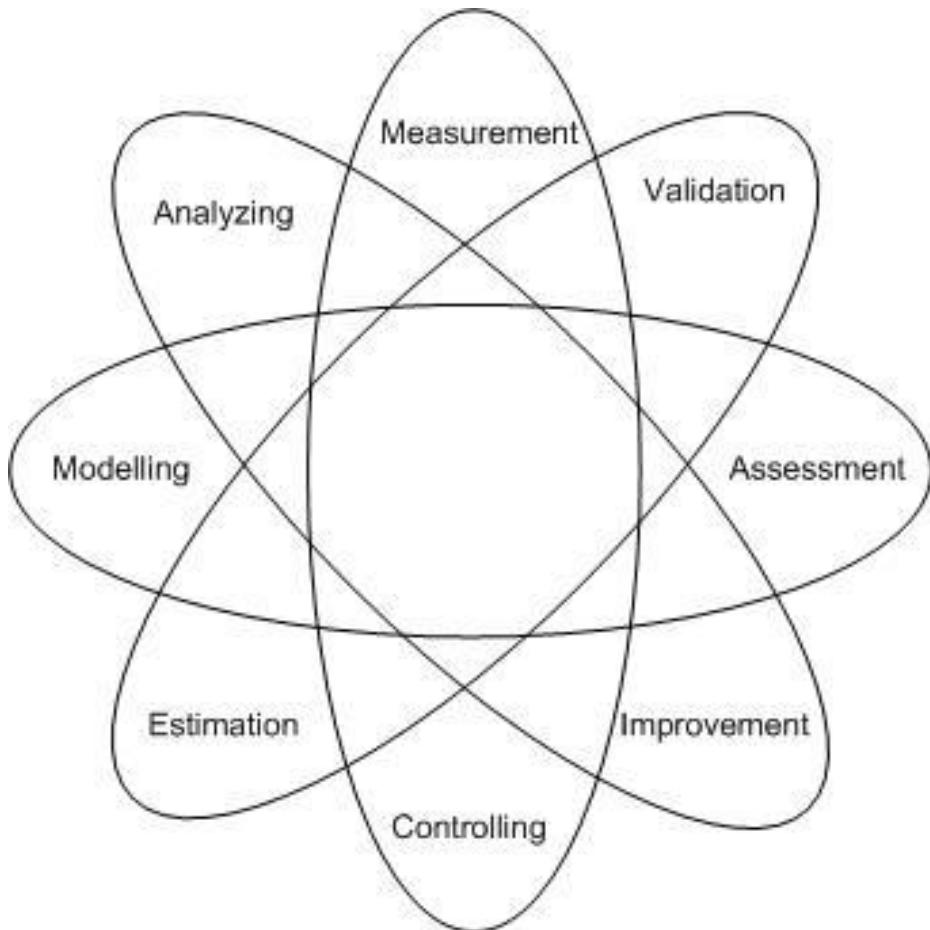




# Software Measurement News

*Journal of the Software Metrics Community*



**Editors:**

**Alain Abran, Günter Büren, Reiner Dumke, Christof Ebert, Cornelius Wille**



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

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**Technical Editor:** Dagmar Dörge

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## Call for Participation



### MetriKon 2015

DASMA Software Metrik Kongress  
5. - 6. November 2015



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

IBM KÖLN  
GUSTAV-HEINEMANN-UFER 120-122, KÖLN

GI-Fachgruppe 2.1.10  
"Software Messung  
und Bewertung"

- INTERNATIONALITÄT - schreiben wir dieses Jahr auf der **MetriKon 2015 in Köln am 5. und 6. November** groß!

„**Triangle benchmarking - a new and easy way to realize your performance**“ ist der Titel der Keynote von Pekka Forselius\* (Finnland, FiSMA), womit wir die Tagung dieses Jahr eröffnen.

„**Die nächste Epoche hat schon längst begonnen**“ wird als Keynote von unserem Gastgeber Stefan Riedel (Deutschland, IBM, Köln) gesprochen: "Cognitive Systeme im Gesundheitswesen. Jeder kann über jeden (fast) alles erfahren. In dynamischen Ecosystemen lösen Entwickler Aufgaben in Stunden, für die bisher große Teams Monate brauchten. Ein Blick in die Gegenwart der IT und unserer Welt, die wie eine Zukunftsvision klingt."

„**Value measurement in Agile: Where are the numbers?**“ Agil und Metriken? In seiner unvergleichlichen Vortragsart wird Rini van Solingen (Universität Delft, NL) sich mit dem Thema in der Keynote auseinandersetzen. *Rini van Solingen*: "In this key-note I will discuss the needs and challenges regarding measurement of business value in the Agile world, show directions to make value measurement concrete, and will give examples of some of the practices that seem to work."

„**Software-Cost-Engineering**“ wird uns Frank Vogelezang (NESMA) in einem Workshop nahe bringen! In den Niederlanden ist dies Voraussetzung für die Abgabe von Angeboten bei öffentlichen Ausschreibungen. Auch in Österreich und Italien werden Metrik-basierte Angebot bei öffentlichen Aufträgen verlangt. Zeit, uns auch in Deutschland um dieses Thema zu kümmern.

Freuen Sie sich auf das gesamte Programm <http://metrikon.de/node/109> mit einer Mischung aus Praxis- und Hochschulbeiträgen und der einmaligen Möglichkeit des Networkings während der gesamten Veranstaltung.

## MetriKon 2015 – Donnerstag, 5. November 2015

9:00h	Registrierung	
9:30h	Begrüßung durch Gastgeber und DASMA/GI-Vorstand	
9:45h	<b>Hauptvortrag 1</b> Moderation Manfred Seufert <b>Triangle benchmarking - a new and easy way to realize your performance</b> Pekka Forselius (4SUM Partner & FiSMA, Finland)	
10:45h	Pause – Registrierung – Gedankenaustausch	
11:00h	<b>Sitzung A1 Messung der Anforderungen</b> Moderation Dr. Christof Ebert Sneed, H.: <i>Measuring the Degree of Requirement Fulfilment</i>	<b>Workshop W1 Cost Engineering</b> Moderation Eberhard Kranich Vogelezang, F.: <i>Best Practices in Software Cost Estimation</i>
	Kalenborn, A. und Kuhn, D.: <i>SmartOffer: Requirements-Engineering in der Vorvertragsphase von Software Projekten</i>	
	Schmidt, A.: <i>Paradigmenwechsel in der Software-entwicklung - agile cognitive Development mit IBM</i>	
12:30h	Mittagspause - Gedankenaustausch	
14:00h	<b>Sitzung A2 Prozessverbesserung</b> Moderation Dr. Reiner Dumke Vasileva, A. und Schmedding, D.: <i>Integration von Qualitätsaspekten in einen Entwicklungsprozess</i>	<b>Sitzung B2 Cloud Computing / Big Data</b> Moderation Dr. Andreas Schmietendorf Fiegler, A., Herden, S., Zwanziger, A., Meißner, M. und Dumke, R.: <i>Qualitätsbemessung von automatisierten ITIL Prozessen in Cloud Systemen am Beispiel der bedingten Entropie</i>
	Hartenstein, S. und Könnecke, H.: <i>Metrics for Evaluation of Trustworthiness-By-Design Software Development Processes</i>	Deuter, A. und Dreyer, J.: <i>Reversed-GQM: Ein Ansatz zur Wiederverwendung von Kennzahlen</i>
	Ebert, C.: <i>Benchmarking - Experiences and Guidelines for Improvement</i>	Neumann, R., Pöhls, M., Schmietendorf, A., Fiegler, A.: <i>Toward Optimal Server License Balancing in a Virtual Server</i>
15:30h	Pause - Gedankenaustausch	
15:45h	<b>Hauptvortrag 2</b> Moderation Dr. Reiner Dumke <b>Value measurement in Agile: Where are the numbers?</b> Rini van Solingen (Delft Universität, Niederlanden)	
16:45h	Pause - Gedankenaustausch	
17:00h	<b>Sitzung A4 DASMA-Zukunftspreis</b> Moderation Manfred Seufert Vorstellung der prämierten studentischen Abschlussarbeit durch den Preisträger	
19:00h	<b>Gemeinsames Abendprogramm mit Verleihung des Zukunftspreises</b>	

MetriKon 2015 – Freitag, 6. November 2015		
09:00h	<b>Hauptvortrag 3</b> Moderation Stavros Pechlivanidis	
	<b>Die nächste Epoche hat schon längst begonnen - Cognitive Systeme</b> Stefan Riedel (Deutschland, IBM, Köln):	
10:00h	Pause - Gedankenaustausch	
10:15h	<b>Sitzung A3 Spezielle Messansätze</b> Moderation Dr. Jens Heidrich	<b>Sitzung B3 Messung Mobiler Applikationen</b> Moderation Manfred Seufert
	Jansen, P.: <i>Field defect predictability of code quality metrics</i>	Wille, K., Dumke, R., und Wille, C.: <i>Eye Tracker und Klick Metriken – Theoretische Betrachtungen und Ergebnisse praktischer Studien</i>
	Schmietendorf, A.: „ <i>API economy</i> “ – <i>Ergebnisbericht einer empirischen Untersuchung von API-Serviceverzeichnissen und -Service-anbieten</i>	Nitze, A.: <i>Prozessqualitätsmetriken zur Risikogetriebenen Entwicklung mobiler Applikationen</i>
	Fehlmann, Th. und Kranich, E.: <i>Prioritizing Functional and Nonfunctional Requirements in an Agile Software Development Environment</i>	Gencel, C.: <i>A Novel Decision Making Platform for Managing Tradeoffs between Quality, Cost and Time</i>
11:45h	Mittagspause - Gedankenaustausch	
13:15h	<b>Sitzung A4 Neue Ansätze</b> Moderation Stavros Pechlivanidis	<b>Sitzung B4 Messmethodiken und Messqualität</b> Moderation Dr. Thomas Fehlmann
	Heidrich, J., Guzman, L., Zehler, T. und Ocampo, A.: <i>Research Software Factory – Setting Up a Research Soft-ware Factory in the Oil and Gas Domain</i>	Hentschel, J., Neumann, R., Hegewald, H. und Dumke, R.: <i>The Impact of asynchronous and parallel programming on the utilization of server resources</i>
	Schmietendorf, A.: <i>Wie kann die Software-Messung von den Möglichkeiten einer Big Data Lösung profitieren?</i>	Dumke, R.: <i>COSMIC FP - Erweiterungen und Trends</i>
	Fiegler, A., Herden, S., Rohde, T. und Dumke, R.: <i>Einführung eines Frameworks für die Bewertung eines Industrie 4.0 Produktpportfolios</i>	Liedtke, T.: <i>Wie gut schätzen Schätzer?</i>
14:45h	Pause - Gedankenaustausch	
15:00h	<b>Abschlussitzung: Best Paper &amp; Best Presentation Awards und Schlussworte</b> Moderation Manfred Seufert	



## PROGRAMM ZUM

### 10. WORKSHOP BEWERTUNGSASPEKTE SERVICE- UND CLOUDBASIERTER ARCHITEKTUREN

**BSOA/BCLOUD2015**  
*03. NOVEMBER 2015 – LEIPZIG*

#### Motivation:

Lange Zeit galten Programmierschnittstellen, so genannte APIs, als eine ausschließlich dem Software Engineering zugeordnete Themenstellung. Mit der weltweiten Akzeptanz sozialer Medien, dem allgegenwärtigen Einsatz mobiler Technologien und dem Internet der Dinge steigt der erwartete Interoperabilitäts-Grad in einem nie da gewesenen Ausmaß. In diesem Zusammenhang fällt immer häufiger der Begriff der API economy, wobei dann ein geschäftszentrierter Servicebegriff im Mittelpunkt des Interesses steht. Zu beobachten ist ein neues Verständnis, mit der webbasierte Programmierschnittstellen (Web-oriented Architecture, WOA) zum geschäftlichen Erfolg eines Unternehmens beitragen können. Allgemein bekannte Beispiele finden sich bei Amazon, Google, Salesforce oder auch Twitter. Der diesjährige Workshop geht der u.a. Frage auf den Grund, was wirklich neu an einer WOA ist und welche Lessons-Learned wir aus SOA- und Cloud-Einführung dringend berücksichtigen sollten.

#### Gastgeber und Veranstaltungsort:

forcont GmbH – Leipzig



city tagung Leipzig  
URL: <http://www.city-tagung-leipzig.de/>

#### Sprecher der BSOA-Initiative:

*Prof. Dr.-Ing. habil. Andreas Schmietendorf*  
Hochschule für Wirtschaft und Recht Berlin, FB II  
Alt-Friedrichsfelde 60, D-10315 Berlin  
Email: [andreas.schmietendorf@hwr-berlin.de](mailto:andreas.schmietendorf@hwr-berlin.de)

## **Agenda:**

09:30 Uhr Eröffnung des Workshops

*Andreas Schmietendorf (HWR Berlin & OvG-Universität Magdeburg)*

Eröffnung des Workshops – Ziele und Motivation

*Matthias Kunisch (forcont GmbH Leipzig)*

*Andreas Schmietendorf (HWR Berlin & OvG-Universität Magdeburg)*

Erste Ergebnisse einer empirischen Untersuchung zum Cloud-Einsatz bei KMUs

### **10:00 Uhr Session 1**

*Olaf Resch (HWR Berlin)*

API-Economy – eine Situationsbestimmung

10:45 Uhr Kaffeepause

### **11:15 Uhr Session 2**

*Frederick Kramer (initOS GmbH & Co. KG, OvG Universität Magdeburg)*

*Klaus Turowski (OvG Universität Magdeburg)*

Auswahl und Parametrisierung einer Entscheidungsmethode zur Auswahl von Cloud Services in KMU

*Tobias Kraft, Frank Simon (BLUECARAT AG)*

Das Schnittstellen Paradoxon: Weniger Eigenentwicklung führt nicht zu weniger Testaufwand

*Sabine Wieland (HfT Leipzig):*

10 Gebote für Flexibilität und Sicherheit

12:45 Uhr Mittagspause – inkl. Posterpräsentationen

Ausgewählte Forschungsarbeiten junger Absolventen und Doktoranden werden mit Hilfe von Postern zur Diskussion gestellt.

### **14:00 Uhr Session 3 (moderierte Diskussionsrunde)**

*Dr. Frank Simon (Head of Business Development - BLUECARAT AG)*

Web-orientierte Architekturen – Implikationen zu SOA, Cloud und Co.

15:30 Kaffeepause/Posterpräsentation

### **16:00 Uhr Session 4**

*Anja Fiegler, Sebastian Herden, Andre Zwanziger, Sebastian Kiepsch (T-Systems GmbH)*

*Reiner Dumke (OvG Universität Magdeburg)*

Die Betrachtung und Messbarkeit der Skalierung von Cloud-Systemen, SOA und Microservices

*André Nitze (OvG-Universität Magdeburg)*

Entwicklung mobiler Applikationen in der API Economy

*Jan Hentschel, Robert Neumann (Ultra Tendency UG)*

Data nebula – what is wrong with data lakes?

## Posterpräsentationen:

*Sandro Hartenstein (FH Brandenburg)*

Toolunterstütztes Messen der Vertrauenswürdigkeit von Webapplikationen

*Phillip Milich, Christopher Bernsdorf (IBM Deutschland)*

Bewertungsaspekte einer plattformübergreifenden Darstellung von Lerninhalten im Diskurs von „Learning Content Management Systemen“.

*Martin Weber (HWR Berlin):*

Serviceorientierte Öffnung einer gewachsenen ERP-Software auf der Grundlage eines vorhergehenden Redesign

## Sponsoren und Medienpartner:

Ohne vielfältige Unterstützung durch Sponsoren und Medienpartner ist die Durchführung eines solchen Workshops nicht denkbar. Nur auf dieser Grundlage lassen sich die geringen Teilnahmegebühren, aber auch die kostenfreie Teilnahme von Studenten gewährleisten. In diesem Jahr konnten folgende Unternehmen dafür gewonnen werden:

### Hauptsponsor

BLUECARAT AG

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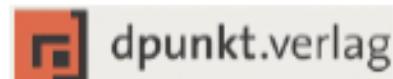
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### BEWERTUNGSSASPEKTE SERVICE- UND CLOUDBASIERTER ARCHITEKTUREN

#### Weiteren Informationen und Anmeldung unter:

<http://www-ijs.cs.uni-magdeburg.de/~gi-bsoa/2015> und <http://www.cecmg.de>

Bei Anmeldung bis zum 26. Oktober 2015 wird eine Teilnahmegebühr von 140,- € (ceCMG-, DASMA-, GI- und ASQF-Mitglieder: 120,- €) erhoben, danach 160,- € (ceCMG-, DASMA-, GI- und ASQF-Mitglieder: 140,- €). Über den Tagungsbeitrag erhalten Sie eine Rechnung der ceCMG e.V. (Central Europe Computer Measurement Group).

Der BSOA/BCloud-Workshop richtet sich an ein deutschsprachiges Publikum, dem entsprechend werden die Vorträge überwiegend in deutscher Sprache gehalten. Die korrespondierenden Artikel der Referenten werden den Teilnehmern in Form eines Tagungsbands zur Verfügung gestellt. Ergebnisse entsprechender Diskussionsrunden werden zeitnah im Internet publiziert.

BSOA/BCloud bei Twitter: [https://twitter.com/BSOA\\_BCloud](https://twitter.com/BSOA_BCloud)

#### Anfahrt:

city tagung Leipzig (Brühl 54, 04109 Leipzig)  
URL: <http://www.city-tagung-leipzig.de>

#### Anfahrtsskizze:



#### Parkmöglichkeiten:

- Hauptbahnhof Leipzig / Parkhaus Westseite (Tagespauschale max. 3,00 €) ca. 3 min Fußweg
- Hauptbahnhof Leipzig / Parkhaus Ostseite (Tagespauschale max. 5,00 €) ca. 5 min Fußweg
- Höfe am Brühl / Zufahrt „Am Hallischen Tor“ (Tagespauschale max. 8,00 €) ca. 3 min Fußweg
- Parkhaus „Oelßners Hof“ / Zufahrt „Brühl“ (Tagespauschale max. 6,00 €) ca. 1 min Fußweg

Quelle der Abbildung: city tagung LEIPZIG, 2015



**October 5-7  
Cracow**

Dear (former) conference participant,

Those of us who were present at the 2015 edition of the IWSM Mensura conference are looking back to a successful conference. Great ideas have been presented at the conference and new ideas have been developed during the co-located workshops and in conversations and discussions aside of the conference. We have seen new and renewed cooperation between various Software Metrics Associations and we have enjoyed the world heritage of the beautiful city of Cracow and the Wielicka salt mine. At this moment most of the material from the conference is now available:

- Pictures taken during the conference can be viewed on [Flickr](https://www.flickr.com/browser/upgrade/?continue=%2Fphotos%2Fiwsm-mensura) (<https://www.flickr.com/browser/upgrade/?continue=%2Fphotos%2Fiwsm-mensura>)
- Presentations from the conference and the workshops can be viewed on [SlideShare](http://de.slideshare.net/iwsm-mensura) (<http://de.slideshare.net/iwsm-mensura>)
- The best reviewed papers are available on [Springer](http://link.springer.com/book/10.1007%2F978-3-319-24285-9) (<http://link.springer.com/book/10.1007%2F978-3-319-24285-9>)
- Additional papers will be published in the [Annals of the Collegium of Economic Analysis](#) early next year

We are already looking forward to the 2016 edition. The IWSM Mensura 2016 conference will be held together with the DASMA Metrikon conference on **October 5-7, 2016** in Berlin (Germany).

If you want to stay up-to-date with conference developments, please join the [IWSM Mensura group](#) on [LinkedIn](#) or regularly check the [website iwsm-mensura.org](#). When you have additional material (pictures, presentations or papers) that you want to share, please send it to [webmaster@iwsm-mensura.org](mailto:webmaster@iwsm-mensura.org) and it will be published as soon as possible.

We hope to see you next year in Berlin!

Alain Abran

### SLIDEShare:

**IWSM Mensura**



Folgen  
29 SlideShares  
3 Follower  
0 Clipboards

Education  
[www.iwsm-mensura.org](http://www.iwsm-mensura.org)

The IWSM Mensura conference is the result of the joining of forces of the International Workshop on Software Measurement and the International Conference on Software Process and Product Measurement (Mensura). Together they form the conference where new ideas from the world of academic research meet practical improvements from industry on topics of measuring software. Each year practitioners and researchers from all over the world gather together to learn about new developments, test new ideas and exchange possible new solutions and applications.

IWSM Mensura



Accounting for Non-Functional and Project requirements  
in software project performance measurement, benchmarking and estimating:  
COSMIC and IFPUG developments

IWSM/Mensura Conference, Krakow, October 2015  
Talmon Ben-Cnaan (IFPUG), Charles Symons (COSMIC)

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### SPRINGER BOOK:

Book  
[Lecture Notes in Business Information Processing](#)  
Volume 230

## Software Measurement

25th International Workshop on Software Measurement and 10th International Conference on Software Process and Product Measurement, IWSM-Mensura 2015, Kraków, Poland, October 5–7, 2015, Proceedings

**Editors:** Andrzej Kobyliński, Beata Czarnacka-Chrobot, Jarosław Świerczek

ISBN: 978-3-319-24284-2 (Print) 978-3-319-24285-9 (Online)



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**Minutes of the COSMIC Annual Meeting, 4th October 2015**

Location: Sheraton Hotel, Krakow, Poland

This COSMIC meeting was open to IAC and MPC members and to others interested who were attending the IWSM 2015/Mensura conference.

**Present:**

Name	Position	Country
<b>IAC Members unless noted as 'MPC'</b>		
Alain Abran(AA)	Chair, COSMIC; ETS Montreal	Canada
Frank Vogelezang (FV)	President, COSMIC; Ordina	Netherlands
Sylvie Trudel (ST)	Treasurer, COSMIC; UQAM	Canada
Jean-Marc Desharnais (JMD)	Chair, Certification Cttee., ETS Montreal	Canada
Onur Demirors	METU	Turkey
Beata Czarnacka-Chrobot	Warsaw School of Economics	Poland
Jaroslaw Swierczek (JS)	300DC	Poland
Nelly Condori-Fernandez	VU University, Amsterdam	Spain
Cigdem Gencel	MPC, University of Bozen/Bolzano	Turkey (Skype)
Peter Fagg	MPC, Pentad Ltd	UK
Charles Symons (CS)	Chair, MPC	UK
<b>Guests</b>	Poland	
Michal Gadomski	300DC	Poland
<b>Gzegorz Ponicki</b>		
Luigi Buglione	Engineering IT SpA	Italy
Baris Ozkan		Turkey

<b>Minutes</b>		
<b>Topics</b>	<b>Comments</b>	<b>Actions</b>
<b>1. Opening and welcome of COSMIC IAC Members</b>	FV welcomed everyone to the meeting, including the IAC members and other interested participants	
<b>2. Finances</b>	ST presented the accounts to end-September. Our balance sheet shows assets of 30,632 Euros, a net increase of €5603 over the year. The major expense this year was related to the major rewrite of the COSMIC website – a non-recurring expense. Charles Symons, seconded by Peter Fagg proposed the approval of the financial statements. IAC Members approved unanimously the accounts, with thanks to ST.	
Matters arising from Finances:	ST implemented the collection of income through Paypal, which will save considerably on bank charges for international transfer of payment, both for COSMIC and for people paying invoices to COSMIC	
<b>3. Annual report</b>	FV Vogevezang reminded the audience that the annual report will be issued at the end of the year, and that all IAC member are expected to report the COSMIC-related activities that happened within their own country.  Matters related to the annual report: FV Vogevezang indicated that at a September conference in Mexico, he had presented a set of slides on the future of COSMIC, and that a participant had suggested to include the teaching component as part of future plans, including the development & sharing of teaching material at the university level. AA indicated that various levels of learning should be addressed: Introduction of COSMIC concepts and related usage, Introduction to COSMIC measurements rules with small examples, more detailed measurement rules for the measurement of actual projects in industry. AA indicated that university material must include 4 components:  <ul style="list-style-type: none"><li>- Reading material</li><li>- Teaching material</li><li>- Small exercises</li><li>- Exam questions</li></ul> A suggestion was made of including video material  A suggestion was made to make the teaching material available in multiple languages  A Call for Participation in an Education committee was proposed: Nelly Condori accepted to take the leadership of this committee, while AA committed to assist the leader. Other university professors will be asked to contribute to this committee, once operational	

**4. Terms of committees**

FV Vogelezang indicated that as a follow-up of the limitations of terms of office for the various committees, the following changes occurred at the level of the International Advisory Council – IAC:

Not renewing their term: R.Meli from Italy and B. Gil from Mexico

Accepted renewal of the IAC 3-year term, from October 2015 to September 2018:

- Reiner Dumke, for Germany
- Harold van Heeringen, for the Netherlands
- Peka Forselius, for Finland
- Francisco Valdés, for Mexico
- Vinh Tuong, for Vietnam
- Manar Abu Talib, for the United Arab Emirates

New IAC members in 2015:

- US: Bruce Reynolds
- South Africa: Bram Meyerson
- Brazil: Ismael Melo
- Mexico: Carlos Duarte
- Australia: Denis Krizanovic
- Italy: Luigi Lavazza
- Turkey: Selami Bagriyanik
- Spain: Nelly Condori & P. Rodriguez
- Tunisia Asma Sellami

**5. Certification**

JMD reported that 71 people were certified at the Entry Level this year, from a number of countries.

JMD also introduced this year an OnLine process for certification, as well as payment of certification fees through Paypal.

**6. Report of the Measurement Practice Committee**

CS presented the annual report of the Measurement Practice Committee (MPC). In summary:

CS outlined the changes that had been made to produce v4.0.1 of the method and thanked MPC members for all the hard work that had been needed. Changes were only editorial, but many due to defects identified in particular to ambiguities found during the translation process to other languages, and to misuse of some rules reported by practitioners.

- Definition of NFR excludes project requirements & constraints
- Data movement uniqueness' rule does not now allow 2 DM's to differ due only to different data manipulation; exceptions clarified
- 'Error/confirmation message' definition now limited to human functional users
- New section on 'types' versus 'occurrences'
- Improved definitions of:
  - Functional process
  - Data group
  - Object of interest
- Improved explanation of how 'data manipulation' is accounted for by data movements

A Chinese translation of the MM is already published, the French translation is nearly complete and work is underway on translations to Spanish.

To verify the usage of Manuals translated, a request was made to find out the number of corresponding downloads from the website.

Publication coming soon on Guideline to account for non-functional requirements in software project performance measurement, benchmarking and estimating'

New Guidelines coming soon:

- 'Guideline on Non-Functional & Project Requirements. *How to consider non-functional and project requirements in software project performance measurement, benchmarking and estimating*', v1.0, (October)
- 'Guideline on how to convert 'First Generation' Function Point sizes to COSMIC sizes', v1.0, (end of 2015?)

New

- COSMIC Data Model' (for tool builders)

Updates:

- Guideline for the use of COSMIC FSM to manage Agile projects'
- Quick Reference Guides
- Course Registration case study v2
- Rice Cooker case study

Minor defect corrections and more clarifications

Updated to v4.0.1:

- Guideline for Sizing Service-Oriented Architecture Software', v1.1, (March)
- Guideline for sizing Data Warehouse Application Software', v1.1 (April)

New:

- 'Guideline for Early or Rapid COSMIC Functional Size

Measurement by using approximation approaches', v1.0 (July)

Some issues that must be solved together:

**Issues:**

- Recommended ways of recording CFP measurements can be time-consuming
- Measurement repeatability
- Support to developers of automatic size measurement tools

**Parts of the solution:**

Goal: to improve speed and repeatability of measurement:

- Extend Measurement Strategy patterns to include measurement patterns
- The COSMIC Data Schema
- Improved recommendations on how to record measurements
- Open source tools

Thanks to MPC members and others who contributed:

- Diana Baklizky (Brazil)
- Jean-Marc Desharnais (Canada)
- Peter Fagg (UK)
- Cigdem Gencel (Turkey/Spain)
- Arlan Lesterhuis (Netherlands)
- Dylan Ren (China)
- Luca Santillo (Italy)
- Hassan Soubra (France)
- Sylvie Trudel (Canada)
- Frank Vogelezang (Netherlands)

(Retired: Shin-Ichi Nagano, Monica Villavicencio)

**7. Collaboration with other  
SMA's**

CS reported progress in collaborating with IFPUG on the development and publication of a joint document on the Vocabulary of Non Functional terms.

Other future collaboration projects are being looked at, including for example dissemination an exploratory survey from the Netherlands of FSM automation concepts.

-Work with ISBSG to get more project data

**8. Development**

We are still making no progress on getting benchmark data to ISBSG. I suggested we think about incentives, e.g. small payments to individuals to submit their organizations' data

**9. Other topics**

It was mentioned that many of the COSMIC documents are very lengthy and give the impression that the application of COSMIC is very complex, requiring numerous Guidelines for its application. It was suggested to rebrand some of these documents as 'Case Studies for specific contexts'.

It was mentioned as well that the documents produced to date were mostly geared towards the technical people (i.e. the measurers) and very little oriented towards management and the usage of COSMIC. It was suggested to prepare very short documents for the management level .

COSMIC has 2 short Quick Reference Guide. It was suggested to also produce a Quick Reference Guide for management.

B. Reynolds has successfully given a presentation to the International Cost Estimation & Analysis Association in the USA

and is in the process of starting a COSMIC Software Interest Group within this association.

He will also be presenting COSMIC to the next conference on COCOMO' in their context of preparing the next version – COCOMO III"

**Next Annual Meeting**

AA announced that the next International Workshop on Software Measurement (IWSM-MENSURA) will be held in Berlin (Germany) in 2016, from 5 - 7 October. The COSMIC Annual meeting will be held during this conference.

**Alain Abran**

4<sup>th</sup> October 2015

(Open) Circulation: All IAC and MPC Members and Guests at the meeting

Andrzej Kobyliński · Beata Czarnacka-Chrobot  
Jarosław Świerczek (Eds.)

## Software Measurement

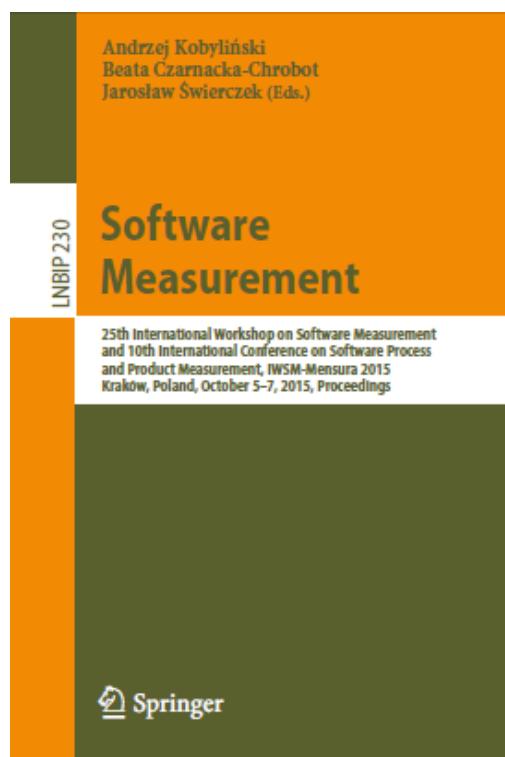
25th International Workshop on Software Measurement  
and 10th International Conference on Software Process  
and Product Measurement, IWSM-Mensura 2015

Kraków, Poland, October 5–7, 2015

Proceedings

This year, the IWSM Mensura conference attracted 32 submissions from 25 countries from all continents. They were rigorously reviewed by 68 members of the Program Committee representing 26 countries. As a result, 13 full papers, presenting novel research and industrial results, written by authors originating from 17 countries were selected for publication in this volume.

Apart from the main conference, satellite events, i.e., workshops, sponsors' presentations, and a poster session, took place during the conference.

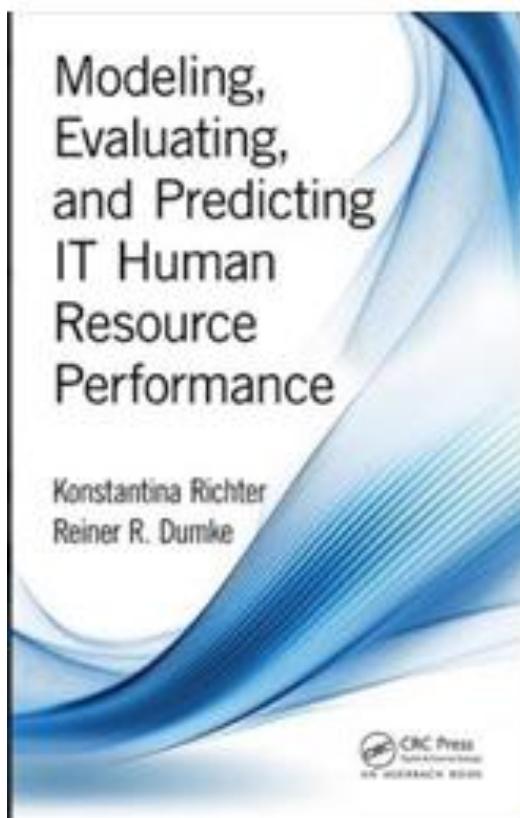


**Konstantina Richter, Reiner Dumke:**

***Modeling, Evaluating and Predicting  
IT Human Resource Performance***

*CRC Press, Boca Raton, Florida, 2015 (275 Seiten)*

**Modeling, Evaluating, and Predicting IT Human Resources Performance** explains why it is essential to account for the human factor when determining the various risks in the software engineering process. The book presents an IT human resources evaluation approach that is rooted in existing research and describes how to enhance existing approaches through strict use of software measurement and statistical principles and criteria.

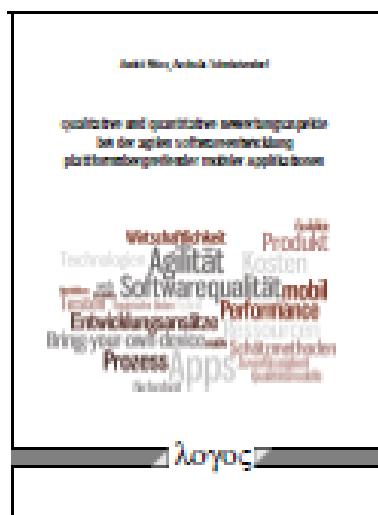


**Büren, G.; Dumke, R.R.; Ebert, C, Münch, J., Seufert, M.:**

***MetriKon 2014 - Praxis der Softwaremessung  
Tagungsband des DASMA Software Metrik Kongresses  
6. - 7. November 2014, Stuttgart***

*Shaker Verlag, Aachen, 2014 (222 Seiten)*

The book includes the proceedings of the MetriKon 2014 held in Stuttgart in November 2014, 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.



## Qualitative und quantitative Bewertungsaspekte bei der agilen Softwareentwicklung plattformübergreifender mobiler Applikationen

André Nitze, Andreas Schmietendorf

2014, 168 Seiten

ISBN 978-3-8325-3774-6

Preis: 24.00 €

Der Themenschwerpunkt der vorliegenden Monografie beschäftigt sich mit der professionellen Entwicklung und Bereitstellung mobiler Business-Apps, die im Kontext unternehmerischer Aktivitäten zum Einsatz kommen. Bei der Softwareentwicklung gilt es, vielfältigen Qualitätsanforderungen wie z.B. der Performance, der Wartbarkeit, der Plattformunabhängigkeit, der Ergonomie oder der Sicherheit gerecht zu werden. Darüber hinaus bedarf es des Managements betrieblich eingesetzter Geräte und Apps unter Berücksichtigung unternehmensspezifisch festzulegender Mobilitätsstrategien. Innerhalb der vorliegenden Forschungsarbeit wurden neben diesen Themen auch spezielle Aspekte wie der datenschutzrechtliche Umgang mit Nutzerdaten oder auch Qualitätsmodelle und Ansätze zur plattformübergreifenden Entwicklung behandelt.

Bestellung über den Buchhandel oder direkt beim Verlag, entweder online oder per Fax beim Logos Verlag Berlin GmbH, Comeniushof – Gubener Str. 47 · D-10243 Berlin

**Schmietendorf, A. (Hrsg.):**

**Eine praxisorientierte Bewertung von Architekturen  
und Techniken für Big Data**

(110 Seiten) Shaker-Verlag Aachen, März 2015 ISBN 978-3-8440-2939-0



Die Idee zum vorliegenden Buch entstand während der Durchführung von Seminaren, Workshops und Lehrveranstaltungen zum Thema Big Data. Die sowohl im industriellen als auch universitären Umfeld durchgeführten Veranstaltungen verdeutlichen den Bedarf einer praxisorientierten Auseinandersetzung mit den vielfältig angebotenen Architekturansätzen und Techniken. Mit Hilfe des Buchs soll dem entsprechend eine Einarbeitung in das sich ständig verändernde Big Data Ökosystem unterstützt werden. Dabei geht es weniger um eine FAVORISIERUNG nur eines Frameworks als vielmehr um die Anregung einer kritischen Auseinandersetzung mit alternativen Systemlösungen. Neben der Verdeutlichung von Einsatzszenarien galt das besondere Interesse den mannigfaltigen Integrations- und Migrationsanforderungen einer realen Big Data Lösung. Die Möglichkeiten zur Berücksichtigung vielfältiger Datenquellen und Persistenzmechanismen haben maßgeblichen Einfluss auf den Erfolg entsprechender Big Data Ansätze. Der einführende Beitrag beschäftigt sich mit grundlegenden Eigenschaften von Big Data Lösungen und möglichen Systemansätzen. Darauf aufbauend geht ein weiterer Beitrag auf die technischen Details des Apache Hadoop-Kerns und die detaillierte Abbildung des MapReduce-Algorithmus ein. Die Architektur und Einsatzmöglichkeiten von NoSQL-Datenbanksystemen stehen im Mittelpunkt der folgenden Beiträge. Im Einzelnen werden Apache HBase, MongoDB sowie der zur echtzeitbasierten Suche einsetzbare ElasticSearch-Ansatz aufgegriffen. Mit SAP Hana existiert ein alternativer Architekturansatz für das SAP-Umfeld. Neben einer bodenständigen Einordnung und Abgrenzung zu klassischen BI-Ansätzen geht es im Beitrag insbesondere um mögliche Einsatzszenarien und Aspekte der Migration. Der abschließende Beitrag greift im Sinne eines Exkurses die cloudbasierte Bereitstellung einer Hadoop-Installation mit Hilfe der Container-Technologie Docker auf. Dabei wird unter anderem auf die Apache Ambari Lösung eingegangen, welche zur Bereitstellung, Konfiguration und Überwachung eines Hadoop Clusters verwendet werden kann. Mit dem vorliegenden Buch soll eine ingenieurmäßige Auseinandersetzung mit den aktuellen Big Data Technologien angeregt werden, dem entsprechend würde sich die Autoren über Feedbacks und weiterführende Diskussionen freuen. Für die konstruktive Zusammenarbeit möchte ich mich bei allen Autoren bedanken. Ebenso bei Frau Leany Maaßen vom Shaker Verlag Aachen für ihre schnelle und unkonventionelle Unterstützung des Buchprojekts.

**Christof Ebert:**

**Risikomanagement kompakt**

**- Risiken und Unsicherheiten bewerten und beherrschen**

Springer-Verlag, 2014, ISBN 978-3-642-41047-5

Risikomanagement ist das Schlüsselwerkzeug für Führungskräfte im Projekt und in der Linie. Es hilft dabei, Chancen, Unsicherheiten und Gefahren bewusst und proaktiv anzupacken, und damit kritische Probleme zu vermeiden. Sein pragmatischer Einsatz ist heute überlebensnotwendig und aufgrund von wachsenden Anforderungen an Produkthaftung und Governance für die Unternehmensführung verpflichtend. Das deutschsprachige Standardwerk "Risikomanagement kompakt" ist jetzt in einer komplett überarbeiteten neuen Auflage bei Springer erschienen. Das Buch fasst praxisnah zusammen, was Risikomanagement ist, wie es eingeführt und eingesetzt wird.

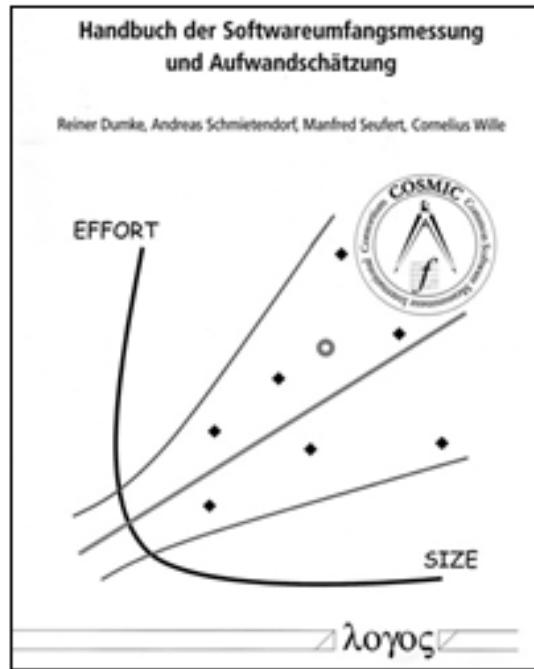


**Dumke, R., Schmietendorf, A., Seufert, M., Wille, C.:**

**Handbuch der Softwareumfangsmessung und Aufwandschätzung**

Logos Verlag, Berlin, 2014 (570 Seiten), ISBN 978-3-8325-3784-5

Den Kern des Buches bildet eine erstmals umfassende und vollständige Beschreibung einer exakten Bestimmung des Softwarefunktionsumfangs nach den so genannten COSMIC Function Points. Dabei werden neben der Methode selbst auch umfassende Beispiele für die verschiedensten Anwendungsgebiete und -paradigmen, wie Business Applikationen, SOA, Cloud Computing, wissenschaftlich-technische Berechnungen und vor allem auch für eingebettete Systeme ausführlich dargestellt, die auch die Grundlage für eine mögliche Zertifizierung nach dieser Methode bilden. Für die Anwendung dieser Methode werden einige Tools und Web-Dienste vorgestellt. Ebenso wird die Relevanz und der Inhalt einer internationalen Erfahrungsdatenbasis zur Aufwandschätzung erläutert.



**Schmiendorf, A.; Simon, F.:**

**BSOA/BCloud 2014**  
**9. Workshop Bewertungsaspekte serviceorientierter Architekturen**  
**4. November 2014, Frankfurt**

Shaker Verlag, Aachen, 2014 (112 Seiten), ISBN 978-3-8440-2108-0

The book includes the proceedings of the BSOA/BCloud 2014 held in Frankfurt in November 2014, which constitute a collection of theoretical studies in the field of measurement and evaluation of service oriented and cloud architectures.



## Software Measurement Involved Conferences

### August 2015:

#### AGILE 2015:

#### International Conference on Agile

August 3 - 7, 2015, Washington D. C., USA

see: <http://agile2015.agilealliance.org/>

#### RE 2015:

#### 23<sup>th</sup> IEEE International Requirement Engineering Conference

August 24-28, 2015, Ottawa, Canada

see: <http://re15.org/>

#### Euromicro SEAA 2015:

#### DSD/ 41<sup>th</sup> Software Engineering & Advanced Application Conference

August 26 - 28, 2015, Funchal, Madeira, Portugal

see: <http://esd.scienze.univr.it/dsd-seaa-2015/>

### September 2015:

#### QEST 2015:

#### 12<sup>th</sup> International Conference on Quantitative Evaluation of Systems

September 1 - 3, 2015, Madrid, Spain

see: <http://www.qest.org/qest2015/>

#### EuroSPI 2015:

#### 22<sup>th</sup> European Systems & Software Process Improvement and Innovation Conference,

September 20 - October 2, 2015, Ankara, Turkey

see: <http://www.eurospi.net/>

### October 2015:

#### IWSM-MENSURA 2015:

#### Common International Conference on Software Measurement

October 5 - 7, 2015, Cracow, Poland

see: <http://www.iwsm-mensura.org/2015/cfp>

#### ESEM 2015:

#### 9<sup>th</sup> International Symposium on Empirical Software Engineering & Measurement

October 22 - 23, 2015, Beijing, China

see: <http://eseiw.iscas.ac.cn/eseiw2015/esem/>

**November 2015:**

- ISSRE 2015**      **26<sup>th</sup> International IEEE Symposium on Software Reliability Engineering**  
 November 2 - 5, 2015, Gaithersburg, USA  
 see: <http://issre.net/Invitation>
- BSOA/BCloud 2015:**      **10. Workshop Bewertungsaspekte service-orientierte und Cloud-Architekturen**  
 November , 2015,  
 see: <http://www-ivs.cs.uni-magdeburg.de/~gi-bsoa/>
- MetriKon 2015:** **International Conference on Software Measurement**  
 November 5-6, 2015, Cologne, Germany  
 see: <http://www.metrikon.de/>
- ICSEA 2015**      **10<sup>th</sup> International Conference on Software Engineering Advances**  
 November 15 - 20, 2015, Barcelona, Spain  
 see: <http://www.iaria.org/conferences2015/ICSEA15.html>

**December 2015:**

- PROFES 2015:** **16<sup>th</sup> International Conference on Product Focused Software Process Improvement**  
 December 2 - 4, 2015, Bolzano, Italy  
 see: <http://profes2015.inf.unibz.it/>
- ICSEFM 2015**      **XIII International Conference on Software Engineering and Formal Methods**  
 December 13 - 14, 2015, Melbourne, Australia  
 see: <https://www.waset.org/conference/2015/12/melbourne/ICSEFM>

see also: Conferences Link of [Luigi Buglione](http://www.semq.eu/leng/eveprospi.htm) (<http://www.semq.eu/leng/eveprospi.htm>)

See the GI-Web site <http://fg-metriken.gi.de/> for the digital contents of the Software Measurement News:



Help to qualify the software measurement knowledge and intentions in the world wide web:

**Software measurement**

From Wikipedia, the free encyclopedia

Software measurement is a quantified attribute (see also: measurement) of a characteristic of a software product or the software process. It is a discipline within software engineering. The content of software measurement is defined and governed by ISO Standard ISO 1593 (software measurement process).

**Further reading**

- Norman Fenton, Shari L. Pfleeger: *Software metrics: a rigorous and practical approach* PWS Publishing Co., Boston, MA, USA ISBN 0-534-95600-9
- Christof Ebert and Reiner Dumke: *Software Measurement* Springer, New York 2007, ISBN 978-3-540-71648-8

This software measurement-related article is a stub. You can help Wikipedia by expanding it.

**Software metric**

From Wikipedia, the free encyclopedia

A software metric is a measure of some property of a piece of software or its specifications. Since quantitative measurements are essential in all sciences, there is a continuous effort by computer science practitioners and theoreticians to bring similar approaches to software development. The goal is obtaining objective, reproducible and quantifiable measurements, which may have numerous valuable applications in schedule and budget planning, cost estimation, quality assurance testing, software debugging, software performance optimization, and optimal person task assignments.

**Common software measurements**

Common software measurements include:

- Balanced scorecard
- Bugs per line of code
- Code coverage
- Cohesion

See our further software measurement and related communities:

[www.dasma.org:](http://www.dasma.org/)



The screenshot shows the DASMA website homepage. On the left, there is a sidebar with links to Startseite, Inhalt, and various sections like Wir über uns, Leistungen, Mitgliedschaft, etc. Below the sidebar are logos for CMMI, SMI Lab, and IWT. The main content area features a large image of a conference room with people seated at tables and a speaker on stage. Above the image, the text reads "Deutschsprachige Anwendergruppe für Software-Metrik und Aufwandschätzung e.V." and "Welcome to DASMA! << >>". To the right, there is a section titled "AKTUELLES" (News) with several bullet points about upcoming events like MetriKon 2015, DASMA Zukunftspreis 2015, and IWSM-MENSURA 2015 CFP.

[www.isbsg.org:](http://www.isbsg.org/)



The screenshot shows the ISBSG website homepage. At the top, it says "The global and independent source of data and analysis for the IT industry". Below that is a navigation bar with links to Home, Industry Data, Data Portal, Reports & Services, Industry Tools, Academic, About Us, Member Countries, and Contact. The main content area has two main sections: "Software Development & Enhancement" and "Software Maintenance & Support". Under "Software Development & Enhancement", there is a link to "Software Development & Enhancement". Under "Software Maintenance & Support", there is a link to "Software Maintenance & Support". There are also links for "Purchase ISBSG products", "Subscribe and receive exclusive benefits", "Sign up for our free newsletter", and "Submit data and be rewarded". At the bottom, there is a section for "Case Studies" and a "News" section with a link to "New Report-Performance by Country". A logo for SEER is visible on the right.

**www.cecmsg.de:**

The screenshot shows the homepage of cecmg.de. At the top, there's a navigation bar with links for 'Startseite', 'Veranstaltungen', 'ceCMG', 'Information', and 'Downloads'. Below the navigation is a banner for 'ceCMG 2013' featuring several small photos of people. The main content area has a large yellow box announcing the 'Jahrestagung 2013' from March 6-7, 2013, in Gelsenkirchen. It includes a link to 'Sponsoring Jahrestagung 2013' and a note about two days of presentations. To the right, there's a sidebar for 'Aussteller/Sponsoren der Jahrestagung 2013' listing '25T', 'Intercom Computer Systems', and 'NextStride' as exhibitors.

**www.mai-net.org:**

The screenshot shows the homepage of MAIN (Metrics Associations' International Network). The top navigation bar includes links for 'Home', 'Associations', 'Organizations', 'Conferences and Events', 'Projects', 'Member Login', 'Username', 'Password', and 'Logout'. Below the navigation, it says 'MAIN is an international network of autonomous software metrics associations.' and 'Presentation by Harald Burchert'. The main content area is divided into 'Aims' and 'Objectives'. The 'Aims' section lists running conferences, initiating projects, and providing a website. The 'Objectives' section lists exchanging experience, promoting measurement usage, harmonizing measurement issues, developing a knowledge database, and creating standards. There's also a 'News from MAIN Associations' section featuring AEMES TI from Spain.

**www.swebok.org:**

The screenshot shows the homepage of IEEE Computer Society's SWEBOK. The top navigation bar includes links for 'Publications', 'Conferences', 'Digital Library', 'Jobs Board', 'e-Learning Campus', 'Certification & Training', 'Communities', 'Store', 'Contact', 'SWEBOK Home', 'SWEBOK V3', 'Sponsorship', 'FAQ + Resources', 'Worldwide Usage', 'Translations', and 'Get Involved'. The main content area features a photo of a group of people stacking their hands. The 'SWEBOK' logo is prominently displayed. Below the photo, there's a section titled 'Coming soon: a new SWEBOK Guide' with information about the refresh of the guide. To the right, there's a 'VOLUNTEER' section and a 'SWEBOK news' section with a link to 'Read more'.

### [isern.iese.de:](http://isern.iese.de/)

The screenshot shows the homepage of the International Software Engineering Research Network (ISERN). The header reads "ISERN International Software Engineering Research Network". The left sidebar contains a navigation menu with links to Home, Courses, Main menu, Welcome to ISERN, ISERN Manifesto, ISERN Members, History, Biography, Site news, Contact, Imprint, and Data Protection. The main content area includes sections for General Information (with links to ShortDescription, Manifesto ISERN, Members, and Biography), ISERN Communication (describing the purpose of the page to foster collaboration, co-authorship, research projects, meeting lists, news, Member Pages, publishing results, and registration for meetings), and ISERN Meetings (listing past and future meetings supported by various institutions like University of Guelph, Canada, and Land University Dresden).

### [www.pmbok.org:](http://www.pmbok.org/)

The screenshot shows the "PMBOK® Guide and Standards" page on the Project Management Institute (PMI) website. The top navigation bar includes links for Home, About, Join, Contact, Help, My Profile, Log In / Register, and Search. The main content features a banner for the "PMBOK® Guide and Standards" with a callout for "New Editions of PMI's Foundational Standards". Below this, there is a section titled "Standards Overview" with a note about global standards providing guidelines, rules, and characteristics for project, program, and portfolio management. To the right, there is a "Quick Links" sidebar with links to PMI Standards Navigator, Library of PMI Digital Standards, PMBOK® Guide, Standards Department Email, and Current PMI Standards Projects.

### [www.smlab.de:](http://www.smlab.de/)

The screenshot shows the homepage of the Software Measurement Laboratory (SMLab). The header reads "Virtuelles Softwaremesslabor der Uni Magdeburg". The main navigation menu includes "Current Events", "DWSM/Mausure Conference", "EBOA Workshop", "Maetrics Conference", "General Informations", "Conferences", "Measurement Approaches & Tools", "Software Measurement News", "Books", "PhD Thesis'", "Master / Diploma/ Bachelor Thesis'", "Publications", "Measurement Education", and "Keywords & Research Topics". Logos for various partners like DSTA, cecmg, ISBSG, and others are displayed along with a banner for the "Software Measurement Laboratory SMLab".

[www.psmsc.com/](http://www.psmsc.com/):

The screenshot shows the official PSM website. At the top, there's a logo with the letters 'PSM' in blue and red, set against a grid background. The main title 'Practical Software & Systems Measurement' is displayed in a large, bold, blue font. Below it, a subtitle reads 'Objective Information for Decision Makers'. A horizontal menu bar with links to 'HOME', 'PRODUCTS', 'SERVICES', 'EVENTS', 'FORUM', and 'CONTACTS' follows. On the left side, there's a sidebar with a vertical list of links: 'PSM MANAGER', 'ABOUT PSM', 'ISO/IEC 15939', 'PSM MEMBERS', 'PARTICIPATION', and 'PSM AWARDS'. The main content area features a heading 'Welcome to the Official PSM Web Site!' and a sub-section titled 'PSM Users' Group' with a link to 'Additional Information'. A descriptive paragraph explains what PSM is, mentioning its purpose to address unique technical and business goals for software and system acquisition and engineering communities. At the bottom of the main content area, there's a bulleted list of two points: 'Is sponsored by the Department of Defense and the US Army' and 'Provides Project Managers with objective information needed to successfully meet cost, schedule, and technical objectives'.

[sebokwiki.org/wiki/Measurement](http://sebokwiki.org/wiki/Measurement):

The screenshot shows a wiki page for 'Measurement' on the SEBoK (Systems Engineering Body of Knowledge) website. The page has a header with a 'Page Read' button, a 'View source' button, a 'Go' button, and a 'Search' button. The main title is 'Measurement'. Below the title, there's a section titled 'Measurement' with a brief description. The text discusses how measurement and analysis are fundamental elements of systems engineering (SE) and technical management, providing information for effective management of processes and evaluation of product or service quality. It also mentions that measurement supports realistic planning, provides insight into actual performance, and facilitates assessment of suitable actions. The page continues with a detailed explanation of how appropriate measures and indicators are used in tradeoff analyses to balance cost, schedule, and technical objectives. It highlights the importance of periodic analysis of relationships between measurement results and review of requirements and attributes of the system to identify issues early. Historical data, project context, and organizational information are mentioned as forming the basis for predictive models and methods. At the bottom of the page, there's a 'Contents [hide]' button and a link to '1 Fundamental Concepts'.

[www.fisma.fi/in-english/:](http://www.fisma.fi/in-english/)

The screenshot shows the FISMA website's homepage in English. The header includes the FISMA logo and navigation links: SPIN, Perustiedot, Toiminta, Kalenteri, Uutiset, Yhteyshetki, In English. The main content area features a blue and green background with text about FISMA's mission to improve software measurement. It lists membership benefits, participation in standardization, and upcoming events like Research Forum 1\_2015 and Scope Manager Forum. A sidebar on the right contains a search bar and a calendar section.

[www.wagse.informatik.uni-kl.de/research/:](http://www.wagse.informatik.uni-kl.de/research/)

The screenshot shows the website for the Software Engineering: Processes and Measurement Research Group at Technische Universität Kaiserslautern. The header includes the TU Kaiserslautern logo and the group's name. The main menu on the left has options: Home, Teaching, Research, Staff, Publications, Job Offers, Networks, and Partners. The Research page features a red banner for "Current Research" and a section titled "Automotive, Railway and Avionics Multicore Systems (ARAMiS)". Below this, there is a link to the project website and contact information. A note at the bottom states that the German Ministry of Education and Research supports the group.

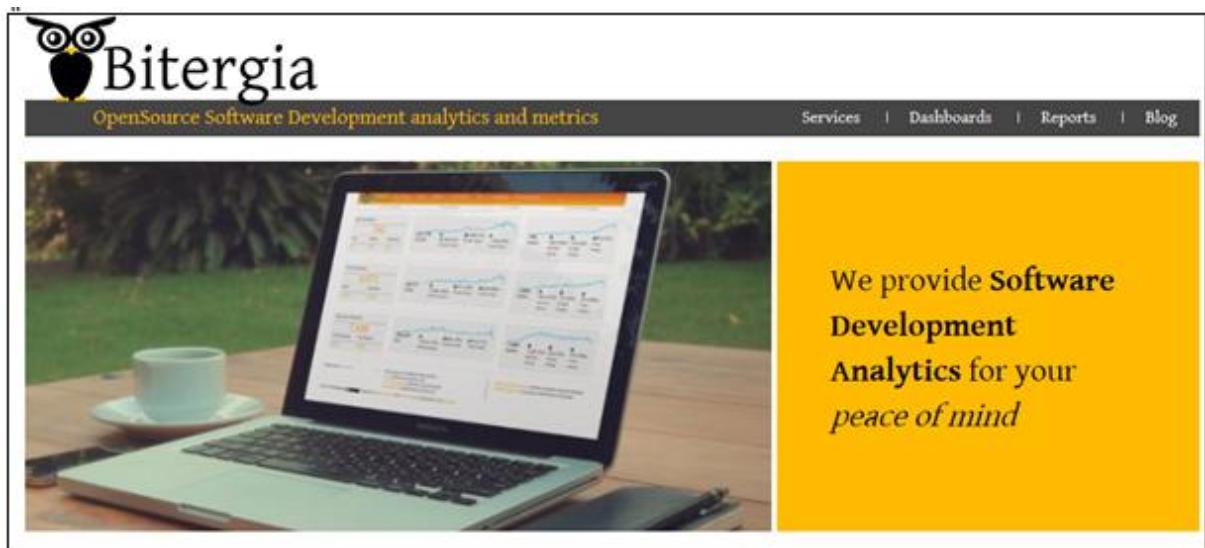
[http://nesma.org/:](http://nesma.org/)

The screenshot shows the NESMA website's homepage. The header features the NESMA logo. The main content area has a large orange banner with the text "Estimating" and a subtitle: "It is not about the size. Estimating is the translation of size to the things that really matter: time and money." Below the banner are two buttons: "SHOW ME THE MONEY" and "GIVE ME SOME TIME". At the bottom of the page, a footer bar contains the text "Your starting point for software measurement and software".

**[www.sei.cmu.edu/measurement/](http://www.sei.cmu.edu/measurement/):**



**[bitergia.com/](http://bitergia.com/):**



# **SOFTWARE MEASUREMENT NEWS**

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