and tools etc. In this paper we discuss how we can evaluate efficiency and effectiveness of SOA test process. Considering an existing generic test process evaluation framework, we attempt to highlight areas where necessary adjustments to this framework are needed to care for the specialized testing perspectives of SOA-based systems.

Keywords: Service-oriented architecture, software test process, test process evaluation, test process improvement, software measurement.

Criteria to Compare Cloud Computing with Current Database Technology

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Abstract. After Google published their first paper on their software infrastructure in October 2003, the open-source community quickly began working on similar free solutions. Yahoo! is now able to process terabytes of data daily using Hadoop, which is a scalable distributed file system and an open-source implementation of Google's MapReduce. HBase, a distributed database that uses Hadoop, enables the reliable storage of structured data, just like Google's Bigtable which powers applications like Google Maps and Google Analytics, to name only two. Many companies are tempted to use these technologies, but it is currently difficult to compare today's systems with systems built on top of HBase. This paper presents this new technology and, a list of proposed comparison elements to existing database technology as well as proposed comparison assessment criteria.

Keywords: Cloud Computing, Bigtable, HBase, Hadoop.

Comparison of Process Quality Characteristics Based

on Change Request Data

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Abstract. The evaluation of metrics on data available in change request management (CRM) systems offers valuable information for the assessment of process quality characteristics. The definition of appropriate metrics that consider the underlying change request workflow and address the information needs of an organization is an intricate task.

Furthermore CRM systems usually provide only a number of predefined metrics with limited daptability. The tool BugzillaMetrics offers a more flexible approach that simplifies defining nd adjusting new metrics. However a systematic approach for deriving an appropriate metric in a target-oriented way is needed. This paper describes a corresponding procedure on how to develop and validate metrics on CRM data applicable for the comparison of process quality characteristics.

Keywords: Process Metrics, Change Request Management, Metric Specification, Software Measurement Design, Measurement Tool.

Assessment of Business Process Modeling Tools under Consideration of Business Process Management Activities

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Abstract. The selection of a business process modeling tool is not new, but nowadays much more complicated than in the past. The reasons for this lie in the necessary consideration of a whole business process management (BPM) approach. After a short introduction, this paper gives an overview about the diverse aspects of BPM-activities and provides an analysis of available evaluation approaches for business process modeling tools. Furthermore, we want to concentrate on an empirical analysis of available modeling tools. This evaluation was executed under consideration of the requirements for a BPM-approach. The kind of investigated tools consider open source tools as well as commercial tool approaches.

Keywords: Business process, management, modeling, evaluation, notations, tools, empirical analysis.

The Impact of Individual Assumptions on Functional Size Measurement

Oktay Turetken, Ozden Ozcan Top, Baris Ozkan, and Onur Demirors

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Abstract. Having been improved, evolved and standardized by the Organization for Standardization (ISO), Functional Size Measurement (FSM) methods have become widely used. However, the measurers still face difficulties in measuring the software products which include unconventional components.

We faced the challenge to observe if different interpretations or assumptions of the measurers cause significant differences in the measurement results. In this study, we present the results of a multiple case study we conducted in order to observe the impact of individual assumptions for well known FSM methods.

Keywords: Functional Size Measurement, COSMIC FSM, IFPUG FPA, MkII FPA.

Measurement of Functional Size in Conceptual Models: A Survey of Measurement Procedures Based on COSMIC*

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Abstract. Many functional size measurement procedures have been developed for applying the COSMIC measurement method to particular methods of software production. A subset of these measurement procedures is centered on the measurement of the functional size of the applications from their conceptual models, allowing the generation of indicators in early stages of the development cycle of a software product. This paper presents a survey of these functional size measurement procedures in order to provide a guide for practitioners and researchers. Finally, a general analysis focused on the results obtained in the survey is performed to obtain important lessons that must be considered in the development of correct measurement procedures.

Keywords: Functional Size Measurement, Functional Size Procedures, COSMIC, Conceptual Models.

Evaluation Aspects for a Sustainable Integration of e-Learning within the Software Engineering

(Case Study)

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Abstract. The implementation of Blended Learning events is a complex task which has to be well considered and well planned in approach and execution. The following paper presents a field report with not only detailed planning aspects but also analysed realization and evaluated success of the further process. The described course was an event in the range of Software Engineering. Therefore the potential benefits are discussed for industrial software development too.

Keywords: e-Learning, e-Teaching, blended learning, Software Engineering.

How to Use COSMIC Functional Size in Effort Estimation Models?

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Abstract. Although Functional Size Measurement (FSM) methods have become widely used by the software organizations, the functional size based effort estimation still needs further investigation. Most of the studies on effort estimation consider total functional size of the software as the primary input to estimation models and they mostly focus on identifying the project parameters which might have a significant effect on the size-effort relationship. This study brings suggestions on how to use COSMIC functional size as an input for effort estimation models and explores whether the productivity values for developing different functionality types deviate significantly from a total average productivity value computed from total functional size and effort figures. The results obtained after conducting a multiple case study in which COSMIC method was used for size measurement are discussed as well.

Keywords: Functional Size Measurement, Effort Estimation, Functionality, COSMIC, Base Functional Component.

Uncertainty in ERP Effort Estimation: A Challenge or an Asset?

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Abstract. Traditionally, software measurement literature considers the uncertainty of cost drivers in project estimation as a challenge and treats it as such. This paper develops the position that uncertainty can be seen as an asset. It draws on results of a case study in which we replicated an approach to balancing uncertainties of project context characteristics in requirements-based effort estimation for ERP implementations.

The Influence of Culture and Leadership on Cost Estimation

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Abstract. Culture and leadership factors play an important role in software development and cost estimation. We discuss the many dimensions of culture and leadership and their impact on cost estimation in software development. We conducted a survey to identify leadership and cultural factors that may influence the software development process and its associated cost. A cost estimation model incorporating these factors was developed and evaluated.

Keywords: Effort estimation, Leadership, Team culture, CBR,Ontology.

Portfolio Control – When the Numbers Really Count

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Abstract. Most IT-metrics and metrics related research focus on single applications or single projects. From a research point of view this is understandable. For most IT consuming organisations the results of single applications or projects is less relevant. To those kind of organisations the performance result of the whole application- or project portfolio is a more relevant focus because the governance is positioned on the portfolio level rather than the project level. In this paper we present some of our experiences in using IT-metrics for portfolio control.

Keywords: Portfolio Control, Portfolio Management, Scope Management, Project Management, Application Management, Functional Size Measurement, Governance.

Defining Suitable Criteria for Quality Gates

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Abstract. A considerable number of software projects still exceed time and budget or completely fail, because the qualitative situations of these projects are not visible to the management. The problem can be resolved by monitoring the quality of project results and by steering a project at certain major points (socalled Quality Gates). At each Quality Gate the project results are checked against predefined criteria being derived from carefully chosen metrics. Many software companies use Quality Gates but unfortunately a theoretical reflection on the definition of criteria for Quality Gates is missing. This paper shows, when and how these criteria can be identified and improved over time. Our results obtained from students' software projects show, that the application of a systematic top-down approach (such as GQM) delivers better criteria and that roughly a considerable number of the criteria could be improved after experiences have been captured and reused systematically.

Keywords: Practical measurement application, Measurement acceptance, Quality Gates.

An Empirical Study of Product Measurement in a Standardized Requirement Definition Process with 28 Japanese Government Software Projects

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Abstract. This paper presents an empirical study in the requirement definition process using standardized process and product formats. The results indicate that the measurement of product quantities is useful for project management and evaluation. Previously empirical research of the requirement definition process was difficult, but it became easier in the field of governmental business system optimization because the Japanese government adopted standards. In this paper, the authors evaluate and compare results of 24 projects that gathered measurements and prove that the results of the previous authors' study in one project can be generalized. In addition, the paper presents a study about the possibility of project evaluation using such standardized product measurements.

Keywords: Requirements Definition Phase Measurement.

Measuring 75 Million Lines of Code

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Abstract. The following paper describes a measurement project to measure and evaluate the software application systems of a financial services provider. Due to several mergers the cooperation had accumulated over the years more than 75 million lines of code in several different programming languages. The goal of the project was to determine the size, complexity and quality of the different systems and to evaluate their potential reuse. Not only the program source, but also the database schemas, the JCL procedures and the user interface maps had to be analyzed. For this purpose a metric database was established. In the measurement project three related tools were used. The tool *SoftAudit* was deployed to measure the code. The tool *SoftEval* was used to aggregate the measurement data in a metric database and to evaluate it. The tool *SoftCalc* was used to calculate the costs of various strategic alternatives. The paper focuses on the problems and solutions associated with such a massive measurement effort of large code bases.

Keywords: Code measurement, size, complexity and quality metrics, metric database, metric evaluation, ISO-9126.

Improving Quality of Functional Requirements by Measuring Their Functional Size

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Abstract. For many years, the software industry has been applying different types of reviews on their requirements documents to identify and remove defects that would otherwise propagate in the development life cycle, leading to rework and extra cost to fix at later phases. An inspection is a review technique known to be efficient at identifying defects but, like any other review technique, it does not guarantee that all defects are found. Requirements documents are also used as input for the measurement of the software size for estimation purposes; when carrying this measurement process, practitioners have often noticed defects in the requirements.

This paper reports on a research project investigating the contribution of the measurers in finding defects in requirements documents. More specifically, this paper describes an experiment where the same requirements document was inspected by a number of inspectors as well as by a number of measurers; the number and types of defects found by both inspectors and measurers are compared and discussed. For this experiment, the measurers used the COSMIC – ISO 19761 to measure the functional size and find defects. Results show significant increase in defects identification when both inspection and functional size measurement are used to find and report defects.

Implementing Software Project Control Centers: An Architectural View

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Abstract. Setting up effective and efficient mechanisms for controlling software and system development projects is still challenging in industrial practice. On the one hand, necessary prerequisites such as established development processes, understanding of cause-effect relationships on relevant indicators, and sufficient sustainability of measurement programs are often missing. On the other hand, there are more fundamental methodological deficits related to the controlling process itself and to appropriate tool support. Additional activities that would guarantee the usefulness, completeness, and precision of the resulting controlling data are widely missing. This article presents a conceptual architecture for so-called Software Project Control Centers (SPCC) that addresses these challenges. The architecture includes mechanisms for getting sufficiently precise and complete data and supporting the information needs of different stakeholders. In addition, an implementation of this architecture, the so-called Specula Project Support Environment, is sketched, and results from evaluating this implementation in industrial settings are presented.

Towards a Comprehensive Approach for Assessing Open Source Projects

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Abstract. Open Source Software (OSS) has an increasing importance for the software industry. Similar to traditional (closed) software acquisition, OSS acquisition requires an assessment of whether quality is sufficient for the intended purpose. This includes assessing a software component's intrinsic quality, as well as its supplier's maturity (i.e., ability to deliver high quality) and sustainability (i.e., whether the supplier will continue to exist). For traditional software acquisition, established procedures are available for evaluating these aspects. These procedures need to be adapted for OSS projects, because they have no traditional supplier, but an underlying OSS community. The openness of OSS development presents both challenges and opportunities for project evaluation. In particular, a variety of data sources are available that potentially allow for in-depth analysis, but it is not clear how to use them effectively.

In this paper, we present an approach toward a comprehensive measurement framework for OSS projects, developed in the EU project QualOSS. This approach takes into account product quality as well as process maturity and sustainability of the underlying OSS community.

Keywords: Open Source quality, process assessment, process maturity.

Measuring the Impact of Different Categories of Software Evolution

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Abstract. Software evolution involves different categories of interventions, having variable impact on the code. Knowledge about the expected impact of an intervention is fundamental for project planning and resource allocation. Moreover, deviations from the expected impact may hint for areas of the system having a poor design. In this paper, we investigate the relationship between evolution categories and impacted code by means of a set of metrics computed over time for a subject system.

Using PSU for Early Prediction of COSMIC Size of Functional and Non-functional Requirements

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Abstract. The project effort calculation with a functional size measurement method such as COSMIC can only be properly performed after the "Requirements Analysis" phase in a Project Life Cycle. The goal of this research is to investigate an early and project-level tuned prediction of the product size with the intent to reduce the effect of the 'cone of uncertainty' phenomenon. The lack of size measurement methods which take into account the effect of the product non-functional requirements (NFR) on size also contributes to the above phenomenon. We propose to use the Project Size Unit (PSU) technique for predicting the product (FUR and NFR) size measured in COSMIC functional size units. Such early prediction will lower the cost of size counting the project and minimize the estimation error in the requirements phase. Furthermore, the PSU calculation procedure can be automated, which would further reduce the cost of size counting. The expected advantage of jointly using PSU and COSMIC is the ability to get early estimates of the whole project effort.

Keywords: Project Size, Prediction, COSMIC, Project Size Unit (PSU), Functional User Requirements (FUR), Non-Functional Requirements (NFR).

BSOA08 – Workshopbericht

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1. Die BSOA-Initiative im Überblick

Moderne Integrationsarchitekturen bestimmen zunehmend die Art und Weise, wie softwaretechnische Lösungen im Kontext industrieller Problemstellungen umzusetzen sind. Immer stärker wird den Verantwortlichen dabei bewusst, dass die erfolgreiche Umsetzung derartiger Lösungen von vielfältigen Einflussfaktoren beeinflusst wird. Im Kontext der Softwaremessung werden daher produkt-, prozess- und ressourcenbezogene Aspekte sowohl qualitativ, als auch quantitativ aufgegriffen. Die BSOA-Initiative (Bewertungsaspekte serviceorientierter Architekturen) versucht die Erkenntnisse der Softwaremessung speziell auf serviceorientierte Architekturen zu übertragen und veranstaltet dazu jährlich einen entsprechenden Workshop. Der letzte Workshop griff insbesondere die folgenden Themenstellungen auf:

- Wirtschaftlichkeits- und Nutzenbetrachtungen bei der SOA-Einführung,

- Modelle zur Bewertung der SOA-Tauglichkeit einer Organisation,

- SOA-Implikationen innerhalb des Informationsmanagements,

- Aufwands- und Risikobetrachtungen bei SOA-Entwicklungsprojekten,

- Erarbeitung von Richtlinien zur Serviceentwicklung für eine SOA,

- Qualitäts- und Sicherheitsbewertung angebotener Services,

- Management komplexer Integrationsinfrastrukturen,

- Bewertung der Möglichkeiten SOA-basierter Konvergenzangebote.

Als Gastgeber des 3. BSOA-Workshops konnte die T-Systems in Leinfelden bei Stuttgart gewonnen werden. Mit mehr als 30 Teilnehmern aus dem industriellen und akademischen Umfeld bot sich abermals eine ausgezeichnete Plattform zur Diskussion vielfältiger Problemstellungen der Bewertung von serviceorientierten Architekturen. Der Workshopbericht stellt die Beiträge und Ergebnisse in zusammenfassender Form vor.

Veranstaltet wurde der Workshop in Kooperation zwischen der FHW Berlin, dem FZI Karlsruhe und der Otto-von-Guericke-Universität Magdeburg (Softwaremesslabor) unter der Schirmherrschaft der CECMG (Central Europe Computer Measurement Group). Darüber hinaus erfährt die BSOA-Initiative Unterstützung durch die GI (Gesellschaft für Informatik) und die DASMA (Deutschsprachige Interessensgruppe für Softwaremetrik und Aufwandsschätzung).

2. Beiträge des Workshops

Aus der Vielzahl an eingereichten Beiträgen wurden im Rahmen eines bundesweit zusammengesetzten Programmkomitees 6 Beiträge für einen Vortrag bzw. 5 Beiträge, die im Rahmen von Posterpräsentationen vorgestellt wurden, ausgewählt. Darüber hinaus gab es zwei eingeladene Beiträge renommierter SOA-Experten. Im Folgenden findet sich eine zusammenfassende Darstellung der auf dem Workshop gehaltenen Vorträge:

Harry Sneed (Anecon GmbH / Österreich): Static Analysis and Measurement of Web Service Interfaces (eingeladener Beitrag)

Die Qualität der Interface-Spezifikation eines Web Service ist eine wichtige Entscheidungsgrundlage für dessen erfolgreichen Einsatz. Der Autor schlägt einen Satz von zu berücksichtigenden Qualitätsregeln für die WSDL-Beschreibung bzw. korrespondierende Metriken zur messtechnischen Erfassung des Web Service Interfaces vor.

Christian Bartsch, Marco Mevius (FZI Karlsruhe): Entwicklung eines Qualitätsanforderungsmodells für IT-Dienstleistungsprozesse (eingeladener Beitrag)

Die Autoren schlagen ein mit Hilfe des CMMI ausgerichtetes Reifegradmodell für IT-Dienstleistungsprozesse vor. Berücksichtigt werden dafür allgemein anerkannte Modelle und Standards wie ITIL v3, COBIT und ISO20000. Die Anwendung des Qualitätsmodells wird anhand eines in der öffentlichen Verwaltung durchgeführten IT Service Management Projektes erläutert.

Joerg-Oliver Vogt, Peter Stolte (T-Systems): Services for Automotive. In welchen automobilen Primärprozessen ist der Nutzen für eine Serviceorientierung am höchsten?

Dieser Beitrag befasst sich mit der Analyse automobiler Kernprozesse in Bezug auf den Nutzen, den die Verwendung einer Serviceorientierten Architektur zur Verbesserung dieser Prozesse stiften könnte. Er basiert auf einer Expertenbefragung von Geschäftsprozess- und IT-Beratern mit jahrelanger Erfahrung im Automobilumfeld.

Stephan Aier, Bettina Gleichauf (Universität St. Gallen): Begründung eines differenzierten Serviceverständnisses und Richtlinien für die Servicekonstruktion

Basierend auf einer Fallstudie differenziert dieser Beitrag Services im Kontext einer serviceorientierten Softwarearchitektur, einer serviceorientierten Integrationsarchitektur und einer serviceorientierten Prozessarchitektur. Für die unterschiedenen Service-Kategorien werden korrespondierende Ziele und Gestaltungsprinzipien abgeleitet.

Niko Zenker, Frederik Kramer (Universität Magdeburg): Service Allocation based on Power Consumption

Im Artikel gehen die Autoren auf die individuellen Ressourcen-Bedürfnisse eines Service und damit auf den Aspekt von „Green-IT" ein. Ausgehend von einer messtechnischen Erfassung der benötigten Ressourcen eines speziellen Service erfolgt der Vorschlag eines intelligenten Verteilalgorithmus zur optimierten Zuordnung von Services zu entsprechenden Aufgaben unter Berücksichtigung des Energieverbrauchs.

Alexander Becker, Peter Buxmann, Thomas Widjaja (TU Darmstadt): Nutzenpotenziale von Serviceorientierten Architekturen - Ergebnisse einer Expertenbefragung

Dieser Beitrag fasst die Ergebnisse einer Expertenbefragung zu den Nutzenpotenzialen Serviceorientierter Architekturen (SoA) von Mai bis August 2008 zusammen. Ausgehend von einer Literaturrecherche wurden 25 Experten aus den Bereichen: Anwender, Software-Hersteller, IT-Provider und IT-Berater zu ihrer Praxiserfahrung mit SoA-Nutzen befragt.

Philipp Offermann, Marten Schönherr, Udo Bub (TU Berlin & T-Labs): Methodenevaluierung und -konstruktion zur Konzeption einer Serviceorientierten Architektur

Die Autoren beschäftigen sich in ihrem Beitrag mit dem Entwurf einer SOA-Methode (SOAM). Einführend wird dafür auf die Zielarchitektur der SOAM, welche verschiedene Sichtweisen und Erwartungen an eine SOA in einem Modell vereint, eingegangen. Ebenso werden existierende SOA-Methoden dargestellt und verglichen bzw. die eigene SOAM vorgestellt.

Martin Kunz, Steffen Mencke, Niko Zenker, Dmytro Rud, Reiner Dumke (Universität Magdeburg): Empirical based, quality-driven orchestration of services

Im Rahmen dieses Beitrags wird eine qualitätsgetriebene Orchestrierung von Services im Kontext komplexer Integrationsarchitekturen vorgeschlagen. Neben qualitativen Aspekten berücksichtigt der Vorschlag auch semantische Fragen bzw. eine strukturierte Prozessbeschreibung um die Automatisierbarkeit der Orchestrierung zu gewährleisten.

Neben den dargestellten Vollbeiträgen gab es die folgenden Posterpräsentationen, die insbesondere jungen Absolventen und Doktoranden vorbehalten waren:

Martin Fiedler, Andreas Seufert, Heinrich Zettl (Steinbeis Hochschule & Software AG Darmstadt): Vergleichende Einordnung einzelner Bewertungsansätze und Entwurf eines optimierten situativen Ansatzes: Situatives-SOA-Scoring-Modell (SSOAS)

Michael Amberg, Timo Holm, Kristian Dencovski, Mathias Maurmaier (Universität Erlangen-Nürnberg, Siemens AG, Universität Stuttgart): Referenzmodellunterstützte, herausforderungsbasierte Evaluation von Informationssystemen im industriellen Service

Nassar Alexander Karim (T-Systems): Laufzeitenmessung in SOA Umgebungen, ein Ansatz aus der Java Enterprise Praxis

Erik Nijkamp (FHW Berlin & IBM Stuttgart): Embedded Analytics - Analytische Web Services bei BI-Lösungen

Andreas End, Andreas Schmietendorf, Michael Wipprecht (HS Harz, FHW Berlin, T-Systems): Zyklische Simulation integrierter Geschäftsprozessabläufe

3. Moderierte Diskussionsrunde

Der bewährten Tradition folgend gab es neben den dargestellten Beiträgen eine kurze moderierte Diskussionsrunde. Ziel war es, ein Schlaglicht auf die Bewertung des Business-IT-Alignments im Kontext von BPM- (Business Process Management) und SOA-Ansätzen zu werfen. Dafür wurden zunächst verschiedene Sichtweisen (speziell [Chan 2007], [Gronau 2008], [Paech 2008] und [Winter 2006]) auf das Business-IT-Alignment vorgestellt. Entsprechend [Winter 2006] wird unter IT/Business Alignment der folgende Sachverhalt verstanden.

> „Unter IT/Business Alignment wird die wechselseitige Abstimmung von Zielen, Strategien, Architekturen, Leistungen und Prozessen zwischen Informatikbereichen und Fachbereichen in Unternehmen verstanden. Im übertragenen Sinne ist IT/Business Alignment auch Grundlage einer effizienten Zusammenarbeit von Unternehmen (als Nachfrager von IT-Leistungen) und IT-Dienstleistern.“

Nach dieser einführenden Darstellung wurden die folgenden Fragen jeweils 5 Minuten zur Diskussion gestellt. Die kursiv dargestellten Aspekte wurden durch die Teilnehmer des Workshops aufgezeigt. Zwecks Verbesserung der Lesbarkeit wurden mehrfache Nennungen zusammengefasst, darüber hinaus erfolgte eine semantikerhaltende Ausformulierung der entsprechenden Sachverhalte.

- Was wird unter „Business IT-Alignment" im Zusammenhang mit BPM- und SOA-Ansätzen verstanden?

    o *Primär werden semantische Fragestellungen mit dieser Themenstellung adressiert, die sich auf die Zusammenarbeit zwischen Business und Informationsverarbeitung (umgangssprachlich IT) auswirken.*

    o *Bedarf eines Business Object Model (auch Common Object Model) als Referenzmodell zur exakten Spezifikation semantischer Fragestellungen spezieller Geschäftsfelder.*

- o *Technische Artefakte haben einen anderen Lebenszyklus als geschäftliche Aspekte. Daher gilt es, vielfältige Schichten innerhalb eines Unternehmens zu berücksichtigen. Dem entsprechend ergeben sich ggf. 3-4 verschiedene Zyklen mit Auswirkungen auf das Business IT-Alignment.*

- o *IT impliziert eigene Ziele die ggf. auch zur „Verselbstständigung" der IT beitragen. Hier existiert der alte Zwiespalt zwischen geschäftlichen Anforderungen und informationstechnischer Umsetzung. („Business drives IT" vs. „IT drives Business")*

- o *Bedeutung der CIO-Rolle wächst stetig – es stellt sich die Frage nach der Bedeutung des CTO. Allerdings wurde auch von einer Art „Glaubenskrieg" im Kontext der CIO-Bedeutung gesprochen.*

- o *Typischerweise existiert in den Unternehmen keine ganzheitliche Sicht auf die benötigten Informationen. Erschwert wird die Situation durch häufige Veränderungen von Zielen und Anforderungen (impliziert Bedeutungswandel).*

- Welche Vorteile ergeben sich durch den Einsatz einer SOA in Bezug auf das „Business IT-Alignment"?

  - o *Die Antworten variierten von „keine Vorteile" (eher eine selten geäußerte Vermutung) bis zur Aussage das eine SOA das Business IT-Alignment impliziert.*

  - o *Probleme werden deutlich erkennbar, nicht zuletzt durch prozesskonforme Möglichkeiten des Monitorings. Auf dieser Grundlage lassen sich Verantwortlichkeiten klarer zuordnen und eine Reduktion der IT-Kosten herbeiführen.*

  - o *Mit einer SOA wird primär das Ziel einer fachseitigen Optimierung, statt einer technischen Optimierung verfolgt. Dem entsprechend treibt eine SOA auch das Business IT-Alignment.*

  - o *SOA verspricht eine höhere Agilität (Flexibilität, Geschwindigkeit), wobei die Agilität abhängig von der Granularität der entsprechenden Serviceangebote ist.*

- Wie kann eine messtechnische Bewertung der Güte des „Business IT-Alignments" erfolgen?

  - o *Grundsätzlich besteht der Bedarf eines Modells zur Messung und Bewertung des Business IT-Alignments , inkl. der Ableitung von möglichen Konsequenzen bei entsprechenden Abweichungen.*

  - o *Darüber hinaus wurde eine Vielzahl von möglichen Messansätzen vorgeschlagen:*

    - ▪ *Anzahl und Größe abgebrochener IT-Projekte,*

    - ▪ *Qualitativ durch Reifegrade,*

    - ▪ *Return on Investment ROI,*

- *Anzahl der gemeinsam verwendeten Services,*

- *Datentransformationen im Verhältnis zur Serviceanzahl,*

- *Endbenutzerzufriedenheit konkreter Geschäftsprozessinstanzen,*

- *Schnelligkeit bei der Durchführung von Transformations-projekten (in Bezug auf das Requirement Engineering),*

- *Automatisierungsrad.*

Die zusammenfassend dargestellten Ergebnisse der Diskussionsrunde bieten vielfältige Denkansätze, zeigen allerdings auch die Mehrdeutigkeit des zur Diskussion gestellten Begriffs auf. Während auf der einen Seite die Passfähigkeit konkreter Lösungen der Informationsverarbeitung zum Geschäft aufgegriffen wird, gehen andere Denkansätze lediglich von der allgemeinen Gestaltung der Zusammenarbeit von IT- und Fachseiten aus. Entsprechende Aussagen finden sich auch im Beitrag von [Becker 2008] innerhalb des Tagungsbandes.

4. Weitere Informationen

Sämtliche Beiträge zum Workshop (inklusive die der Gastredner) wurden in einem Tagungsband beim Shaker-Verlag, in der Reihe „Magdeburger Schriften zum Empirischen Software Engineering", publiziert. (ISBN 978-3-8322-7221-0)
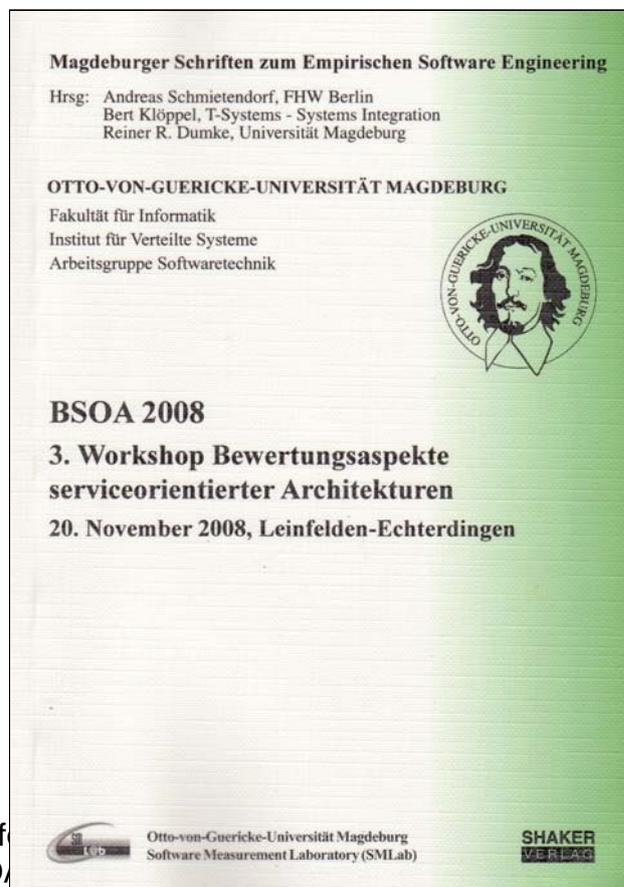
Weiterführende Inf[...] *Call for Paper* für den kommenden BSO[...]armstadt, finden sich unter folgender URL im Internet:

http://ivs.cs.uni-magdeburg.de/~gi-bsoa

5. Quellenverzeichnis

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Dank

Dumke, R.; Braungarten, R.; Büren, G.; Cuadrado-Gallego, J. J.:

Software Process and Product Measurement

International Conferences IWSM 2008, MetriKon 2008, and Mensura 2008

Springer-Verlag, 2008 (361 Seiten)
LNCS 5338, ISBN-13 978-3-540-89402-5

Since 1990 the International Workshop on Software Measurement (IWSM) has been celebrated annually alternating between Montréal (Canada) and various cities across Germany. The Montréal editions have been organized by the Software Engineering Research Laboratory (GELOG) of the École de technologie supérieure – Université Québec, which is directed by Prof. Alain Abran. The German editions have been organized jointly by the Software Measurement Laboratory (SMLAB) of the Otto von Guericke University Magdeburg (Germany), which is directed by Prof. Reiner R. Dumke; and the German association for software metrics and effort estimation (DASMA e.V.), which is led by Manfred Bundschuh and Günter Büren. The biennial editions of IWSM in Germany has been held jointly with the DASMA Software Metrics Congress (MetriKon) since 2002. MetriKon is a yearly event, conducted every other year for a German-speaking audience at changing national locations for best-practice sharing of software measurement topics, bringing the best and renowned German-speaking experts experts of the field together.

This volume comprises the proceedings of IWSM / MetriKon / Mensura 2008 and consists of the final papers presented at these joint events. Each one of these papers has been thoroughly revised and extended in order to be accepted for publication.

Schmietendorf, A.; Klöppel, B.; Dumke, R.R.:

3. Workshop Bewertungsaspekte serviceorientierter Architekturen (BSOA 2008)

Shaker Verlag, Aachen, 2008 (162 Seiten)
ISBN 978-3-8322-7221-0

Modern Integrationsarchitekturen bestimmen nach wie vor die Art und Weise, wie softwaretechnische Lösungen im Kontext industrieller Problemstellungen umzusetzen sind. Immer stärker wird den Verantwortlichen dabei bewusst, dass der Erfolg unternehmensweit genutzter Integrationsarchitekturen weniger von einzukaufenden Produkten abhängt, als vielmehr von prozess- und organisationsbezogenen Aspekten beeinflusst wird. Die Implementierung einer serviceorientierten Architektur ist als Strategie zu verstehen, wobei die Vision einer geschäftsprozesskonformen Ausrichtung der IT-Landschaft verfolgt wird. In diesem Kontext werden vielfältige Bewertungsansätze benötigt, die den gesamten Lebenszyklus eines Informationssystems erfassen können. Die BSOA-Initiative widmet sich seit mehr als 2 Jahren diesen Fragen.

Aus der Vielzahl an eingereichten Beiträgen konnte durch das Programmkomitee eine anspruchsvolle Agenda zusammengestellt werden. Ausgewählt wurden 6 Beiträge für eine Präsentation während der Workshopsitzungen und 5 Beiträge für Posterpräsentationen während der Pausenzeiten. Dazu kommen noch die beiden Keynote-Vorträge, die das vorliegende Buch in exzellenter Weise ergänzen und prägen.

Bundschuh, M.; Dekkers, C.:

The IT Measurement Compendium

Springer-Verlag, 2008 (643 Seiten)
ISBN 978-3-540-68187-8

The first step towards success in a software project is to ensure a professional setup. This includes a metrics-based formal estimation process to ensure a solid foundation for project planning. Accurate estimates require quantitative measurements, ideally tool based. In addition, software project managers must also monitor and update these estimates during the project's lifecycle to control progress and assess possible risks.

Based on their many years of practical experience as software managers and consultants, Manfred Bundschuh and Caral Dekkers present a framework of value to anyone involved with software project management. They present all five ISO/IEC-acknowledged Functional Sizing Methods, with variants, experiences, counting rules and case studies, and they use numerous practical examples to show how to use functional size measurement to produce realistic estimates.

Written in a highly practical style, including checklists, templates, and hands-on advice, and backed up with many pointers to both national and international metrics and standards organizations, this book is the ideal companion for the busy software project manager or quality assurance manager.

Cuadrado-Gallego, J. J.; Braungarten, R.; Dumke, R. R.; Abran, A.:

Software Process and Product Measurement

International Conference, IWSM-Mensura 2007

Springer-Verlag, 2008 (202 Seiten)
LNCS 4895, ISBN-13 978-3-540-85552-1

This volume is the post-proceedings of the IWSM-Mensura 2007 conference and consists of a set of 16 final papers selected from the conference. Each one of these papers has been thoroughly revised and extended in order to be accepted for this edition. The IWSM-Mensura Steering Committee is very proud to have obtained the approval of Springer to publish the first edition of the joint conference post-proceedings in the prestigious Lecture Notes in Computer Sciences (LNCS) series and hope to maintain this collaboration for the future editions of the conference.

Büren, G.; Bundschuh, M.; Dumke, R.:

MetriKon 2007 – Praxis der Software-Messung

Shaker Verlag, Aachen, November 2007 (350 Seiten)
ISBN 978-3-8322-6703-2

The book includes the proceedings of the DASMA Metric Conference **MetriKon 2007** held in Kaiserslautern in November, 2007, which constitute a collection of theoretical studies in the field of software measurement and case reports on the application of software metrics in companies and universities.

The contents are described by the listing of the paper abstracts in this Metrics News.

Schmietendorf, A.; Mevius, M.; Dumke, R.R.:

2. Workshop Bewertungsaspekte serviceorientierter Architekturen (BSOA 2007)

Shaker Verlag, Aachen, November 2007 (132 Seiten)
ISBN 978-3-8322-6716-2

The book includes the proceedings of the 2. Workshop Bewertungsaspekte serviceorientierter Architekturen **BSOA 2007** held in Karlsruhe in November, 2007, which constitute a collection of theoretical studies in the field of software measurement and case reports on the application of software metrics in companies and universities.

The contents are described by the listing of the paper abstracts in this Metrics News.

Ebert, C.; Dumke, R.:

Software Measurement

Establish - Extract - Evaluate - Execute

Springer-Verlag Berlin Heidelberg, 2007 (561 Seiten)
ISBN 978-3-540-71648-8

Our world is shaped by software. Since software is so ubiquitous, we need to stay in control. Software measurement is the discipline that assures that we stay in control. In this volume, Ebert and Dumke provide a comprehensive introduction to software measurement. They detail knowledge and experiences about software measurement in an easily understood, hands-on presentation.

Brief references are embedded from world-renown experts such as Alain Abran, David Card, Robert Glass, Peter Liggesmeyer, Charles Symons, and many more. Examples and case studies are provided from Global 100 companies such as Alcatel-Lucent, Atos Origin, Axa, Bosch, Deloitte, Deutsche Telekom, Shell and Siemens.

This combination of methodologies and applications makes the book ideally suited for both professionals in the software industry and for scientists looking for benchmarks and experiences. Besides the many practical hints and checklists readers will also appreciate the comprehensive reference list. Further information, continuously updated, can be found on the book's Web site: **http://metrics.cs.uni-magdeburg.de/**.

Jones, C.:

Estimating Software Costs: Bringing Realism to Estimating, Second Edition

Mc Graw Hill Publ., 2007 (644 Seiten)
ISBN: 978-0-07-148300-1

Get a clear, complete understanding of how to estimate software costs, schedules, and quality using the real-world information contained in this comprehensive volume. Find out how to choose the correct hardware and software tools, develop an appraisal strategy, deploy tests and prototypes, and produce accurate software cost estimates. Plus, you'll get full coverage of cutting-edge estimating approaches using Java, object-oriented methods, and reusable components.

- Plan for and execute project-, phase-, and activity-level cost estimations
- Estimate regression, component, integration, and stress tests
- Compensate for inaccuracies in data collection, calculation, and analysis
- Assess software deliverables and data complexity
- Test design principles and operational characteristics using software prototyping
- Handle configuration change, research, quality control, and documentation costs

Selby, R.W.:

Software Engineering

Barry W. Boehm's Lifetime Contributions to Software Development, Management, and Research

IEEE Computer Society Publ., 2007 (818 Seiten)
ISBN: 978-0-470-14873-0

This book presents forty-two of Barry W. Boehm's best articles on software engineering, organizes them into nine chapters with newly written summaries by nine of his colleagues, and concludes with a new chapter on Barry's "thoughts for the future." The book chapters address:

- Software Architecture and Quality
- Software Economics
- Software Tools
- Software Process: Early Spiral Model
- Software Risk Management
- Software Process: Emerging Extensions
- Software and Systems Management
- Software Engineering State of the Art and Practice
- Value-Based Software Engineering
- A Software Engineer in the Software Century

This book is recommended as a guide and resource for software engineers, project managers, and technology executives as well as a textbook for advanced undergraduate and graduate courses.

Basili, V.R.; Rombach, D.; Schneider, K.; Kitchenham, B.; Pfahl, D.; Selby, R.W.:

Empirical Software Engineering Issues

Critical Assessment and Future Directions

Springer-Verlag Berlin Heidelberg, 2007 (192 Seiten)
ISBN-10: 3-540-71300X, ISBN-13: 978-3-540-71300-5

This book constitutes the thoroughly refereed post-proceedings of the International Dagstuhl-Seminar on Empirical Software Engineering, held in Dagstuhl Castle, Germany in June 2006. The purpose of this workshop was to identify the progress of empirical software engineering since 1992, to summarize that state-of-the-art in ESE, to summarize the state-of-the-practice in ESE in industry, and to develop an ESE roadmap for research, practice, education and training.

Rud, D.:

Qualität von Web Services - Messung und Sicherung der Performance

VDM Verlag Dr. Müller Saarbrücken, 2006 (201 Seiten)
ISBN-10: 3-86550-666-6, ISBN-13: 978-3-86550-666-5

Web Services stellen eine neue Technologie verteilter Anwendungen dar, welche – dank der Benutzung standardisierter Formate und Protokolle – viele Interoperabilitäts- und Kompatibilitätsprobleme lösen soll, die bei der Verwendung früherer Technologien vorkamen.

Die Dienstgüte (quality of service, QoS) von Web Services hat viele Aspekte, wie z.B. Performance, Skalierbarkeit, Sicherheit usw. In dieser Arbeit steht die Performance im Mittelpunkt.

Im ersten Teil des Buches werden grundlegende Web Service-Technologien sowie ihre Bedeutung im Kontext der Dienstgüte untersucht. Danach folgt eine Analyse von existierenden mathematischen Modellen, komplexen Managementinfrastrukturen und praktischen Fallstudien auf dem Gebiet der Qualitätssicherung von Web Services.

Der zweite Teil beschreibt einen Web Service-Messservice. Es werden theoretische und technische Aspekte der Messung der Performance von Web Services sowie der Aufbau der wichtigsten Komponente des Messservice – des Lasttreibers – diskutiert. Schließlich werden interne Abläufe und die webbasierte Benutzerschnittstelle des Messservice beschrieben.

Das Buch richtet sich an Praktiker, die sich mit Web Service befassen.

McConnell, S.:

Software Estimation: Demystifying the Black Art

Microsoft Publ., 2006 (308 Seiten)
ISBN: 978-0-7356-0535-0

Often referred to as the "black art" because of its complexity and uncertainty, software estimation is not as difficult or puzzling as people think. In fact, generating accurate estimates is straightforward – once you understand the art of creating them.

In his highly anticipated book, acclaimed author Steve McConnell unravels the mystery to successful software estimation – distilling academic information and real-world experience into a practical guide for working software professionals. Instead of arcane treatises and rigid modelling techniques, this guide highlights a proven set of procedures, understandable formulas, and heuristics that individuals and development teams can apply to their projects to help achieve estimation proficiency.

Discover how to:

- Estimate schedule and cost – or estimate the functionality that can be delivered within a given time frame
- Avoid common software estimation mistakes
- Learn estimation techniques for you, your team, and your organization
- Estimate specific project activities – including development, management, and defect correction
- Apply estimation approaches to any type of project – small or large, agile or traditional
- Navigate the shark-infested political waters that surround project estimates

Kandt, R.K.:

Software Engineering Quality Practices

Software Engineering Quality Practices describes how software engineers and the managers who supervise them can develop quality software in an effective, efficient, and professional manner. This volume conveys practical advice quickly and clearly while avoiding the dogma that surrounds the software profession. It concentrates on what the real requirements of a system are, what constitutes an appropriate solution, and how you can ensure that the realized solution fulfils the desired qualities of relevant stakeholders. The book also discusses how successful organizations attract and keep people who are capable of building high-quality systems.

The author succinctly describes the nature and fundamental principles of design and incorporates them into an architectural framework, enabling you to apply the framework to the development of quality software for most applications. The text also analyzes engineering requirements, identifies poor requirements, and demonstrates how bad requirements can be transformed via several important quality practices.

Lanza, M.; Marinescu, R.:

Object-Oriented Metrics in Practice

Metrics are paramount in every engineering discipline. However, due to its lack of rigor and its intrinsic complexity, software engineering is not considered a classical engineering activity. Moreover, defining, understanding and applying software metrics often looks like an overly complex activity, recommended only to 'trained professionals'. In general, if a software system is delivering the expected functionality, only few people – if any – care about measuring the quality of its internal structure. Consequently, software metrics are still regarded rather circumspectly by most software developers.

Lanza and Marinescu demystify the design metrics used to assess the size, quality and complexity of object-oriented software systems. Based on a novel approach, backed by generally accepted semantics for metrics and by statistical information from many industrial projects, they deduce a suite of metrics-based patterns for assessing the design of object-oriented software systems. They show in detail how to identify design disharmonies in code, and how to devise and apply remedies.

The combination of theoretically sound results and practically tested procedures and solution paths makes this book an ideal companion for professional software architects, developers and quality engineers. The pattern-oriented description of disharmonies offers easy access to detecting shortcomings and applying solutions to real problems.

Laird, L.M.; Brennan, M.C.:

Software Measurement and Estimation: A Practical Approach

IEEE Computer Society, Wiley Interscience, 2006 (257 Seiten)
ISBN 3-471-67622-5

The text begins with the foundations of measurement, identifies the appropriate metrics, and then focuses on techniques and tools for estimating the effort needed to reach a given level of quality and performance for a software project. All the factors that impact estimations are thoroughly examined, giving you the tools needed to regularly adjust and improve your estimations to complete a project on time, within budget, and at an expected level of quality.

This text includes several features that have proven to be successful in making the material accessible and easy to master:

- Simple, straightforward style and logical presentation and organization enables you to build a solid foundation of theory and techniques to tackle complex estimations
- Examples, provided throughout the text, illustrate how to use theory to solve real-world problems
- Projects, included in each chapter, enable you to apply your newfound knowledge and skills
- Techniques for effective communication of quantitative data help you convey your findings and recommendations to peers and management

Software Measurement and Estimations: A Practical Approach allows practicing software engineers and managers to better estimate, manage, and effectively communicate the plans and progress of their software projects. With its classroom-tested features, this is an excellent textbook for advanced undergraduate-level and graduate students in computer science and software engineering.

Preprints/Technical Reports:

Farooq, A.; Dumke, R. R.: *Evaluation Approaches in Software Testing.* University of Magdeburg 2008

Richter, K.; Dumke R. R.: *The Causal-Based Software Process Modelling.* University of Magdeburg 2008

Dumke, R.; Kunz, M.; Farooq, A.; Georgieva, K.; Hegewald, H.: *Formal Modelling of Software Measurement Levels of Paradigm-Based Approches.* University of Magdeburg 2008

see as pdf files:

```
http://ivs.cs.uni-magdeburg.de/sw-eng/agruppe/forschung/
Preprints.shtml
```

IASTED SE 2009:

>**IASTED International Conference on Software Engineering 2009**
>February 17-19, 2009, Innsbruck, Austria
>see: **http://www.iasted.org/conferences/home-642.html**

SEPG 2009:

>**21th Software Engineering Process Group Conference**
>March 23-26, 2009, San Jose, CA, USA
>see: **http://www.sei.cmu.edu/sepg/2008/news_2009.html**

CSMR 2009:

>**13th European Conference on Software Maintenance and Reengineering**
>March 24-27, 2009, Kaiserslautern, Germany
>see: **http://csmr2009.iese.fraunhofer.de/**

ASWEC 2009:

>**20th Australien Software Engineering Conference**
>April 14-17, 2009, Gold Coast, Austalia
>see: **http://aswec2009.itee.uq.edu.au/**

EASE 2009:

>**12th International Conference on Empirical Assessment in Software Engineering**
>April 20-21, 2009, University of Durham
>see: **http://www.scm.keele.ac.uk/ease/**

PSQT 2009:

>**International Conference on Practical Software Quality & Testing**
>West: April 27 - May 1, 2009, Las Vegas; North: Sept. 14-18, 2009, Minneapolis, USA
>see: **http://www.psqtconference.com**

ICSE 2009:

>**International Conference on Software Engineering**
>May 16-24, 2009, Vancouver, Canada
>see: **http://www.icse-conferences.org/**

ICPC 2009:

>**17th International Conference on Program Comprehension**
>May 17-19, 2009, Vancouver, Canada
>see: **http://icpc.csi.muohio.edu/ICPC_2009.html**

SQS 2009:

> **Software Quality Systems Conference**
> May 27-29, 2009, Düsseldorf, Germany
> see: **http://www.sqs-conferences.com/de/deutsch/start_d.htm**

SMEF 2009:

> **Software Measurement European Forum**
> May 28-29, 2009, Rome, Italy
> see: **http://www.dpo.it/smef2009.htm**

SPICE 2009:

> **SPICE Conference**
> June 2-4, 2009, Turku, Finland
> see: **http://www.spice2008.com/**

PROFES 2009:

> **10th International Conference on Product Focused Software Process Improvement**
> June 15-17, 2009, Oulu, Finland
> see: **http://www.profes2009.org/**

UKPEW 2009:

> **22th Annual United Kingdom Workshop on Performance Engineering**
> July 6-7, 2009, Leeds, UK
> see: **http://www.comp.leeds.ac.uk/ukpew09/**

QSIC 2009:

> **8th International Conference on Software Quality**
> August 24-25, 2009, Jeju, Korea
> see: **http://home.ewha.ac.kr/~bjchoi/conference/QSIC2009/**

QEST 2009:

> **5rd International Conference on Quantitative Evaluation of SysTems**
> September 13-16, 2009, Budapest, Hungary
> see: **http://www.qest.org/qest2009/**

ASQT 2009:

> **Arbeitskonferenz Softwarequalität und Test 2009**
> September 16-18, 2009, Klagenfurt, Austria
> see: **http://www.asqt.org/**

CONQUEST 2009:

> **11. International Conference on Software Quality**

September 16-18, 2009, Nuremberg, Germany
see: **http://www.conquest-conference.org/**

UKSMA 2009:

20th Annual UKSMA Conference - Managing your Software (through Measurement)
October 14 , 2009, London, UK
see: **http://www.uksma.co.uk/**

ESEM 2009:

International Symposium on Empirical Software Engineering & Measurement
October 15-16, 2009, Lake Buena Vista, FL, USA
see: **http://www.esem-conferences.org/**

IWSM/Mensura 2009:

Common international Conference on Software Measurement
November 4-6, 2009, Amsterdam, Netherlands
see: **http://ivs.cs.uni-magdeburg.de/~dumke/CFP_2009.html**

BSOA 2009:

3. Workshop Bewertungsaspekte service-orientierte Architekturen
November 18, 2009, Software AG, Darmstadt
see: **http://ivs.cs.uni-magdeburg.de/~gi-bsoa/2009/**

MetriKon 2009:

Common international Conference on Software Measurement
November 19-20, 2009, Kaiserslautern, Germany
see: **http://www.dasma.org**

SWQD 2010:

Software Quality Days
January 19-21, 2010, Wien, Austria
see: **http://www.software-quality-days.at/**

WOSP 2010:

7th International Workshop on Software & Performance
. . ., 2010, . . .
see: **http://www.inf.pucrs.br/wosp/**

see also: OOIS, ECOOP and ESEC European Conferences

Other Information Sources and Related Topics

- **http://rbse.jsc.nasa.gov/virt-lib/soft-eng.html**
  Software Engineering Virtual Library in Houston

- **http://www.mccabe.com/**
  McCabe & Associates. Commercial site offering products and services for software developers (i. e. Y2K, Testing or Quality Assurance)

- **http://www.sei.cmu.edu/**
  Software Engineering Institute of the U. S. Department of Defence at Carnegie Mellon University. Main objective of the Institute is to identify and promote successful software development practices.
  Exhaustive list of publications available for download.

- **http://dxsting.cern.ch/sting/sting.html**
  Software Technology Interest Group at CERN: their WEB-service is currently limited (due to "various reconfigurations") to a list of links to other information sources.

- **http://www.spr.com/index.htm**
  Software Productivity Research, Capers Jones. A commercial site offering products and services mainly for software estimation and planning.

- **http://www.qucis.queensu.ca/Software-Engineering/**
  This site hosts the World-Wide Web archives for the USENET usegroup comp.software-eng. Some links to other information sources are also provided.

- **http://www.esi.es/**
  The European Software Institute, Spain

- **http://www.lrgl.uqam.ca/**
  Software Engineering Management Research Laboratory at the University of Quebec, Montreal. Site offers research reports for download. One key focus area is the analysis and extension of the Function Point method.

- **http://www.SoftwareMetrics.com/**
  Homepage of Longstreet Consulting. Offers products and services and some general information on Function Point Analysis.

- **http://www.utexas.edu/coe/sqi/**
  Software Quality Institute of the University of Texas at Austin. Offers comprehensive general information sources on software quality issues.

- **http://wwwtrese.cs.utwente.nl/~vdberg/thesis.htm**
  Klaas van den Berg: Software Measurement and Functional Programming (PhD thesis)

- **http://divcom.otago.ac.nz:800/com/infosci/smrl/home.htm**
  The Software Metrics Research Laboratory at the University of Otago (New Zealand).

- **http://ivs.cs.uni-magdeburg.de/sw-eng/us/**
  Homepage of the Software Measurement Laboratory at the University of Magdeburg.

- **http://www.cs.tu-berlin.de/~zuse/**
  Homepage of Dr. Horst Zuse

- **http://dec.bournemouth.ac.uk/ESERG/bibliography.html**
  Annotaded bibliography on Object-Oriented Metrics

- **http://www.iso.ch/9000e/forum.html**
  The ISO 9000 Forum aims to facilitate communication between newcomers to Quality Management and those who have already made the journey have experience to draw on and advice to share.

- **http://www.qa-inc.com/**
  Quality America, Inc's Home Page offers tools and services for quality improvement. Some articles for download are available.

- **http://www.quality.org/qc/**
  Exhaustive set of online quality resources, not limited to software quality issues

- **http://freedom.larc.nasa.gov/spqr/spqr.html**
  Software Productivity, Quality, and Reliability N-Team

- **http://www.qsm.com/**
  Homepage of the Quantitative Software Management (QSM) in the Netherlands

- **http://www.iese.fhg.de/**
  Homepage of the Fraunhofer Institute for Experimental Software Engineering (IESE) in Kaiserslautern, Germany

- **http://www.highq.be/quality/besma.htm**
  Homepage of the Belgian Software Metrics Association (BeSMA) in Keebergen, Belgium

- **http://www.cetus-links.org/oo_metrics.html**
  Homepage of Manfred Schneider on Objects and Components

- **http://dec.bournemouth.ac.uk/ESERG/bibliography.html**
  An annotated bibliography of object-oriented metrics of the Empirical Software Engineering Research Group (ESERG) of the Bournemouth University, UK

News Groups

- **news:comp.software-eng**

- **news:comp.software.testing**

- **news:comp.software.measurement**

Software Measurement Associations

- **http://www.dasma.org**
  DASMA Deutsche Anwendergruppe für SW Metrik und Aufwands-schätzung e.V.

- **http://www.aemes.fi.upm.es**
  AEMES Association Espanola de Metricas del Software

- **http://www.cosmicon.com**
  COSMIC Common Software Measurement International Consortium

- **http://www.esi.es**
  ESI European Software Engineering Institute in Bilbao, Spain

- **http://www.mai-net.org/**
  Network (MAIN) Metrics Associations International

- **http://www.sttf.fi**
  FiSMA Finnish Software Metrics Association

- **http://www.iese.fhg.de**
  IESE Fraunhofer Einrichtung für Experimentelles Software Engineering
- **http://www.isbsg.org.au**
  ISBSG International Software Benchmarking Standards Group, Australia

- **http://www.nesma.nl**
  NESMA Netherlands Software Metrics Association

- **http://www.sei.cmu.edu/**
  SEI Software Engineering Institute Pittsburgh

- **http://www.spr.com/**
  SPR Software Productivity Research by Capers Jones

- **http://fdd.gsfc.nasa.gov/seltext.html**
  SEL Software Engineering Laboratory - NASA-Homepage

- **http://www.vrz.net/stev**
  STEV Vereinigung für Software-Qualitätsmanagement Österreichs

- **http://www.sqs.de**
  SQS Gesellschaft für Software-Qualitätssicherung, Germany

- **http://www.ti.kviv.be**
  TI/KVIV Belgish Genootschap voor Software Metrics

- **http://www.uksma.co.uk**
  UKSMA United Kingdom Software Metrics Association

Software Metrics Tools (Overviews and Vendors)

Tool Listings

- **http://www.cs.umd.edu/users/cml/resources/cmetrics/**
  C/C++ Metrics Tools by Christopher Lott

- **http://mdmetric.com/**
  Maryland Metrics Tools

- **http://cutter.com/itgroup/reports/function.html**
  Function Point Tools by Carol Dekkers

- **http://user.cs.tu-berlin.de/~fetcke/measurement/products.html**
  Tool overview by Thomas Fetcke

- **http://zing.ncsl.nist.gov/WebTools/tech.html**
  An Overview about Web Metrics Tools

Tool Vendors

- **http://www.mccabe.com**
  McCabe & Associates

- **http://www.scitools.com**
  Scientific Toolworks Inc.

- **http://zing.ncsl.nist.gov/webmet/**
  Web Metrics

- **http://www.globalintegrity.com/csheets/metself.html**
  Global Integrity

- **http://www.spr.com/**
  Software Productivity Research (SPR)

- **http://jmetric.it.swin.edu.au/products/jmetric/**
  JMetric

- **http://www.imagix.com/products/metrics.html**
  Imagix Power Software

- **http://www.verilogusa.com/home.htm**
  VERILOG (LOGISCOPE)

- **http://www.qsm.com/**
  QSM

SOFTWARE MEASUREMENT NEWS

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