

7:00 a.m. – 8:00 a.m.	Continental Breakfast with Sponsors/Exhibitors Today's Exhibits Open 7:00 a.m. – 1:30 p.m. Registration/Bookstore Open 7:00 a.m. – 1:30 p.m.			
8:00 a.m. – 8:15 a.m.	Opening Remarks: Granville Jones and Linda Westfall, ICSQ'07 Conference co-chairs			
8:15 a.m. – 9:30 a.m.	KEYNOTE ADDRESS: Richard Turner – A Survival Primer for Process Improvement Explorers			
9:30 a.m. – 10:00 a.m.	Refreshments and Networking with Sponsors/Exhibitors			
10:00 a.m. – 11:00 a.m. Concurrent Sessions	Session E1: Software Change for GMP Systems Roneil Narciso	Session E2: World Challenges for Software Quality: Status Report WCSQ Thought Leaders (Taz Daughtrey)	Session E3: Back to the Basics with Performance Testing Danielle Pugh	Session E4: The Dirty 30 Process for Six Sigma Software Invited Speaker: Jay Arthur
11:15 a.m. – 12:15 p.m. Concurrent Sessions	Session F1: Risk-Based Configuration Control – Balancing Flexibility with Stability Linda Westfall	Session F2: World Challenges for Software Quality: Workshop WCSQ Thought Leaders (Taz Daughtrey)	Session F3: Convergent Test Framework for a Changing World V. Ramamurthy	Session F4: A Framework to Compare Software Process Assessment Methods for Small Organizations Mohammad Zarour Jean-Marc Desharnais Alain Abran
12:15 p.m. – 1:30 p.m.	Lunch and Networking with Sponsors/Exhibitors Hot-Topic Lunch Table Discussions (Tables Marked)			
1:30 p.m. – 2:30 p.m. Concurrent Sessions	Session G1: TBD Speaker	Session G2: ISO 25012 – An International Standard for Data Quality Mike Kress	Session G3: Best Practices in Test Automation Marc O'Brien	Session G4: I've Been Asked to Review this Software Specification – Now What Do I Do? Karen Bishop-Stone
2:30 p.m. – 3:00 p.m.	Refreshments and Networking			
3:00 p.m. – 4:00 p.m. Concurrent Sessions	Session H1: Morale Improvements in Software Development Teams Using the TSP Ricardo Garza	Session H2: Management Commitment to Quality Requires Measures John Balza	Session H3: A Case for Test Generation Approach (FAST) Yuval Mazor	Session H4: There's More to Software Process Improvement than CMMI Ally Gill
4:00 p.m. – 4:30 p.m.	Closing Address: Software Division			



### 8:15 a.m. – 9:30 a.m. Wednesday's Keynote Speaker: A Survival Primer for Process Improvement Explorers – Richard Turner

**Abstract:** Adopting CMMI (or any other process improvement initiative) can seem like navigating a jungle full of unknown dangers, pitfalls, and false paths. No matter where you are in your process improvement journey, there are a lot of reasons why you might need some help in making it through tough issues. If you are just starting out, you'll need to survey the territory, consult maps, talk to other explorers, look into hiring guides, and maybe reconsider whether you really need to take that trip after all.

Richard Turner, co-author of *CMMI Survival Guide: Just Enough Process Improvement*, provides insights into how you can not only survive, but thrive in your process improvement journey. He discusses scouting out what you need to know (or should have known) about your environment and process improvement and looks at the skills and knowledge you need to have through the lens of the US Army Survival Guide.

**Bio:** Dr. Richard Turner, a Fellow at the Systems and Software Consortium, is a respected researcher and consultant with 30 years of international experience in systems, software, and acquisition engineering. Before joining the Consortium in 2005, he was a Research Professor at The George Washington University, where he taught graduate courses and directly supported Department of Defense software and system acquisition improvement activities. He still collaborates with a wide range of research organizations and system developers to transition new software-related technology to defense acquisition programs. Prior to the university, he worked for the Federal Aviation Administration and several engineering firms addressing the needs of defense, intelligence, and other government agencies.

He is co-author of three books: *Balancing Agility and Discipline: A Guide for the Perplexed* (Addison-Wesley, 2004), co-written with Barry Boehm, *CMMI<sup>SM</sup> Distilled* (Addison-Wesley 2000, 2004), with Dennis Ahern and Aaron Clouse, and *CMMI Survival Guide: Just Enough Process Improvement*, co-authored with Suzanne Garcia.

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## 10:00 a.m. - 11:00 a.m. Concurrent Sessions:

### Session E1: Speaker: Roneil Narciso - Software Change for GMP Systems

**Summary:** Roneil Narciso steps through the different phases of a change control process for use in an FDA regulated environment and provide key requirements/ functionality in selecting a tool to help facilitate the process. Watch a demonstration and gain a better understanding of certain steps that are necessary to ensure changes are implemented in a controlled fashion.

**Abstract:** The IT industry is in constant flux as current technology quickly replaces legacy systems. Companies, especially ones in regulated environments, must keep up to ensure that the benefits of new technology are realized by their employees in terms of increased productivity and gained competitive advantages. At the same time, the newly established technologies disrupt current best practices that fail to capture these new technological areas. As a result, a balanced approach is required to ensure that the flexibility of making a change is coupled with sufficient control to mitigate risks that have the potential to introduce problems in a production environment. Three factors are necessary to ensure robust change control: process, people, and technology. By establishing a process that adapts to changes in technology and establishing the components that are necessary in making a change, this will ensure that changes are performed in a consistent and repeatable manner. Providing a content rich and effective training module along with a training feedback loop to ensure employees skills are kept up to date and/or corrected will ensure process deviations are kept at a minimum. Lastly, the use of technology to automate any steps and to assist in facilitating the process should ensure that a change is completed in an efficient manner and should help reduce costly human errors.

**Bio:** Roneil Narciso is a senior ASQ, CSQE certified member and has been an ASQ member since 1999. He has 10 years of experience in the bio-pharmaceutical industry in areas of change management (change control, SQA and validation testing). He currently works in Genentech's Corporate IT department as an IT Functional Analyst. He has an M.S. in Information Systems from the University of San Francisco and is currently pursuing an MBA at Santa Clara University.

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### Session E2: Facilitator: Taz Daughtrey - WCSQ Thought Leaders World Challenges for Software Quality: Status Report

**Summary:** Leading practitioners have begun a process of defining "World Challenges for Software Quality," which will be the basis for a major international campaign of research and collaboration. Participating thought leaders will share their progress to date and describe how these challenges will be highlighted at conferences of the World Congress for Software Quality in 2008 and 2011.

**Abstract:** The World Congress for Software Quality (WCSQ), a major international gathering of software quality professionals begun in 1995, has scheduled its fourth conference for 15-18 September 2008, in Bethesda, Maryland. WCSQ has been a partnership of the ASQ Software Division, the Software Group of the European Organization for Quality, and the Union of Japanese Scientists and Engineers.

"World Challenges for Software Quality" is a framework for concerted action that will be launched at WCSQ 2008. We are seeking to build a worldwide network of collaborating professionals, specifically directed at a three-year initiative to enhance the reliability, security, and empowering value of software-based systems... to be reported on at WCSQ 2011.

We have asked a number of "thought leaders" to help identify key issues that will provide a highly visible focus of applied research and technology transfer, to be communicated through a range of publications, websites, and workshops. To date, the individuals who have agreed to join in this process include Carol Dekkers, Tom Gilb, Watts Humphrey, Joe Jarzombek, Capers Jones, Tim Kasse, Herb Krasner, Gary McGraw, Mark Paulk, and Gerald Weinberg.

This presentation will announce these challenges and describe how work groups will be assembled to organize WCSQ 2008 around these themes.

**Bio:** Taz Daughtrey serves as Executive Director of the World Congress for Software Quality. He has taught in the Computer Science Department at James Madison University's for the past six years, after a lengthy industry career. A Fellow of the American Society for Quality, Taz was the Founding Editor of the Society's peer-reviewed journal SOFTWARE QUALITY PROFESSIONAL and has helped edit two volumes of FUNDAMENTAL CONCEPTS FOR THE SOFTWARE QUALITY ENGINEER for Quality Press. He has taught and consulted on a wide range of software assurance and management topics throughout North America, Europe, and Japan.

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### Session E3: Speaker: Danielle Pugh - Back to the Basics with Performance Testing

**Summary:** As we move into the culture of acquisitions and mergers, how do you define your quality process? Are we able to accommodate the increase in workload without increasing the manpower? At Chase we believe that every project should follow the same basic process, regardless of scope or priority. By educating our project managers on this process we seamlessly integrate into their project plans to meet business deliverables and deadlines.

Danielle Pugh will walk you through the project life cycle, via a performance tester's perspective. Process, traceability, templates, accountability, and other mechanisms to make sure that our customers receive a quality testing experience, every time.

**Bio:** Danielle Pugh is Assistant Vice President of Retail Strategic Performance Testing at JP Morgan Chase, a leader in investment banking, financial services for consumers and businesses, financial transaction processing, asset and wealth management and private equity.

With over ten years' experience in systems engineering, Ms. Pugh joined JP Morgan Chase in March of 2005.

Danielle works with a team that provides technology consulting services for JP Morgan Chases Retail Line of Business. This group is an elite provider of end-to-end performance testing, capacity planning, and monitoring services to over 500 applications inside and outside the Retail line of business.

Pugh has a B.S. in Management and Marketing from Augustana College, Rock Island, IL, is a Microsoft Certified Systems Engineer (MCSE), a Certified Software Quality Analyst (CSQA) and ITIL certified.

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### Session E4: INVITED SPEAKER: Jay Arthur - The Dirty 30 Process for Six Sigma Software

**Summary:** While most software quality efforts focus on requirements, design, code and test, this method focuses on fine tuning *delivered* software. Yes, it would be better to prevent the kind of problems we see in software, but applications continue to be written by people using requirements and designs than can be flawed. Software is rarely released, it *escapes*.

IT managers and application users often expect a new software project or enhancement release of an application to be flawless, and then are stunned by the additional staffing required to stem the tide of rejected transactions.

The secret is to:

1. Quantify the cost of correcting these rejected transactions
2. Understand the Pareto pattern of rejected transactions
3. Analyze 30 rejected transactions one by one to determine the root cause
4. Revise the requirements and modify the system to prevent the problem

**Abstract:** Quantify the Costs - The first step in the "Dirty Thirty" process is to identify the number of rejected transactions and the associated costs. In working with one wireless company, we found a 17 percent level of rejected service orders (170,000 parts per million).

Understand the Pareto Pattern - All systems have routines to accept, modify, or reject incoming transaction data. These are assigned error codes and dumped into error buckets to await correction. In the service order system, the application handled much of the modification, but it still left significant quantities of defects to be corrected manually:

Analyzing the Dirty Thirty - The next step is to convene root cause teams to investigate 30 rejects of each error type. It took a week or more to get the right people in the room to investigate each type of error. The right people included the IT systems analyst, error correction people, and service order entry. By restricting ourselves to just one error type per team, we were able to find the root causes in just one half day meeting per team.

Analyze the Results - It took four months to implement the revisions, but it was worth it. By midyear, the changes *completely eliminated the two top service-affecting errors, and three of the four record-affecting changes*. It cut total errors from 31,121 down to 23,954 per month—a 77 percent reduction in total errors. This reduction translated to \$299,426/month in savings—over \$3 million per year.

**Bio:** Jay Arthur, the KnowWare Man, works with companies that want to fire up their profits using Lean Six Sigma. He is the author of Lean Six Sigma Demystified (McGraw-Hill 2007) and the QI Macros SPC software for Excel.

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### 11:15 a.m. - 12:15 p.m. Concurrent Sessions:



#### Session F1: Speaker: Linda Westfall - Risk-Based Configuration Control - Balancing Flexibility with Stability

**Summary:** Explore the concepts of risk-based software configuration control. Linda Westfall identifies analysis factors you can utilize when determining the level of configuration control that is appropriate for your programs/project. You will learn techniques that you can use to help your programs/projects maintain the necessary balance between flexibility and stability in your software configuration control practices, as software moves through the life cycle. These techniques include:

1. Selecting the appropriate type and level of control for each software artifact

2. Selecting the right acquisition point for each configuration item
3. Utilizing multiple-levels of formal control authority

**Abstract:** There is a dichotomy in software configuration management. On one side, individual developers need the flexibility necessary to do creative work, to modify code to try out what-if scenarios, and to make mistakes, learn from them and evolve better software solutions. On the other side, teams need stability to allow code to be shared with confidence, to create builds and perform testing in a consistent environment, and to ship high-quality products with confidence. This requires an intricate balance to be maintained. Too much flexibility can result in problems including, unauthorized and/or unwanted changes, the inability to integrate software components, uncertainty about what needs to be tested and working programs that suddenly stop working. On the other hand, enforcing too much stability can result in costly bureaucratic overhead, delays in delivery, and may even require developers to ignore the process in order to get their work done.

This presentation explores risk-based software configuration control. It also examines techniques that can be used to help maintain this necessary balance between flexibility and stability, as software moves through the life cycle. These techniques include:

- Selecting the appropriate type and level of control for each software artifact
- Selecting the right acquisition point for each configuration item
- Utilizing multiple-levels of formal control authority

**Bio:** Linda Westfall is the President of The Westfall Team, which provides Software Engineering, Software Quality and Software Project Management training and consulting services. Prior to starting her own business, Linda was the Senior Manager of Quality Metrics and Analysis at DSC Communications where her team designed and implemented a corporate wide metrics program. Linda has more than thirty years of experience in real time software engineering, quality and metrics. She has worked as a Software Engineer, Systems Analyst, Software Process Engineer and Manager of Production Software.

Very active professionally, Linda Westfall is a past chair of the American Society for Quality (ASQ) Software Division. She has also served as the Software Division's Program Chair and Certification Chair and on the ASQ National Certification Board. Linda is a past-chair of the Association for Software Engineering Excellence (ASEE) and chaired several conference program committees.

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### **Session F2: Facilitator: Taz Daughtrey - WCSQ Thought Leaders - World Challenges for Software Quality: Workshop**

**Summary:** Leading practitioners have begun a process of defining "World Challenges for Software Quality," which will be the basis for a major international campaign of research and collaboration. This session will invite those in attendance at the conference to provide their own responses to the proposed topics. These insights will be incorporated into planning for the World Congress for Software Quality conference in 2008, and participants will be invited to join in its ongoing development.

**Abstract:** The World Congress for Software Quality (WCSQ), a major international gathering of software quality professionals begun in 1995, has scheduled its fourth conference for 15-18 September 2008, in Bethesda, Maryland. WCSQ has been a partnership of the ASQ Software Division, the Software Group of the European Organization for Quality, and the Union of Japanese Scientists and Engineers.

"World Challenges for Software Quality" is a framework for concerted action that will be launched at WCSQ 2008. We are seeking to build a worldwide network of collaborating professionals, specifically directed at a three-year initiative to enhance the reliability, security, and empowering value of software-based systems... to be reported on at WCSQ 2011.

We have asked a number of "thought leaders" to help identify key issues that will provide a highly visible focus of applied research and technology transfer, to be communicated through a range of publications, websites, and workshops. To date, the individuals who have agreed to join in this process include Carol Dekkers, Tom Gilb, Watts Humphrey, Joe Jarzombek, Capers Jones, Tim Kasse, Herb Krasner, Gary McGraw, Mark Paulk, and Gerald Weinberg.

This workshop will follow up on the presentation of these proposed challenges and gather a wider range of insights for organizing WCSQ 2008.

**Bio:** Taz Daughtrey serves as Executive Director of the World Congress for Software Quality. He has taught in the Computer Science Department at James Madison University's for the past six years, after a lengthy industry career. A Fellow of the American Society for Quality, Taz was the Founding Editor of the Society's peer-reviewed journal SOFTWARE QUALITY PROFESSIONAL and has helped edit two volumes of FUNDAMENTAL CONCEPTS FOR THE SOFTWARE QUALITY ENGINEER for Quality Press. He has taught and consulted on a wide range of software assurance and management topics throughout North America, Europe, and Japan.

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### **Session F3: Speaker: V. Ramamurthy - Convergent Test Framework for a Changing World**

**Summary:** It is common issue that changes in the software specification affect test automation during the every stage of software evaluation. The most distressing element in such an environment is the scripts that are needed to do enormous changes, which doubtlessly, is a tiresome task requiring a huge amount of effort. Hence the test automation architect has to propose appropriate framework(s) that can drive the functional testing of the application under test (AUT) in a faster and more efficient way. With the appropriate framework, any changes in the software functionality, like menu changes, can be handled quickly with the minimal changes in the test suites scripts. This allows scripts to be executed as part of the AUT test procedure with minimal changes.

**Abstract:** Huge amount of ground work is needed to choose a right framework in an environment where the frequency of changes in the application is more. Combination of hybrid and modular driven framework, named as converge driven approach is proposed to verify the functional specification of the application under test and also the performance and regression testing to ensure that the framework able to handle various changes in software.

**Bio:** Valavdan Ramamurthy hails from industry city, Coimbatore. With 12 years of industry experience, he carries a professional certification in telecommunication, hardware and real-time simulation. His strengths are service oriented architecture, embedded system, automation framework and test automation and test management

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#### **Session F4: Speaker: Mohammed Zarour, Dr. Jean-Marc Deshamais and Dr. Alain Abran - A Framework to Compare Software Process Assessment Methods for Small Organizations**

**Summary:** Learn about a proposed framework to compare software process assessment (SPA) methods dedicated to small and very small organizations through a set of characteristics. These characteristics provide the users of this framework with useful and informative data about the compared SPA methods. Such comparisons are useful for both designers of new assessment methods and users (organizations) that want to start an improvement initiative and need to decide which method to use in assessing the current organization's processes. The proposed framework is applied to seven SPA methods dedicated for small and very small organizations.

**Abstract:** It is a challenge for small and very small organizations to adopt software process improvement models and the associated assessment methods to improve their software process. A number of customized assessment methods based on SPI models, such as CMM/CMMI and ISO 15504, have been proposed to fit the needs of such organizations. To help them select an assessment method relevant to their needs, this paper presents a framework to compare SPI methods dedicated to small and very small organizations?.

**Bio::** Mohammad Zarour is a Jordanian and permanent resident in Canada. He is a PhD student at ETS, University of Quebec with undergraduate and graduate degrees (master) in Computer Science, University of Jordan, Amman, Jordan. His research interest is Software Process Assessment and Improvement. Mohammed is a member of the Canadian delegation of ISO/IEC JTC1/SC7 Working Group 24 – Software Life Cycle for Very Small Enterprises, Feb-2007. His co-authored *Very Small Enterprises (VSE) Quality Process Assessment* and *Initiating Software Process Improvement with a light model for Small Enterprise: Our Experience* presented at 3rd International Workshop on Quality of Information and Communication Technologies, Cuba, 2007.

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#### **1: 30 p.m. - 2:30 p.m. Concurrent Sessions:**

##### **Session G1: Speaker: Be Announced**



##### **Session G2: Speaker: Mike Kress - ISO 25012: An International Standard for Data Quality**

**Summary:** Managing and enhancing the quality of data is essential in today's interoperable world. The quality of data from computer systems from various organizations, agencies, institutions that are dependent on the data is often unplanned and therefore unknown. There is a need for homogenous criteria for definitions, classifications, authorization, and cancellation procedures. The purpose of the ISO 25012 international standard is to prompt creators of large and small scale data bases to observe predefined criteria, which will enable them to evaluate the quality of data, set up integrated and interoperable data bases, reduce ambiguity, avoid redundancy, promote ease of data maintenance, and promote reliable, secure data bases. High quality data serve authorized end-users, and facilitate the migration among computer systems when different data bases are merged.

Mike Kress explains the evolution of ISO 25012, how data differs from software in its creation and maintenance and how data undergoes different processes of appraisal, cleansing, matching, transformation, and finally, archiving for display on the dashboards of the users.

**Abstract:** Managing and enhancing the quality of data is essential in today's interoperable world. The enormous quantity of information handled and the plethora of subjects have a shared responsibility at various levels. The quality of data from computer systems from various organizations, agencies, institutions that are dependent on the data is often unplanned and therefore unknown. The existence of defective (incomplete, incorrect, imprecise, obsolete, inconsistent, invalid, unauthenticated, untimely) data contributes to unsatisfactory information, unusable results and dissatisfied customers. Data is often captured in accordance with the workflow needs of a single organization. It often lacks a coherent, integrated and transversal vision which is necessary to ensure interoperability and co-operation. For example, data on a single patient is often shared by various physicians, pharmacists, nurses, insurance and hospital staff. Incorrect, obsolete or ambiguous data can lead to serious medical and/or financial consequences.

There is a need for homogenous criteria for definitions, classifications, authorization and cancellation procedures. Legacy architectures and distributed systems in the same organization, often with different data bases, inevitably lead to problems of maintainability, replication, redundancy, alignment, and coherence. Data should meet predefined criteria and requirements of the computer system or systems in which they will operate. The purpose of this international standard is to prompt creators of large and small scale data bases to observe predefined criteria which will enable them to evaluate the quality of data, set up integrated and interoperable data bases, reduce ambiguity, avoid redundancy, promote ease of data maintenance and promote reliable, secure data bases. High quality data serve authorized end-users, and facilitate the migration among computer systems when different data bases are merged.

**Bio:** Mike Kress is an Associate Technical Fellow within Boeing Commercial Airplanes. He has over 30 years experience in military and commercial aviation hardware and software. He has written guidebooks for the U.S. Air Force on trainer and simulator software. He holds a Bachelor's degree in Electrical Engineering, is a Fellow member of ASQ and holds ASQ CQE and CSQE certifications and is a Registered Professional Engineer. He has led several Boeing and industry advisory groups that have written or contributed toward software standards, most notably RTCA/DO-178B and AS9006. He is the principal author of D1-9001, a Boeing modified

version of the SEI CMM. He is a former ASQ Software Division Regional Councilor and past chair of the ASQ Software Division. He is a member of the U.S. Technical Advisory Group to ISO/IEC TC176 SC7 and is co-editor of ISO standards on COTS software and Data Quality. He is an RAB/QSA registered QMS and Aerospace Industry Experience Auditor.

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### Session G3: Speaker: Marc O'Brien - Best Practices in Test Automation

**Summary:** Advanced design and programming techniques in test automation enable the development of a large amount of high quality, and maintainable test code. Get new ideas for improving your test automation practices from Marc O'Brien as he shares techniques and lessons learned from over 12 years of experience doing test automation.

**Abstract:** In the past 12 years that I've been doing test automation I have observed the following:

1. Capture/replay is not test automation.
2. Test automation must be treated as a software development project with a defined software development lifecycle.
3. There are many common problems in test automation, e.g. unrealistic expectations, maintenance, technical problems with the tools, lack of commitment from management.
4. Some tests are ideally suited for automation; others should probably never be automated.
5. Good design is critical to success. Often test suites are developed that are difficult or impossible to maintain.
6. Automated tests should be designed differently from manual tests to ensure maximum productivity and minimal rework, e.g. data-driven tests.
7. A well designed automated test should have the following characteristics:
  - a. It has a clearly stated objective.
  - b. Is independent of other test cases.
  - c. Starts from and returns to a known state.
8. Several common 'patterns' can be implemented to greatly increase both the level of productivity and maintainability of the test code.
9. Good object oriented design and coding principles should be used, for example, layers of abstraction, inheritance, and polymorphism.

**Bio:** Marc O'Brien has been a member of the ASQ since 1997 and is a Certified Quality Manager and Certified Software Quality Engineer. He has over 20 years in the software the software industry, half of that in test automation. At the Segue Quest 2001 International Users Conference in Florida he presented "Managing a Large Scale Automation Project for Quality". He is currently the Test Automation Lead on the Maritime Helicopter Project (the replacement for Canada's Sea King military helicopters).

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### Session G4: Speaker: Karen Bishop-Stone - I've Been Asked to Review this Software Specification - Now What Do I Do?

**Summary:** Errors found during system level testing can be as much as 90 times more expensive to correct than when uncovered during the document creation process. Studies have shown that effective document reviews at the requirements, analysis, and design phases of the software development life cycle uncover as many as 80% of the defects within the system. The evidence speaks to the effectiveness of the outcomes but few software professionals are trained in actual techniques and methods for performing the task of reviewing a document. Learn to apply review preparation techniques and document analysis methods that will improve your reviews.

**Abstract:** By the end of this session attendees will be able to:

- Define the roles and responsibilities of a member of a documentation review team.
- Apply review preparation techniques and documentation analysis methods.
- Describe the techniques' appropriateness for various types of work products.

Business Solution: The following techniques and methods will be discussed

- Check Lists
- Requirements Mapping
- Prioritization
- Data Reconciliation
- Contingency Planning
- Functional Comparison

Business Results: A hundred pages of documentation for your review have just been dumped on your desk with a meeting schedule attached. Now what do you do? You can ignore the task assuming that the other team members will perform magic. Or you can read

the document cover to cover and start day dreaming around page 8. Or you can use one of several preparation techniques which will make your review task comprehensive and enjoyable.

**Bio:** Karen Bishop-Stone has taught seminars on Software Testing and Quality Assurance Management internationally since 1980 and is a international conference lecturer on software life cycle testing methodologies. She has recently managed testing in eleven states for a large, complex federally mandated program. She has been certified and as a Certified Software Quality Analyst with the American Society of Quality as a Certified Software Test Engineer with the Quality Assurance Institute. Ms. Bishop-Stone is the principal owner of Testware Associates, Inc., a firm dedicated to the independent testing and quality management of software.

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### 3:00 p.m. - 4:00 p.m. Concurrent Sessions:

#### Session H1: Speaker: Ricardo Garza - Morale Improvements in Software Development Teams Using the TSP

**Summary:** A common myth in the software arena is that highly disciplined processes go against the team morale. This presentation shows hard evidence against this asseveration. Knowledge workers cannot be effectively managed in the same way as traditional more labor intensive teams; in fact they should manage themselves. In order to be effective, they should be able make commitments within their team and with management, to become cohesive and act toward a common goal. Their ability to be successful is highly dependent on their internal morale. The presented data compares two highly mature processes, a CMMI Level 5 Organization and the Team Software Process (TSP) implemented in the same organization: Softek Near Shore Services. The data shows that TSP morale results are even better than CMMI level five's.

**Abstract:** Knowledge workers aren't effectively managed as traditional more labor intensive teams; in fact they should manage themselves. In order to be effective they should be able make commitments within them and with management, to become cohesive and act toward a common goal. Their ability to be successful is highly dependent on their internal morale.

We at Softek (a Near shore Service Provider with several facilities spread across 3 different countries (Mexico, Spain, Brazil)) realize that effective team work is key for our projects and initiated a diagnostic survey (team assessment) administered to more than 300 individuals (and keep growing) from the 4,000 associates world wide. The framework we use to asses each team is based on Patrick Lencioni's "The Five Dysfunctions of a Team". The 5 dysfunctions are: absence of Trust, fear of conflict, lack of commitment, avoidance of accountability and inattention to results.

Our findings were counterintuitive I personally was skeptics on the first results until we accumulate enough data to support them. We include a very diverse sample of teams with different sizes, technologies, accounts, locations and even types of work (development, maintenance, testing). What we found and will show is that Softek Teams, instead of having different weakness and dysfunctions, share a common footprint. The dysfunctions consistently failing at unhealthy rate were: Avoidance of accountability and inattention to results. That's seems to be a point in it self, I don't got enough data to know if this going to be true in different organizations (is this foot print related to Softek or to software related duties?).

But what is truly outstanding is that when we survey the TSP Pilot teams in the organization we found the only project for the whole subset that doesn't show any dysfunction and taking the whole TSP engineers as a sample they show a different foot print than Softek with the lowest incidents of respondents that have been measure to date.

These results are quite remarkable because in our line of business attrition is one of the profit drivers and morale seems to correlate well with attrition levels. This fact by itself was powerful enough to attract management attention and help us resolve that a larger scale implementation was needed for TSP event though TSP pilots haven't finished and the anticipated quality levels at system and acceptance testing haven't been proved.

**Bio:** Ricardo Garza is the Global Process Change Manager for Softek Near Shore Services since 2001. He Create the Enterprise Architecture foundation for Softek IT Governance Structure. He leads the Global CMMI implementations efforts including the CMMI L5 Certification recently achieved by Softek. Currently Leads the Effort to integrate Current methodologies with TSP and PSP processes. He is a Master Black Belt in Softek, with more than 400 individuals trained. He holds the Six Sigma Black Belt Certification by the ASQ. He is PSP authorized instructor and TSP Coach Candidate. His Background is in Physics engineering.

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#### Session H2: Speaker: John Balza - Management Commitment to Quality Requires Measures

**Summary:** In 1998, Hewlett-Packard began a program for its UNIX software to reduce the number of customer-found defects by a factor of 10 over five years.

True to the literature, we found that strong management commitment to quality was a key to any improvement. Engineers and managers, however, were only being measured on delivering functionality on schedule. In order to change the culture, we had to demonstrate to our software development teams that management valued quality over functionality while maintaining schedule. A key enabler was providing management with ways to measure quality as easily as schedule.

Learn how our company put in place measures that allowed us to determine our quality at all points in the life cycle and thus achieve "functionality with quality on schedule".

**Abstract:** The literature is full of lessons on how important it is to have management commitment in order to drive change. In our case, we wanted to improve our quality. Management quickly declared this to be the number one objective. But in order to make an objective truly number one, it needs to be measurable. How can you provide management real-time measures of quality, so that it can be measured as easily as schedule?

We first set a tough goal to reduce the number of customer-found defects by a factor of 10 over 5 years. We realized that if we set quality as the number one goal, we needed to allow the project teams flexibility in some other dimension of the resources, schedule, and functionality tradeoff. Management decided functionality would be the primary trade-off. But this would require a cultural shift, a change in everyone's behaviors. In order to make these real, top managers had to start demonstrating a change in their behavior before any of the lower level managers or the engineers would begin to change their behaviors. We identified 3 key areas for management change: reducing the number of "must" features, consistently making decisions that placed quality over functionality, and regularly reviewing quality metrics. This required us to have a method to measure quality weekly and assign action items when goals weren't being met.

We started by measuring the backlog of open defects and managing that below a fixed number. Whenever an organization was above its goal, they needed to take resources that were working on functionality and move that to fixing defects until they were back under the goal.

The second quality measure that was put on place was the result of an analysis of our development process to find the critical resource. As we examined our process, we identified that the critical resource in our process was the top-of-branch of our software configuration management system. We realized that if we kept the quality of this point at high quality, we would improve everybody's productivity. We put in place what we called the 'mainline stability test', which we ran everyday. Anytime, the tests failed, we would stop any new check-ins and triage the problem until we found the guilty check-in. Either we removed that check-in or we put in a quick fix to remove the problem, and then re-ran the mainline stability test.

The third metric we employed was the defect escape rate. This measured the percent of defects that were found outside of the development team – by other development teams, by system test, and, of course, by customers. Our long term goal is that 90% of all defects are found by the development team through peer review, and testing.

As a result of these changes, customers saw a 83% reduction in defects, while at the same time our functionality we caught up and surpassed our competitors in functionality.

**Bio:** John Balza was the Quality Manager for HP-UX (Hewlett-Packard's version of Unix) between 1994 and 2005, leading their quality improvement program. In his 30 year career, he has managed over 50 software projects for Hewlett-Packard at various management levels. He has been exploring software quality and processes since his first failed project, which was a year late and had to be completely rewritten. In the last few years, John has shared best practices at numerous conferences: the Pacific Northwest Software Quality Conference, the Rocky Mountain Quality Conference, Software Quality Association of Denver, and the Practical Software Quality and Testing Conference.

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### **Session H3: Speaker: Yuval Mazor - A Case for Test Generation Approach (FAST)**

**Summary:** The computational power of modern day computers has increased dramatically, making test generation solutions attractive. Traditional test automation approaches rely on handcrafting test scenarios, which makes test development a time consuming process. FAST is a technique that enables automation of the test authoring process, which frees up valuable time for testers to focus on more complex test problems, such as integration testing and end-to-end testing.

**Abstract:** Test generation is not a new concept in the testing world; many techniques have been proposed and developed for generating tests. However a few significant obstacles prevent existing test generation techniques from providing a practical and reliable testing strategy. Many test generators produce random or semi-random tests which make it difficult to scale to large, complex software systems. An even greater challenge with these testing techniques is the difficulty of generating accurate verification mechanisms for the generated tests and dealing with noisy results. Generating thousands of tests randomly is a relatively easy task, but generating the corresponding verification and validation is a more difficult task.

The FAST methodology overcomes these limitations and enables generation of highly effective tests with full verification. This makes it very attractive for use in functional testing. FAST is a testing technique which enables generation of a controlled set of reusable tests with verification. The feedback and the analysis system are unique components of FAST that take generation techniques to the next level, by adding measures of directed generation and integrated verification. Furthermore, FAST enables a system where tests are reusable in multiple contexts giving extensive coverage to cross-component and cross-feature testing with little additional cost. This presentation describes the FAST test generation technique and how this approach enables efficient test generation. This is illustrated with two real world examples from the [Microsoft Visual C#](#) test team. Finally the presentation discusses the benefits of FAST and how it can be applied to other test domains.

The following points will be covered with the use of case study:

- Challenges faced by Microsoft Visual C# team with regards to testing a large feature matrix
- FAST test generation – What, when and how to use it
- How FAST enabled the C# team to achieve high feature coverage
- Costs and benefits of FAST
- How to apply these techniques to other test domains

**Bio:** Yuval Mazor has been involved in software testing for the majority of his professional career. His current position is as a tester on the Microsoft Visual C# team, where he has been for the past 4 years. He is currently testing the C# 3.0 compiler, LINQ API's, and compiler services behind the Visual Studio C# IDE. Yuval is also actively involved in improving test strategy and test development towards maximizing testing efforts.

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#### Session H4: Speaker: Ally Gill - There's More to Software Process Improvement than CMMI

**Summary:** We often see organizational goals similar to “achievement CMMI Maturity Level 3 within 18 months”. Sadly, this is the antithesis of the real focus of Software Process Improvement, as it fails to address the fact that an organization should undertake such a program in order to realize a genuine business improvement such as greater operational efficiency; higher quality of deliverables, or faster time to market – in other words, improvements that will result in a financial benefit to the business. Whilst the CMMI is a powerful and useful tool, it needs to be used in the correct context, ideally as part of a software process management toolkit which may include other models and standards such as SPICE, ISO 9000, and Six Sigma. Learn how to harness synergies between these tools and how to use them to realize true benefits and return on investment from a Software Process Improvement program.

**Abstract:** As Software Process Improvement consultants we all too often see organizational goals similar to “achievement CMMI Maturity Level 3 within 18 months”. Sadly, this is the antithesis of the real focus of Software Process Improvement as it fails to address the fact that an organization should undertake such a program in order to realize a genuine business improvement such as greater operational efficiency; higher quality of deliverables, or faster time to market – in other words, improvements that will result in a measurable benefit (most usually financial) to the business. It has been shown that a CMMI Maturity level alone is not necessarily an appropriate indication of an organization’s ability to deliver to expectation, any more than a drivers’ license guarantees the ability of the holder to drive an automobile.

Whilst the CMMI is a powerful and useful tool, it needs to be used in the correct context, ideally as part of a software process management toolkit which may include other models and standards such as SPICE (ISO 15504), ISO 9000, and Six Sigma. We use the term process management as opposed to process improvement because we need the business to understand that process improvement is not a one-off exercise. To genuinely effect improvement requires continuous effort. CMMI alone does not make any claims as to how to perform process management and certainly does not offer any advice regarding Organizational Change Management. Other models and tools need to be integrated into an Improvement Program, in the same way that multiple programming languages may be better used for complex systems than trying to do everything in a single language. In particular we need to remember that people execute processes, and process improvement is most likely to succeed where process models are adapted to the existing organizational processes – not the other way around.

This paper examines how to harness synergies between different tools and techniques into a process management framework and how to use them to realize true benefits and return on investment from an SPI program. It examines strengths and issues regarding different models, touch points between models, techniques, tools and standards, whilst maintaining a focus on the people side of change.

**Bio:** Ally is a Senior SPI Consultant with DNV IT Global Services (previously Q-Labs, UK), with nearly 25 years software development experience, and over 10 years of Process and Business Improvement experience in Applications Development, primarily with SW-CMM/CMMI and ISO 9000. Prior to joining DNV, Ally spend 8 years at EDS, where he was the Business Improvement Leader and Quality Leader for European Application Delivery. Special interests include Organizational Change Management, Project Management and Measurement. Ally is a Senior member of the ASQ and a member of IEEE Computer Society and ACM.

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