SOFTWARE
SYSTEMS QUALITY
CONSULTING

EDUCATION
ASSESSMENT
IMPLEMENTATION
IMPROVEMENT
DEFINITION

SQA
AND
TESTING

SOFTWARE &
SYSTEMS
ENGINEERING

SEI CMM
and CMMI

HYBRID
MULTI-MODEL
ASSESSMENT

ISO 9001:2000

Services and Education Programs

**SOFTWARE SYSTEMS
QUALITY CONSULTING**
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Version 18

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Software Systems Quality Consulting

Software Systems Quality Consulting (SSQC) offers you the services of engineering and process improvement professionals with proven ability in implementing effective, efficient business systems.

SSQC offers a distinctive approach to process definition and implementation and methods selection that supports the complete range of quality initiatives, from standards compliance, continuous process improvement, total quality management, to business process re-engineering. SSQC's approach is based on the fundamental precept that the success of any process improvement initiative requires that it contribute to the success of an organization as an integral part of the organization's culture and processes - not as an after thought, add-on, or enforcement function.

With their hands-on experience and broad perspective, SSQC is uniquely positioned to assist software and hardware developers, manufacturers, and service providers in six principal areas:

- Software and Systems Engineering Process Improvement
- CMM and CMMI Implementation Services
- Software and Product Quality Assurance and Testing
- ISO 9001:2000 Implementation Services
- Business Process Reengineering and Benchmarking
- Education and Training

SSQC is the exclusive source for HM^2, a unique, hybrid appraisal method that defines and correlates the position of an organization with respect to both ISO 9001 and the CMM. HM^2 grew out of SSQC's ground-breaking 1993 paper *Comparing, contrasting ISO 9001 and the SEI Capability Maturity Model*, which was published in IEEE **COMPUTER.** The results of an HM^2 assessment are a plan and framework for improving software engineering processes and for implementing the requirements of the two models.

In all areas, SSQC tailors its efforts to deliver precisely the support required to help its clients build their organizations' capabilities. This consistent attention to organizational impact and attitudes is a critical factor in the successful implementation of any change.

Software and Systems Engineering Process Improvement

SSQC's hands-on staff consultants and instructors can apply their extensive experience in software and systems engineering and assessments to assist you and your team in the creation of a robust set of software and hardware development practices that lead to continuous improvement. We've worked in the trenches as software and systems developers, software testers, and managers of development and third-party development in companies ranging from fast-paced small internet start-ups, to large established systems providers.

SSQC can assist your team to:

- Identify and provide consulting and training in various engineering models for quality such as the SEI CMM^{sm}, ISO 9001/9000-3, ISO 15504 (SPICE), and ISO 12207
- SSQC offers a variety of appraisal services to include the SEI's CBA IPI and SCE methods, and SSQC's own HM^2 - Hybrid Multi-Model method.
- Assess your organization's current software and hardware engineering capabilities and practices and provide solutions based on the results. SSQC can provide assessments based on the SEI CMM, ISO 9001/9000-3 or a hybrid of both models.

- Assess your third party subcontractor's current software and hardware engineering capabilities and practices and provide a risk assessment based on the results.
- Identify, define, and refine critical process and product measurements and metrics
- Define and document standards, procedures and methods for:
  - Life Cycle Model(s) and graphically represent the flow of work among groups
  - Requirements, Planning
  - Design, Development, Test, Maintenance, and Support activities
  - Reporting and monitoring progress and lessons learned
  - Reviews (Code, Design, Peer Reviews, Walkthroughs)
  - Managing projects through the Life Cycle
  - Metrics for all phases of development, maintenance, and support
  - Assessing the software and hardware engineering capabilities of present and potential suppliers
  - Assessing the software and hardware engineering capabilities of internal organizations

CMM and CMMI Implementation Services CMMI

SSQC's full range of CMM and CMMI based programs include introductory to advanced training in software engineering, along with CMM and CMMI implementation and assessment services.

SSQC is an SEI authorized transition partner and provides the following CMMI training and assessment services:
- Introduction to Capability Maturity Model Integrated-SE/SW training - Staged and Continuous
- CMMI assessment or benchmark through a SCAMPI appraisal

A presentation (PDF) that outlines SSQC's experience with the SEI's Capability Maturity Model (CMM) including: industries served, clients served, consulting and assessment services, training services featuring comprehensive KPA workshops, and SSQC's strategic relationships with University and industry groups and professional associations can be found at http://www.ssqc.com/ssqcpres.pdf

A Software Process Improvement services profile (PDF) that further details our core competency in CMM assessments, CMM education, and CMM implementation can be found at http://www.ssqc.com/ssqcexp.pdf

SSQC's extensive success with the CMM and CMMI is the result of several factors:
- The software and systems engineering expertise of our consultanting staff, which includes CBA IPI Lead Assessors and SCAMPI Lead Appraisers.
- Our work with Carnegie Mellon University's Software Engineering Institute (SEI) to institutionalize the CMM throughout industry.
- Our experience with a variety of organizations, including fast-paced commercial companies in the "Silicon Valley", to elevate the overall maturity level of their software development practices.

SSQC is confident in its ability to provide consultants who can transfer this knowledge to clients who wish to achieve not only a CMM Level rating, but also bottom line business benefit in return for their investment in engineering process improvement. The following paragraphs describe in more detail our staff training, our work with the SEI, and our successes in software process improvement based on the CMM.

Consultant Expertise in CMM

Our consultants are well versed in all aspects of the CMM. As part of our technical staff's continuing education, SSQC and its consulting partners provide training and workshops for all new staff in the CMM, assessment methods, and KPA subject matter. Based upon our work with the SEI, as well as performing assessment and providing software process improvement support to numerous clients, we have been able to obtain a thorough understanding of the intent of the KPAs, as well as the best practices of successful software development organizations – in both government-systems providers and in commercial organizations providing off-the-shelf software in a number of markets.

Our workshops and training leverage our experience in software process consulting to build a thorough understanding of the KPAs, their interrelationships, and their practical application in a variety of development environments. Because our courses and workshops are designed to be tailored for each organization (small and large), we are able to impart detailed insights and knowledge in how to implement the processes and procedures required by the CMM in a way that supports the strengths of the organization.

Relationship With The SEI

Since 1993, when SSQC received permission from the SEI to reproduce various SEI CMM 1.1 technical reports for resale to the public, SSQC has maintained a close relationship with the SEI.

Since 1996, SSQC has offered a variety of presentations and tutorials at the annual SEI-sponsored conferences (SEPG) and symposia in both the US and Europe (ESEPG).

SSQC was also presented an award by the SEI for outstanding service on the conference committee for SEPG 97 in San Jose, California.

SSQC has presented numerous tutorials and presentations (including the development of and transition to CMMI) at local SPINs in the Silicon Valley and has promoted a variety of SEIs offerings.

Since early 1999, SSQC tutorials, presentations, and panels have been successfully promoting the CMMI transition efforts (both staged and continuous representations) at a variety of conferences to include ESEPG 1999-2002, SEPG 1999-2002, Quality Week 1999-2001, PNSQC 1999-2000.

Since June 2000, SSQC has been successfully promoting the CMMI transition efforts (both staged and continuous models) in the week long CMM series being offered by UC Santa Cruz's software engineering program.

Software and Product Quality Assurance and Testing

For *Software and Product Quality Assurance*, consulting services are available across the full breadth of the development process. SSQC can assist your staff to:
- Identify and document critical points in the development process
- Develop and document processes and implement inspection procedures (including Fagan inspections) at critical points in the development process - to ensure that misunderstandings and oversights are caught early in the development process, before they cause rework, missed deliveries, and organizational stress
- Establish requirements and develop procedures for configuration management to protect the integrity of the product, reduce the risk of lost effort, and enhance productivity

- Establish requirements and develop procedures for project management - to enhance two-way communication and team interaction, to allow for forward planning, the anticipation of risk, and the preparation and timely activation of contingency plans.
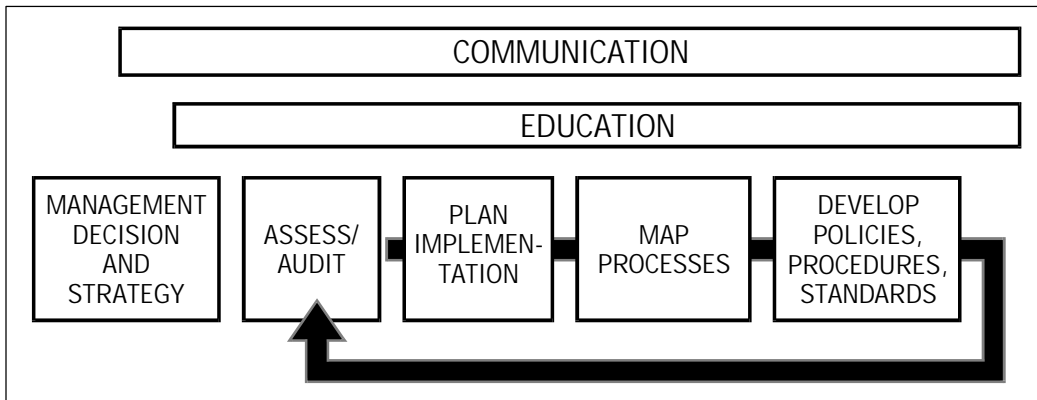
For *Software Testing*, SSQC offers the level of support you require for five key activities:
- Develop testing strategies
- Create and review test plans and test specifications
- Identify methodologies
- Direct and execute the testing
- Define requirements for effective problem reporting, tracking, and monitoring during the entire product life cycle - from initial requirements to the end of life.

ISO 9001:2000 Implementation Services

SSQC's ISO 9001:2000 services range from providing initial estimates of the effort to obtain certification to assisting your staff in obtaining and retaining certification from an accredited registrar. SSQC provides the expertise you require to develop an ISO implementation plan that is as effective and thorough as a product development plan.

With a number of years of experience in maintaining registration, SSQC can prepare your organization to apply the standards and avoid the pitfalls and unanswered questions that can delay a program. SSQC delivers this assistance through unique services, tools, and educational programs it has developed to support its registration model.

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The Diagnostic Audit - More than Just a Gap Analysis

SSQC's implementation services begin with a diagnostic audit of your current systems and practices. The information the audit provides is a baseline for prioritizing and planning process development and other registration-related activities.

The audit report identifies the key areas requiring attention to ensure that your business systems and practices leverage best practice and comply with the ISO 9001 model - and sector-specific guidance - ISO 9000-3 (for software), ISO 9004-2 (for services) and TL-9000 (for Telecommunications). In addition to serving as a needs analysis, the audit demonstrates management's priorities for product and work environment quality and gathers objective feedback from all levels of the organization.

The audit report includes recommendations for correcting identified problems and for improving and enhancing processes that are already effective.

During the Registration Process

SSQC can accelerate the progress of your implementation team by assisting in:
- Registrar selection
  - Define criteria
  - Review credentials
  - Recommend strategies for establishing an ongoing relationship
  - Facilitate interviews with representatives from potential registrars
- The development of standards, policies, procedures, and quality manuals
  - Facilitate team discussion
  - Provide standard templates and examples
  - Draft and manage the review and approval of procedures
- Internal process audits
  - Train internal auditors
  - Function as advisors or lead auditors
  - Perform internal audits
  - Review audit findings, corrective action requests, and corrective action plans

ISO 9000-3, TickIT and TL-9000

SSQC's services can be tailored to the unique requirements of the software engineering environment, addressing the sector-specific impact of schemes such as TickIT and TL-9000.

Business Process Re-engineering and Benchmarking

Through a diagnostic assessment, SSQC can identify or confirm decisions about processes and issues that are candidates for re-engineering (or engineering) rather than incremental or continuous improvement. Once a decision is made to reengineer, SSQC can facilitate and provide the education and training required to develop and gain agreement on "as is" and "to be" models of the processes. With the models in place, SSQC can support and facilitate:

- Awareness and organizational buy-in
- Benchmarking and Planning
- Project management
- Implementation - in particular, the detailed definition and documentation of processes
- The selection of appropriate technology

SSQC is uniquely positioned to ensure that reengineering activities are coordinated with or position you for ISO registration or CMM compliance.

Education and Training

SSQC offers over 30 courses that support your organization's training needs. Our core and advanced curricula address a broad range of topics such as Requirements Engineering, CMM, CMMI, ISO 9001: 2000, Process Mapping, and Value-Added Auditing.

In order to ensure that our courses are practical and useful for attendees, SSQC courses offer frequent industry case studies and interactive team exercises to broaden the perspectives to which participants are exposed.

The following pages describe the complete range of courses and seminars available from SSQC as public or on-site offerings. These courses are available to any organization that wishes to sponsor a session. All of these courses are supported by detailed instructor's guides and can be licensed for internal use.

As part of its program to prepare organizations to secure ISO 9001:2000 registration and continuous imprvement, SSQC has developed a series of courses that address all facets of the implementation and certification process.

The Core Curriculum for ISO 9001:2000

SSQC's core ISO 9001 curriculum offers two parallel sets of courses. Track 1 is for manufacturing and service providers. Track 2 focuses on the requirements of software and systems providers.

Because all companies' quality systems are assessed against the same model - ISO 9001 - the courses in both tracks address the same principles and concepts; the tracks differ primarily in emphasis, terminology, and examples.

Course (Track) **Title**			**Audience and Summary**
C101 **C102**	(1) (2)	**Executive Overview**	For managers who are considering or preparing for registration under ISO 9001 and who need a broad understanding of the associated costs and schedules
C103 **C104**	(1) (2)	**Value-Added Auditing**	For auditors and implementors who assess or manage the assessment of business practices to ensure on-going effectiveness, suitability, and compliance with ISO 9001.
C105 **C106**	(1) (2)	**A Practical Approach to ISO Registration**	For implementors, ISO coordinators, auditors, and managers who are creating and managing the plan and establishing the business systems that will ensure that: - ISO registration is achieved within budget and on schedule and that - The registration-related activities deliver the maximum return on investment to the organization. Each day of this three-day course is also available as an individual course, with examples and exercises selected based on the needs of the participants.: These courses are listed in the following section, *Advanced and Specialized Topics*.

Course	DAY 1	DAY 2	DAY 3
C105	C203	C206	C207
C106	C208	C206	C207

Advanced and Specialized Topics

SSQC has also created a number of courses to address specialized needs.

	Course Title	Audience and Summary
C201	**Models for Software Quality** - **Comparing the SEI Capability Maturity Model (CMM) to ISO 9001**	For managers, auditors, implementors, and software engineers who require an understanding of ISO 9001 and Version 1.1 of the CMM. This course is available in 1 or 2 day formats.
C202	**Exploding the Myths of ISO 9001**	For managers, auditors, implementors, and ISO coordinators who must overcome objections based on common misconceptions about the impact of ISO 9001 registration on an organization's business practices.
C203	**Intensive Introduction to ISO 9001 and ISO 9002**	For managers, auditors, implementors, and ISO coordinators who require a detailed knowledge of the content of ISO 9001 and how it applies to their organizations' business practices.
C205	**Models for Software Quality** - **Perspectives for Auditors**	For experienced auditors, audit managers, and quality system implementors familiar with ISO 9001 who must assess the effectiveness and conformance of an organization's software engineering practices to various models such as ISO 9001 and the Capability Maturity Model for Software (CMM).
C206	**Process Mapping - Applying Visual Roadmaps to Build Consensus**	Any individual involved in defining, documenting, or reengineering business systems to establish a baseline for current practices, identify opportunities for improvement, and improve or optimize organizational performance and planning accuracy. Students will also gain a solid understanding of the application Unified Modeling Language (UML) to Business Process Modeling.
C207	**Streamlining Documentation - an Efficient Approach to Meeting ISO 9000 and CMM Requirements**	Any individual involved in documenting business systems to establish uniform practices, optimize communication of responsibilities, and minimize training time. Participants receive a complete guide for each module of this course which includes: ◆ Policies, procedures, and standards: ISO and CMM requirements ◆ Strategies for documentation development 1. Determining content and level of detail 2. Five traps to avoid in defining cause and effect 3. Three techniques to improve the impact of policies, procedures and standards 4. Structuring and controlling electronic and paper documentation ◆ Samples of compliant procedures for documentation control
C208	**An Intensive Introduction to ISO 9001 and ISO 9000-3 for Implementors and Auditors in Software Engineering Environments**	ISO 9000 coordinators, quality system auditors, management, and other key personnel who are following the ISO 9000-3 guidelines to implement a quality system that conforms to ISO 9001. Examples are drawn from software engineering disciplines.

	Course Title	Audience and Summary
C209	**Making the Case for ISO 9000 - Overcoming the Obstacles to Registration**	Any individual required to prepare a business case and recommendation to executive management on ISO 9001 registration
C210	**Harnessing Technology and Tools for Process Implementation and Improvement**	A quality manager or a process implementor involved in business process reengineering (BPR), ISO 9001, total quality management, continuous improvement, or any other systematic effort to improve quality through process definition, implementation, and maintenance.
C211	**Software Process Improvement through the CMM Version 1.1**	Software development managers and engineering process group members investigating or implementing methods for improving the effectiveness of software development
C214	**Inspections as a Tool for Process Improvement**	Software and hardware development managers and engineering process group members investigating or implementing methods for improving the effectiveness of software and hardware development; any individual who moderates formal inspections . The course is of particular interest to organizations implementing processes based on the Software Engineering Institute (SEI) Capability Maturity Model (CMM)^{SM} and ISO 9001.
C215	**CMM KPA Workshop: Focus on Requirements Management**	SEPG team members, engineers, managers, marketeers, assessors, and SQA personnel who need to: • Interpret and implement the RM best practices contained in the SEI CMM for systems and software-only development environments • Define RM policies and procedures that support projects and teams of any size at all stages of development • Coordinate RM with the implementation of other Level 2 and Level 3 Key Process Areas (KPAs), particularly Software Configuration Management (SCM), Software Subcontract Management (SSM), and Software Product Engineering (SPE) • Consider the relationships and misunderstandings about requirements analysis and requirements management and systems engineering and software engineering

	Course Title	Audience and Summary
C216	**CMM KPA Workshop: Focus on Project Management (SPP, SPTO)**	SEPG team members, engineers, managers, marketeers, assessors, and SQA personnel who need to: ♦ Interpret and implement the SPP and SPTO best practices contained in the SEI CMM for systems and software-only development environments ♦ Define SPP and SPTO policies and procedures that support projects and teams of any size at all stages of development ♦ Coordinate SPP and SPTO with the implementation of other Level 2 and Level 3 Key Process Areas (KPAs), particularly Requirements Management (RM), Software Configuration Management (SCM), Software Subcontract Management (SSM), and Integrated Software Management (ISM)
C217	**CMM KPA Workshop: Focus on Software Configuration Management**	SEPG team members, SCM personnel, engineers, managers, and SQA personnel who need to: ♦ Interpret and implement the SCM best practices contained in the SEI CMM ♦ Create scaleable, phased SCM policies and procedures that support projects and ensure the on-going integrity of baselines ♦ Coordinate SCM with the implementation of other Level 2 and Level 3 Key Process Areas (KPAs) ♦ Make significant decisions about nomenclature and tools, about which the CMM offers no advice ♦ Address the unique organizational issues surrounding software configuration management in large organizations and in small, quick-turn-around teams
C218	**CMM KPA Workshop: Focus on Software Subcontract Management**	Software subcontract managers, SEPG team members, SCM personnel, engineers, managers, and SQA personnel who are responsible for addressing the challenges of outsourced software development. The course addresses assessment, selection, and management aspects of dealing with third-party software development partners.

	Course Title	Audience and Summary
C219	**CMM KPA Workshop: Focus on Software Quality Assurance**	SEPG team members, SCM personnel, engineers, managers, and SQA personnel who need to: ◆ Interpret and implement the SQA best practices contained in the SEI CMM ◆ Define SQA policies and procedures that provide a valuable and valued service to projects and teams of any size, to management, and to customers ◆ Coordinate SQA with the implementation of other Level 2 and Level 3 Key Process Areas (KPAs) Address the unique organizational issues and prejudices surrounding software quality assurance in large organizations and in small, quick-turn-around teams ◆ Institute an SQA function in non-DoD commercial firms that typically question the value of a group that oversees "other's" activities.
C220	**CMM KPA Workshop: Focus on Peer Reviews**	SEPG team members, engineers, managers, and SQA personnel who need to: ◆ Interpret and implement the peer review best practices contained in the SEI CMM ◆ Create scaleable, peer review policies and procedures that support projects and collaborative working practices among software developers. ◆ Coordinate PR with the implementation of other Level 2 and Level 3 Key Process Areas (KPAs) ◆ Understand the difference between the CMM requirements and more formal methods such as Fagan Inspections ◆ Address the unique cultural issues surrounding peer reviews in large organizations and in small, quick-turn-around teams
C221	**Making the CMM Work: Streamlining for Small Projects and Organizations**	SEPG team members, engineers, managers, marketeers, assessors, and SQA personnel who need to: ◆ Implement a realistic and useful strategy for deploying software development practices in small organizations and projects ◆ Simplify the CMM to support appropriate, effective, flexible software development processes for any small organization or project ◆ Resolve apparent discrepancies between the guidance in the CMM and the needs of small, commercial and internal software development projects and organizations ◆ Identify and prioritize elements of advanced levels that should be considered by every organization.

	Course Title	Audience and Summary

C222	**Taking the Next Step - Advancing from ISO 9001 to the CMM**	The course prepares software development management to build durable, maintainable business practices that incorporate both the SEI and ISO frameworks. The course ensures that the participant will be able to:
		♦ Use the CMM to advance beyond ISO 9001
		♦ Apply ISO 9001 and the CMM to support effective, flexible software engineering processes
		♦ Answer key questions related to the two models:
		  1. If I comply with CMM Level 3, do I have to do anything to comply with ISO 9001?
		  2. If I comply with ISO 9001, does the CMM have anything to offer?
		  3. Aren't these just redundant, bureaucratic standards that are designed to keep us from accomplishing anything?

C223	**SPICE: An Introduction to ISO 15504**	Any individuals who are involved in the selection, implementation, or maintenance of a software development practices based on prevalent standards and models and who require specific knowledge about the actual and potential impact of ISO TR-15504 on their efforts. This course prepares participants to: ♦ Understand and apply the structure and opportunities embodied in the set of ISO 15504 work products ♦ Incorporate ISO 15504 into current improvement efforts based on other models ♦ Anticipate the impact of ISO 15504 on the international marketplace
C224	**Riding the Wild Spaghetti: Addressing the Proliferation of Software Engineering Standards**	Any individuals who are involved in the selection, implementation, or maintenance of software development practices based on prevalent standards and models and who are faced with sorting through the growing number of institutional, national and international standards. This course prepares participants to: ♦ Exploit the standards to support appropriate, effective, flexible software engineering processes for any size organization or project ♦ Resolve apparent discrepancies between the guidance in the standards and the needs of small projects for commercial and internal software development organizations ♦ Identify and prioritize applicable standards for further investigation and use ♦ Anticipate and plan for changes in the standards

	Course Title	Audience and Summary
C225	**I-SPI: Integrated Software Process Improvement based on IEEE/EIA 12207**	Any individuals who are involved in the selection, implementation, or maintenance of a software engineering life cycle and software development practices based on prevalent standards and models and who are faced with sorting through the glut of institutional, national and international standards. This course allows participants to leverage the strength of IEEE/EIA 12207 to improve software engineering practices in their organizations. Participants will learn to employ 12207 as a roadmap for efficiently exploiting best practices described in the Software CMM, ISO 9000-3, and the emerging international standard ISO 15504 (SPICE).
C226	**ISO 9001:2000 - Taking the Next Step**	The course, intended for individuals familiar with ISO 9001:1994, also benefits those seeking a preview of ISO 9001:2000. This course focuses on how to make the transition to the new ISO 9001:2000. This one-day course presents a detailed view of the new standard, with additional commentary on the mapping between the ISO 9001:2000 and ISO 9001:1994. The course includes a review and analysis of the impact of standards for the ISO 9000 series. Cutting through the growing cloud of dire predictions, this course explores transition strategies that minimize rework and maximize benefits for companies upgrading to the new standard.
C227	**Requirements Engineering: A Practical Approach to Modeling and Managing Requirements**	SEPG team members, software engineers, software systems engineers, software managers, assessors, systems analysts, and re-engineering personnel who are: ◆ Exploring ways to further their organizations' software engineering capabilities in eliciting, capturing, and managing project and product requirements The course prepares participants to: ◆ Quantify the impact of requirements on their organizations' success ◆ Assess their current processes against Requirements Engineering best practice ◆ Evaluate supplied text-based requirements against specific acceptance criteria to establish an objective measure of the risk associated with the requirement ◆ Determine what additional information or clarification is necessary to minimize risk ◆ Identify and correct the six most common sources of error in requirements ◆ Introduce the principles of Requirements Engineering to customers to enhance interactions and minimize the amount of unnecessary rework on requirements ◆ Apply well-understood Engineering modeling techniques to eliciting, jointly developing, and capturing requirements ◆ Understand the benefits and similarities of both structured and UML modeling notation - and how they can be applied to business processes

Professional Qualifications

William J. Deibler II has an MSc. in Computer Science and over 20 years experience in the computer industry, primarily in the areas of software and systems development, software testing, and software quality assurance. Bill has extensive experience in managing and implementing CMM- and ISO 9001-based process improvement in software engineering environments. Bill is an SEI Authorized CBA IPI Lead Assessor and SCAMPI Lead Appraiser for CMMI.

Robert Bamford has an MA in mathematics, and has managed training development, technical publications, professional services, and third-party software development. His over 20 years of experience include the facilitating the definition and implementation of management processes, designing and instructing courses, and managing engineering teams.

Bob and Bill are the principals of SSQC. Since 1990, SSQC has specialized in supporting organizations in the definition and implementation of Software and Systems Engineering Practices, Software Quality Assurance and Testing, Business Process Reengineering, ISO 9000 Registration and CMM/CMMI implementation. SSQC is an official SEI transition partner licensed to provide CBA IPI and SCAMPI appraisal services and the SEI's Introduction to Capability Maturity Model Integration course.

SSQC is the exclusive source for HM^2, a unique, hybrid appraisal method that defines and correlates the position of an organization with respect to both ISO 9001 and the CMM. HM^2 grew out of SSQC's ground-breaking 1993 paper *Comparing, contrasting ISO 9001 and the SEI Capability Maturity Model*, which was published in IEEE **COMPUTER.** The results of an HM^2 assessment are a plan and framework for improving software engineering processes and for implementing the requirements of the two models.

Bob and Bill have developed and published numerous courses, assessment tools, research papers, and articles on interpreting and applying the ISO 9000 standards and guidelines and the SEI Capability Maturity Model for Software. Their articles have appeared in McGraw Hill's **Quality Systems Update**, IEEE **COMPUTER**, McGraw Hill's **ISO 9000 Handbook**, **CrossTALK**, and **Software Marketing Journal**. They were the principal authors and project editors of **A Guide to Software Quality System Registration under ISO 9001**.

They have presented research papers at numerous national and international conferences, including those sponsored by the American Society for Quality (ASQ), Pacific Northwest Software Quality (PNSQC), the Software Publishers Association (SPA), Software Technology Support Center (STSC), the Software Engineering Institute (SEI) and Software Research Inc.. Their courses have been attended by software and systems engineering professionals from many of the world's leading technology companies. Their courses, have been sponsored for their members by professional associations, including the ASQ, CSU Long Beach's Software Engineering Forum for Training, Semiconductor Equipment and Materials International (SEMI), Software Engineering Institute (SEI), UC Berkeley and UC Santa Cruz. They have been active United States TAG members in the ISO/IEC JTC1 SC7 - Software Engineering Standards subcommittee which is responsible for the development and maintenance of ISO 12207 and ISO 15504 (SPICE).

Their software development clients have successfully achieved ISO registration and advanced CMM maturity levels.

They have also performed ISO 9000 registration and TickIT audits as external resources under contract to the British Standards Institution (BSi).