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Software  
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## AGILITY AND DISCIPLINE: COEXISTENCE OR COMBAT?

BY SCOTT P. DUNCAN

### Abstract

Many books and articles have been published on the subject of agile methods during the past several years. There has been considerable debate over agile methods compared to what have been called “heavier,” “disciplined,” or just “more formal” methods.

Some have expressed the feeling that agile methods are “just an excuse for hacking” and see them as incompatible with responsible, quality software development. Others look at formal methods as “manufacturing oriented” attempts to exercise “control” over unreliable programming expertise/skill.

This paper attempts to address why we should have methods at all (and what they should do for us) and to explain the major principles behind agile methods (based on the Agile Alliance’s expression of them) and their implications.

### Methods? We Don’t Need No Stinking Methods!

It’s important to be clear about why we should bother being (even slightly) formal about methods in the first place. OK...a show of hands, please. Who works for a company that targets hiring “below average” people? Which of us arrives at work each day planning not to “do our best”? For those of us who didn’t raise our hands to either question, if we’re among the above-average folks working diligently, what else should management expect? Indeed, if one

cannot rely on hiring good people who do their best, what can be relied upon?

Well, Dr. W. Edwards Deming addressed that a long time ago when he said people have to understand *what* they are to do, then they *can* do their best. Methods, processes, etc., are a way to communicate guidance about what is considered expected practice. It is hoped the expectation is based on some evidence that the practice is a good one, worthwhile doing.

Methods are like the lines down the middle of the road: They guide you to a (supposedly) safe passage from one place to another. If you begin to “cross the line,” you know you are doing so and may be assuming some risk relative to not doing so. It doesn’t mean you never cross the line. It just means you are aware of when you are doing so and can tell where that line is since it is plainly marked for you. It also doesn’t mean that if you never cross the line, nothing adverse can happen since there are other road indicators, signs, etc., for other trip conditions.

It isn’t a matter, then, of *whether* methods are to be used. It’s a matter of *which* methods will be used and how widely accepted they are by those who (are asked to) use them. It’s a matter of whether methods will be used that rest on something more than individual preference. People will create and follow methods of their own anyway (consciously or unconsciously) to bring order

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# CHAIR'S CORNER

BY MICHAEL P. KRESS

## What is the Focus of Your Quality System?

We all know that ISO 9001 passionately promotes measuring, reporting, managing, improving, and assessing and addressing customer satisfaction. But did you realize that ISO 9001 doesn't tell us how to determine who our customers are? Nor does it tell how to assess what is important to the customer.

I recently attended the ISO 9000 Conference in Orlando and listened to Rob Lawton, one of the most highly regarded speakers in ISO circles, talk on "Integrating Customer Satisfaction, Six Sigma and ISO 9000."

Lawton explained that there are three different ways to focus a quality program:

- Performance
- Perception
- Outcome.



Most of us plan our ISO programs focusing on measuring and improving Performance and Perception. But the real emphasis should be on Outcome.

Lawton's message is that in our zeal to measure and improve, we frequently emphasize performance first, perception second, and outcome last. The order should be reversed. We concentrate on things that will make our management happy:

- ISO compliance
- Six sigma
- Balanced Scorecard
- Lean
- TQM
- Cycle time reduction
- Just-in-Time
- ROI
- Supply chain management

The customer is largely uninterested in these things. Rather, the customer wants features, appearance, user friendliness, reliability, cost-to-own/use, variety/choice, simplicity, time savings, 24-7 support, etc. And who is the customer? For an information management system the management within the customer organization will likely want extensive security, multiple and frequently changed user IDs and passwords,

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encryption, registrations and authorizations, whereas the ultimate user may find these features a nuisance. The two faces of the same customer. Somewhere in between, the supplier needs to be aware of and balance the needs/desires of the two factions.

Lawton recommends a formula for a customer-focused approach:

1. Define customer expectations
2. Convert expectations into requirements
3. Measure product characteristics
4. Monitor satisfaction/dissatisfaction
5. Improve satisfaction

Is your organization focused on Performance, Perception, and Outcome in that order? Or the reverse?

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## AGILITY AND DISCIPLINE: COEXISTENCE OR COMBAT? CONTINUED

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out of the many things going on around them. A person can easily optimize their behavior (methods) so their results are “best” for what they feel they need to get done. And those same behaviors can end up being an impediment to other people pursuing their (perceived) optimum behavior. Methods give people that line down the road so they know when they may be entering the oncoming traffic of other people’s behavior.

Methods, then, define what, in most cases, is good practice. When people deviate from the expected methods, they should have a good reason. Methods should not exist and be used like a fence to keep unruly chickens together. Methods are not useful if they are designed and applied with the idea that they are to be used to control otherwise below-average people trying to do above-average tasks. Methods ought to be there to help people know what’s to be done so they do not have to personally remember and manage routine tasks and needs. This is especially true for those new to a given organization and situation so that otherwise good people do not have to waste their ability “getting up to speed” with what should be explained, documented expectations for basic activities.

### Agile Principles and Practices

Many people involved in use of agile methods have come together over the past few years to form what is called the Agile Alliance. They have developed a “Manifesto” explaining four key principles that guide their approach to software development. These principles are described below.

- **Individuals and interactions are valued over processes and tools**

People are the most important ingredient for success, be they the developers or the customers. Agile projects assume motivated, supported, trusted individuals can get the work done without a highly externalized process. A strong agile developer is expected to communicate and interact effectively with others. Raw programming ability is not more important than building a team environment, and building that team is more important than building the development environment. Tools matter, but the team should create their environment based on need and work to become more effective, then change the environment and their behavior accordingly. Such a team shares all development responsibilities and determines how best to fulfill them. No one team member “owns” the architecture, requirements, design, code, or tests.

- **Working software is valued over comprehensive documentation.**

Documentation should not be a side activity, taking a lot of time, as documentation not in sync with the code is a source of misinformation. Code is the unambiguous authority on what the system does. Effective documentation in the code, combined with the test cases and requirements “stories” are the main agile documentation “deliverables.” Since face-to-face conversation between developer and customer is expected, there is no

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# AGILITY AND DISCIPLINE: COEXISTENCE OR COMBAT?

## CONTINUED

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attempt to capture all information in writing. New team members learn about the system through working closely with other team members who sit with and help them. The fastest, most efficient way to learn about the project is to interact with the team.

Agile development seeks “to satisfy the customer through early and continuous delivery of valuable software.” This means delivering a functioning, evolving system every few weeks until all functionality is delivered or the customer decides there is enough in the system at the end of any iteration. Since “working software is the primary measure of progress,” progress is measured by “the amount of software that is working” rather than by intermediary milestones or documentation. Agile adherents feel they exist to solve a problem for a client, measuring success when the client feels the problem is solved.

- **Customer collaboration is valued over contract negotiation.**

The customer and development team work closely. A contract that specifies, in detail, the requirements, schedule, and cost becomes meaningless quickly in an evolving product. Contracts should govern how the development team and the customer work together, i.e., collaborate, and that communication is complemented by a constant pace in the project. (Urgency, not rush, governs project activity. Read Tom DeMarco’s *Slack* for more on what a high-efficiency organization looks like: no frantic rushing to get out from being behind on the schedule, but a constant pace of getting things done.) Agile projects are guided like a car, continuously, not “aimed,” once, like a bullet.

- **Responding to change is valued over following a plan.**

Change is often feared on projects and much is done to reduce (if not eliminate) and control change. Agile adherents believe most projects simply cannot be predicted far into the future. Customers change their view of their needs, especially when they see the system function. We can know what we will work on during the next few weeks. We can have a rough idea of what we will work on during the next few months. We can have only a vague idea what the system may become in a year. So agile planning only spends time making any detailed plans for immediate work. Once planned, it’s hard to change momentum and commitment. But that’s only for a few weeks and the rest of the plan can then be changed more easily.

Agile projects view change as a good thing because it demonstrates greater learning about what’s really needed. (How many times have you worked on a project where all the requirements were known up front, yet the project acted and followed an approach that assumed this was true?) Agile developers speak of “refactoring” done to accommodate new requirements and improve (simplify) code structure. Agile development believes design can be changed easily enough if needed because of the small commitment of incremental change. On the other hand, the ability to respond to continuous change requires technical excellence and good design (which brings us back to committed, responsible people).

## Some Common Agile Practices

Along with these principles, agile methods often share some practices as an outgrowth of the four principles above:

### Planning Related

Quickly scope/plan each release using customer business priorities for requirements and developer estimates of what it would take to implement each requirement.

Requirements are often expressed as basic, shared “stories” of how the system works as well as through user-developed test cases specifying how the system should function.

A 40-hour work week is adhered to as much as possible, as weeks in a row of overtime suggest failure in communication/execution of the project and agile principles.

### Iterative Life Cycle Related

Put a functioning system into production regularly, e.g., every few weeks, not months between releases.

Update project requirements (scope) and costs and schedule (plan) as the customer reacts to the latest release with any new understanding of needs and priorities.

### Design Approach Related

Maintaining the simplest design possible is crucial, removing complexity wherever and whenever possible through redesign (“refactoring”) to improve the design.

A real user should be collocated with and on the team to be available full time to address requirements questions.

### Coding Practices Related

Any programmer can change any code in the system.

Coding standards must exist, and should be followed, that emphasize the code as a key communication medium, not external documentation.

Production code is written with two programmers working together at one machine (“pair programming”).

### Testing Related

Customers write acceptance tests.

Programmers must write unit tests before coding, then have the tests run successfully before moving further with development.

Daily (or more frequent) system integration is performed whenever a task is done.

## When Agility May Not Work

In general, agile methods may have the greatest beneficial impact on projects facing new technology, many changes during development, or applications/domains that are not well-understood, i.e., where risks and requirements cannot be fully identified up front. However, various proponents of agile methods have identified factors that may prevent agile methods from being successful. Some key ones deriving from the principles and practices mentioned are:

If customers, developers, and/or stakeholders, for whatever reason, require

- significant specification documents,
- few (if any) project plan changes,
- contracts with fixed price, date, or scope, or
- infrequent software deliveries

and cannot manage regular, direct dialogue between development team and customer, agile methods may be severely strained as regular and direct communication between parties is fundamental to the agile approach.

If there is an assumption of long hours to “prove commitment” to the work, or if programming prowess is valued over team communication and evolution, then agile development practices may be unsuccessful.

If the development staff is likely to exceed 15-20 people, agile methods may not work as well. However, agile proponents argue that use of agile methods may require fewer people on a project.

If the technology required prevents frequent (at least daily) build-test cycles, agile development practices may not work.

If the work environment prevents direct team communication and cooperation, for example:

- cubicles with no directly accessible common area,
- a team widely separated (by floors, buildings, cities, etc.), or
- other distractions to and interferences with technical/business communication,

agile methods could be hampered.

### When Worlds Collide: Agile Methods Meet Formal Methodology

Given “traditional” methodologies and models, could a development team practicing agile methods hope to meet the expectations of a customer used to more “formal” approaches? The cautions noted above suggest they may not be able to do so based on those customer expectations.

For example, if the software acquisition model a customer must use does not allow them to assume that the teams specifying, building, and maintaining the system through various iterations of enhancement will be the same, significant external (from the code and test cases) documentation will probably be required as the communication medium between the different teams. On the other hand, some agile supporters would say that, if a customer wants significantly more (or different types of) documentation than an agile method produces, that can be done by making such documentation part of the “stories” (requirements) generated by the client to describe the system. Then, along with actual system features, the effort and cost for documentation would be estimated and the customer could prioritize and ask that the documentation be scheduled during appropriate delivery iterations.

On the other hand, to reap some of the benefits in cost and delivery of functionality, a customer may have to evaluate the actual usefulness of large documents that are continuously updated throughout a project as requirements change. If one does not want or cannot tolerate iterative change throughout the project, then, perhaps, everything can be defined up front, documented, and implemented in one cycle of development. Agile methods may not be a good choice in that case.

But it does not seem accurate to claim that agile methods are somehow “glorified hacking” or, as one person has put it, “hackers with shoes.” Indeed, many of the practices demanded by agile methods are very responsible and often not practiced by those claiming to follow more formal methodologies. For example, when was the last time you worked on a project where developers were required to think about and define the tests their code would be expected to pass before they wrote the code? Indeed, how often does any form of organized, planned unit testing occur in much software development?

[In an effort to bring agile methods and typical system acquisition together, the IEEE Software and System Engineering Standards Committee (S2ESC) has initiated a Working Group (P1648) to produce a Recommended Practice related to agile

methods and project acquisition practices. Those with experience in (either of) these areas and interested in participating in the work on this standard should contact the author who is chairing this Working Group.]

**Scott Duncan** is the Standards chair of ASQ's Software Division and a regular contributor to Software Quality, the division newsletter, and the International Conference on Software Quality, the division's annual conference. He may be contacted at 901 Douglas Drive, Ellerslie, GA 31807, 706-888-5021 (cell), [sduncan@computer.org](mailto:sduncan@computer.org).

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## “CAN YOU TELL ME THE INDUSTRY AVERAGE?”

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BY DAVE ZUBROW

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I get a question like this probably once a week. It always sends me into a tirade. People often call because they need a number for a proposal or they are evaluating a proposal. Or, maybe they're setting targets for an improvement program. Whatever the purpose, I usually launch into an unwelcome lecture and it goes something like this:

“First, what industry are you referring to? I assume you would like data relevant to the type of work performed by your organization.” This may seem obvious, but an industry average will often include data from a wide variety of organizations performing a wide variety services and producing a wide variety of products. Do the types of organizations contributing data to the average matter? I would think one would like to know this detail in order to make an informed decision about the appropriateness of the number that they will use. For instance, organizations making systems that must meet safety standards will have a different productivity rate from those that are not required to meet such standards. Would you want those organizations in the average that you use?

Knowing the details of what type of organizations have contributed data to the average is just one question that should be asked. Another question is, “How are the data collected?” Are they collected with a survey? If so, what projects are included in the data? Who submits the data for the organization and what sources do they draw upon? Are the data verified in some manner? Are the data normalized somehow? If the data are collected some other way, the questions still apply. The answers to questions such as these would inform one as to the confidence, appropriateness, and risk associated with a specific use of the “industry average.”

A final issue I will address has to do with asking about “the average.” The average may or may not be the most likely or most probable value of a distribution. Hence, it may not be the right number to ask for. It is important to understand the shape of the data's distribution. The average for a narrow, bell-shaped distribution may be used with the expectation that future results may be similar. On the other hand, another set of data may have the same average but a very broad range. Therefore, using the average in this instance carries greater

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# "CAN YOU TELL ME THE INDUSTRY AVERAGE?"

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risk. In a rectangular distribution, in fact, all values are equally likely and therefore the average may be as good a number to use as any other, but the magnitude of likely error could be great. In a bimodal distribution, the average may be the least-likely-to-occur number. You may want to consider use of the median or mode. These are alternative measures of central tendency for a distribution and either may be more appropriate in certain circumstances.

In the end, decisions will be made, numbers used, and justification developed. The point here is simply to stimulate skepticism and inquisitiveness on the part of those seeking numbers to meet their needs. I am interested in creating a community of savvy and informed consumers of data. The shame of it is, there is not much high-quality data easily available to answer our questions. However, this is understandable given the expense and effort that goes into developing such data sets. Nonetheless, I think we work in a data-poor industry where many are desperate for higher-quality data to help us do our jobs. So, we must be informed about the quality and appropriateness of the data we are using to build and evaluate proposals. The questions above provide a starter set for you to use to evaluate your sources of data. I encourage you to use and expand on them.

*Dave Zubrow is a frequent contributor to Software Quality and member of the Editorial Review Board. He is Senior MTS of SEI and can be reached at dz@sei.cmu.edu.*

# THE LAW OF EXPLOSIVE GROWTH

CHUCK MILLER

John Maxwell's book, *The 21 Irrefutable Laws of Leadership*, has been a great resource to me. Many of the principles are so pertinent that one or two readings are insufficient.

One of the principles is the Law of Explosive Growth. In some respects this principle is like the classic pyramid. The truth is simple: instead of developing leaders who develop followers; why not develop leaders who develop leaders. In order to succeed, we must think succession. Businesses do not grow on followers, they grow on leadership. We must think succession—who will replace us, who has the qualities and characteristics to take over?

Developing leaders instead of followers is a matter of focus.

### Leaders who develop followers:

- Need to be needed
- Focus on weakness
- Treat their people with the same fairness
- Hoard power
- Impact only people they touch

### Leaders who develop leaders:

- Want to be succeeded
- Focus on strengths
- Treat people as individuals with unique skills
- Give power away
- Impact people beyond their scope

The principle is simple, hire and mentor people with that "diamond in the rough" characteristic. Again, think leaders, not followers.

This principle explains why networking is such a powerful tool. By associating with other leaders and talented people you increase your resource base. By developing leaders, not followers, you encourage them to bring their knowledge and skills into action.

Many times companies fail to have marketing strategy sessions because they realize they have hired followers, not leaders. Leaders bring ideas, and while not all ideas will work, the exercise of evaluation will lead to fresh ideas.

As incredible as was Levi Strauss' original canvas pant idea, it took years of leadership development to continue to maintain their reputation.

Here is some food for thought.

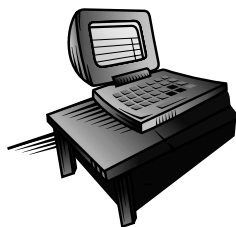
If tomorrow you were to leave, do you have the talent in house to succeed you?

What is the future of the company? Have you hired the leaders who are hiring leaders?

Or are they just hiring followers who can do one job only. Explosive growth takes place when talented leaders are given the opportunity to develop and grow.

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# STANDARDS CHAIR REPORT

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BY SCOTT DUNCAN

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This column is being written after the latest IEEE Software Engineering Standards Committee (Executive Committee and Management Board) meetings but before the next US (ISO/IEC JTC1/) SC7 TAG meeting, so it covers the SESC meeting (Feb. 25-26) and IEEE standards.

## What's in a Name?

The SESC decided that, since they are somewhat involved in system-related standards, at least “for systems containing software,” that a name change was needed for the Committee. Hence, at this meeting, the name was proposed to become: Software and Systems Engineering Standards Committee (S2ESC). The IEEE Standards Association has to approve this, but that's the proposal going into the SA board.

SESC is looking to adopt ISO/IEC 15288—a systems life cycle standard much as 12207 is a software life cycle standard. Many organizations involved in large mission/safety-critical software projects are concerned with both systems and software. There are those in the systems community, though, who regard software as an “ility,” i.e., just another (set of) system requirement(s) that happens to be implemented in software.

We'll see if there is any problem in getting the name change approved.

## Process vs. Product

SESC continues to pursue its goal of getting standards revised with a process focus as much as possible. This will result in the product specifications in many standards being moved to annexes/appendices rather than appearing in the main body of the standard. Conformance and compliance issues would then not focus on the format of plans/documents by how they get created. (And, as noted before, electronic collections of the standards would, ultimately, link from standards to templates people could download and use as guides to providing the content relevant to the planning processes described.)

In simple cases, a standard that used to be titled something like “IEEE Standard for <xyz> Plans” will become something like “IEEE Standard for <xyz> Planning.” The information regarding what sections and structure an <xyz> plan should have would be moved to the annexes/appendices. Questions will begin to arise, though, around standards where the format of the delivery of content is a critical human factor issue, such as documentation standards. For example, a standard for end-user software documentation could be diminished in value if it became a standard for documenting software for the end user, putting requirements for how to structure such documentation into guidance annexes/appendices.

Thus, there may be some standards that remain more product focused than others.

## Quality Management

The SESC has established a study group related to how their standards relate to quality management standards like ISO 9001 and the various domain-specializations of ISO 9001. The goal is to see what gaps exist between what these management standards address (related to software) and what SESC standards cover. Going in the one direction, SESC would want to cover any gaps

they have in material to address quality management issues for software. From the other direction, SESC would be interested in seeing what impact their standards could have in how software-specific aspects of quality management standards get stated.

The head of this group is John Walz, formerly much involved in the TC176 work on ISO 9000:2000 and the telecom industry customization of that through TL 9000.

## High Integrity Software

A second Study Group has been established to address high integrity software, specifically to address interests from the DoD acquisition area headed by Joe Jarzombek, which is concerned with this topic. A representative from the Department of Energy is heading up this group. The group has various government participants, including the DoE, DoD, and NASA. They are looking for participation from other domains where high integrity software is critical to system success such as aerospace, automotive, and telecom.

Among the standards they may be examining will be ISO/IEC 16085, IEEE 1012, IEEE 982.1, and IEEE 1228.

## Standards Revision Consistency

Another area of concern for the SESC is consistency between standards as they are revised. For example, ISO/IEC 12207, ISO/IEC 15288, and IEEE 1074 are about life cycle definition and should be “harmonized” to avoid conflicts. SC7 has a group looking at “harmonization” which would include 12207 and 15288, but it appears it could be a long process. However, the overall SESC concern to see this happen within standards they develop/adopt exists and will be pursued.

## Agile Methods Guidance for Acquirers

The SESC project (P1648) to develop a Recommended Practice for acquirers/customers of agile development projects is gathering momentum and has begun to attract interest from the agile development community. The standard will not attempt to standardize agile methods but target customers used to “heavier” methods for project development. It will offer guidance to such customers regarding expectations for customer involvement, requirements specification and management, testing, documentation, etc. It will also identify the disciplines to look for in an organization claiming to be agile (e.g., continuous integration with automated testing) so those not familiar with agile methods can help distinguish between a true agile methods proposal and a proposal claiming agile methods but simply shortcutting process/practices.

I am chairing this Working Group and we hope to do a lot of its business through e-mails and conference calls, meeting only if progress does not seem to be occurring without a face-to-face gathering. In connection with this, I am hoping to have a session at the Agile Development Conference in Salt Lake City (June 22-26) to get input directly from the agile community on what advice they would offer a customer new to agile projects and what practices they would expect an agile project to follow.

## Next Face-to-Face SESC Meeting

The SESC has monthly conference calls, but meets face-to-face twice a year (February and August). The next face-to-face meeting dates have not been set though it will be, it appears, in Ft. Lauderdale, FL, one of the “middle” weeks in August.

*As always, those interested in standards work can contact Scott Duncan: [softqual@knology.net](mailto:softqual@knology.net), 706-649-2345 (weekdays), 706-565-9041 (evenings and weekends).*

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# CERTIFIED SOFTWARE QUALITY ENGINEERING QUIZ

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1. Which of the following are responsibilities of a quality action team's sponsor?
  - I. Providing ongoing resources
  - II. Managing the utilization of team resources
  - III. Defining the scope of the team's assignment
  - IV. Assigning activities to team members
  - A. I and II only
  - B. I and III only
  - C. II and IV only
  - D. III and IV only
2. An internal auditing group is conducting a 5-day quality system audit in preparation for an ISO 9000 registration audit. When should the auditee be briefed during this audit?
  - A. After the corrective action has been implemented
  - B. During the opening and closing meetings of the audit
  - C. Every day to keep the auditee informed of the ongoing progress of the audit
  - D. Only at the end of the audit when complete audit results are available
3. All of the following are used in requirements management EXCEPT:
  - A. change control boards.
  - B. traceability matrices.
  - C. measurements of requirements stability.
  - D. joint application development sessions.
4. The project manager estimates that an activity will take one software engineer 34 effort hours to complete. Assuming that two people can efficiently work on the activity together, if the project manager assigns a second software engineer to the activity, it will:
  - A. increase the activity's estimated effort.
  - B. decrease the activity's estimated effort.
  - C. increase the activity's estimated duration.
  - D. decrease the activity's estimated duration.
5. The purpose of an interrelationship digraph is to:
  - A. prioritize items by order of importance.
  - B. break down or stratify ideas into progressively more detail.
  - C. organize ideas and define the ways in which ideas influence each other.
  - D. analyze the correlations between two groups of items.
6. Which of the following metrics would be most appropriate to use in evaluating the effectiveness of the system testing process?
  - A. System test defect detection efficiency
  - B. Defect arrival rate during system test
  - C. Count of system test cases passed
  - D. Defect found per effort hour spent in system test
7. Which of the following is a role of software configuration management?
  - A. Testing configuration items to validate that they meet defined requirements
  - B. Specifying requirements and allocating them to configuration items
  - C. Tracking and controlling changes to baselined configuration items
  - D. Auditing the processes used to create configuration items to ensure compliance to standards

Answers can be found on p. 10

## FROM THE REGIONS

### Region 4: Chris FitzGibbon

This forum provides Software Division members with information on software quality events in Region 4 (Canada).

#### *Calgary, Edmonton, and Vancouver*

Vancouver-area software quality practitioners now have the opportunity to participate in the **Software Quality Assurance Vancouver User Group (VanQ)**. The organization's mission and objectives are posted on its Web site [www.vanq.org](http://www.vanq.org). Guest speakers have delivered impressive presentations on automated testing techniques and log file analysis, with more events planned in the near future. VanQ meetings are held at the Burnaby campus of the British Columbia Institute of Technology.

The Calgary-based **IEEE/ASQ Discussion Group for Software Quality** also has some impressive presentation topics, including "Difficult-to-Test-Software War Stories" and "Real World Software Reviews." The group meets every two weeks at the Calgary campus of the DeVry Institute. All sessions are free and advance registration is not required. Their Web site is [www.software-quality.ab.ca](http://www.software-quality.ab.ca).

#### *Toronto and Southern Ontario*

The **Toronto Association of Systems and Software Quality (TASSQ)** has dinner meetings the last Tuesday of each month at the Sheraton Centre Toronto Hotel. Recent presentations have discussed defect reduction and analyzing the costs of testing. Additional information is available at [www.tassq.org](http://www.tassq.org).

In late March, the **Toronto SPIN** hosted a presentation on the SCRUM project management methodology. Their Web site is [www.torontospin.com](http://www.torontospin.com). The Toronto SPIN is actively recruiting volunteers for their organizing committee.

#### *Ottawa and Montreal*

The ASQ Ottawa Valley Section's **Software Focus Group** now has a Web site that is accessible from a link at: [www.asqottawa.ca/software](http://www.asqottawa.ca/software). In addition to holding regular CSQE study groups, the Software Focus Group has recently hosted guest speakers on topics that include: the Software Process Engineering Metamodel (SPEM), defect containment, and implementing automated test tools.

The **Ottawa Software Quality Association (OSQA)** has a morning seminar planned for mid-May during which presentations will be made on "Making Global Software Development Work" and "The Effective Application of Six Sigma in Software Engineering." More information on this and other OSQA events is available from [www.osqa.org](http://www.osqa.org).

#### *Conferences*

ASQ's flagship conference, the **58th Annual Quality Congress (AQC)**, is just around the corner (May 24-26, 2004). This year Region 4 (Canada) is fortunate enough to be hosting the event in downtown Toronto. The complete listing of speakers and topics, including many software-related topics, is available from the conference Web site ([www.aqc2004.ca](http://www.aqc2004.ca)). If you were considering attending only one conference this year, the AQC would be the best bet. See you there!

If you have information that you would like to share with fellow **ASQ Software Division** members, or you would like to get more actively involved with the division, contact me at [chris@orioncanada.com](mailto:chris@orioncanada.com) or 613-563-9000. It would be a pleasure to hear from you.

### Region 6 Tom Gilchrist

The Pacific Northwest Quality Conference organization produced its annual "Spring Tutorials" in May. The workshops provided full-day, practical, hands-on information about specific testing issues and challenges. Topics were the same in both locations.

#### **Monday, May 10, 2004**

8:30 am-5:00 pm, Kingstad Meeting Center, Beaverton, OR 97006

#### **Tuesday, May 11, 2004**

8:30 am-5:00 pm, Kingstad Meeting Center, Bellevue, WA 98005

#### **The 2004 Spring Workshops:**

- 1 Managing an Offshore Test Team**  
Claudia Dencker, Software SETT Corporation
- 2 Tester's Survival Game**  
Ross Collard, Collard & Company
- 3 Scripting for Testers**  
Bret Pettichord, Pettichord Consulting LLC

For more information, visit <http://www.pnsqlc.org>.

On the third Thursday of every month (except December), SASQAG holds monthly public meetings in the Seattle area at Attachmate in Factoria. SASQAG also supports certification and study groups. If you are in the area and want to attend, please check [www.sasqag.org](http://www.sasqag.org) for upcoming events, directions, and meeting times.

SASQAG sponsored two \$99 training days in March 2004. Both were sellouts. On March 2, 2004, James Whittaker presented "How to Break Software." On March 19, 2004, Bret Pettichord presented "Home Brew Test Automation." Both events were held at the Honeywell Learning Center in Bellevue, WA. Our next \$99 training days will be held late this summer or fall. See the [www.sasqag.org](http://www.sasqag.org) Web site for information when it becomes available.

Boeing hosted the 50th meeting of the U.S. TAG to ISO/IEC JTC1 SC7 in Long Beach, CA April 12-16. This TAG meets semiannually to prepare comments to evolving new and existing standards dealing with software development. ASQ Software Division members Scott Duncan and Mike Kress (host) were in attendance. TAG representatives are then nominated to represent the U.S. National Body at SC7 international meetings. A meeting was also held in Brisbane, Queensland, Australia, May 9-14. Mike Kress, Software Division chair, attended and represented Technical Group 6, which worked on the new ISO 25000 series of software measurement standards.

If you have information on local software quality and testing events in your area of Region 6, please send them to me for our events calendar. I am looking for more information about activities and events in California. Visit <http://www.tomgtomg.com/asq6> for information on events around Region 6.

Tom Gilchrist, ASQ Software Division, [tomg@tomgtomg.com](mailto:tomg@tomgtomg.com).

### Region 12 Irv Segal

We are making progress toward our one-day regional event. Most of the speakers have been lined up and I have enlisted one volunteer to help with logistics, etc. We do have two speaking slots still open, so if there are any volunteers please let me know ASAP. We would like

*(cont. on p. 10)*

to put on an open debate at the end of the day, so if anyone has suggestions for a hot SQA topic suitable for debate please let me know.

I sent out an informal survey to our regional membership to see what ASQ products/services they like most and what they would like to see changed. Many respondents commented that the Software Division's newsletter was by far the biggest benefit—one respondent commented that it is the only thing they read from cover to cover every issue. Another respondent suggested that a reciprocal best practice exchange program be established. This would entail one company sending a speaker to another company to present their SQA best practices and then receiving a similar speaker in return. Anyone interested in this program should contact me for more information. There was also some interest in CSQE training classes to be offered locally. I am investigating the possibility of having our company sponsor these classes in the Chicagoland area.

Best regards.

### **Region 13      Grandville Jones**

The Annual Rocky Mountain Quality Conference was April 26-27, 2004. The theme of this regional conference was "Maximum Impact: Strategies and Tools for Success." The location was the Arvada Center in Arvada, CO. Go to [www.rmqc.org](http://www.rmqc.org) for more information. I participated in the RC's teleconference February 24, 2004. I encourage all Region 13 members to contact me if you have any software related questions/activities at [granvillejones@comcast.net](mailto:granvillejones@comcast.net).

## **ANSWERS TO THE CERTIFIED SOFTWARE QUALITY ENGINEERING QUIZ**

**1. Answer C is correct.** The responsibilities of a team's sponsor include:

- Calling and arranging for team meetings
- Handling or assigning administrative details
- Directing the team including assigning activities to team members
- Managing and directing the utilization of team resources
- Overseeing the preparation and presentation of team reports and presentations

Providing ongoing resources and defining the scope of the team's assignment are responsibilities of a team's sponsor. **CSQE Body of Knowledge Area: I.C.3**

**2. Answer C is correct.** A daily audit feedback meeting (also called a daily briefing) should be held to update the auditee on what information has been collected so far and on any potential problems or areas of concern. The goal here is NO SURPRISES. These meetings also give the auditee an opportunity to provide additional information to clarify misconceptions and prevent incorrect information from being included in the audit report. **CSQE Body of Knowledge Area: II.C.2**

**3. Answer D is correct.** Joint application development (JAD) sessions are used as a requirements elicitation technique during requirements development. **Body of Knowledge Area: III.B.1**

**4. Answer D is correct.** The duration is the amount of work periods (not including holidays or other nonworking periods) required to complete a scheduled activity. Effort is the number of labor units required to complete a scheduled activity. For example, if a task takes 34 effort hours to complete and two people can effectively work on the activity together, it should cut the duration of the task approximately in half. **CSQE Body of Knowledge Area: IV.A.2**

**5. Answer C is correct.** The purpose of an interrelationship digraph is to organize ideas and define the ways in which ideas influence each other. The purpose of a prioritization matrix is to prioritize items by order of importance. The purpose of a tree diagram is to break down or stratify ideas into progressively more detail. The purpose of a matrix diagram is to analyze the correlations between two groups of items. **CSQE Body of Knowledge Area: V.C.2**

**6. Answer A is correct.** The defect detection efficiency metric is used to evaluate the effectiveness of a defect detection technique like system testing at finding the defects that exist in the software product. Defect detection efficiency is the ratio of the number of defects found by the technique divided by all of the defects that existed when the technique was used. Defect arrival rates and the count of test cases passed are two indicators that can be used to evaluate the completeness of the system testing process and the stability of the software work products being tested. Defects found per effort hour spent in system testing is a measure of the efficiency not the effectiveness of system testing. **CSQE Body of Knowledge Area: VI.A.2**

**7. Answer C is correct.** One of the roles of software configuration management is to define and administer procedures for ensuring that only authorized changes are made to baselined configuration items. Testing configuration items to ensure that requirements are being met is the role of verification and validation. Specifying requirements and allocating them to configuration items is a role of systems engineering. Auditing the processes used to create configuration items to ensure compliance to standards is a role of software quality assurance. **CSQE Body of Knowledge Area: VII.A.1**

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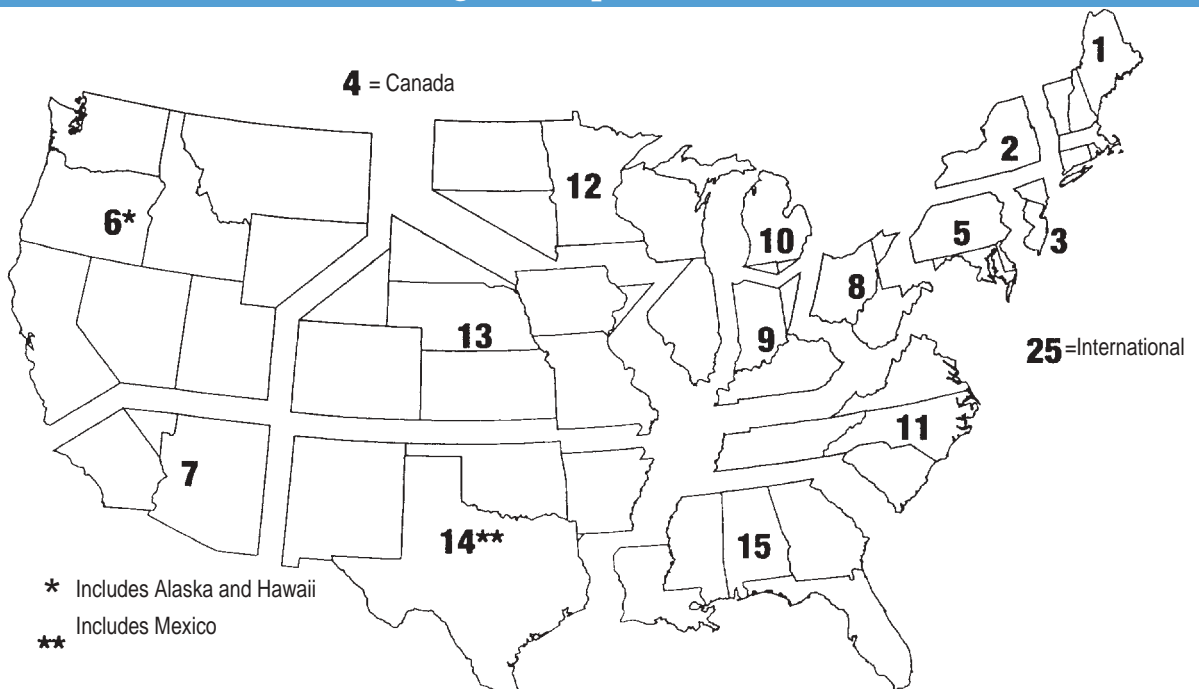
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## Regional Map



# SOFTWARE QUALITY

**SUBMIT ARTICLES FOR  
THE NEXT ISSUE OF  
SOFTWARE QUALITY BY  
JULY 1, 2004.**

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**E-MAIL: TGRIFFIN@MAIL.AUM.EDU**

**DON'T FORGET TO MARK YOUR CALENDARS  
CSQE EXAM**

Location	Exam Date	Application Deadline
Orlando, FL at 14ICSQ	October 3, 2004	September 3, 2004
ASQ Local Sections and International Sites	December 4, 2004	October 1, 2004

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# THIRD WORLD CONGRESS ON SOFTWARE QUALITY (3WCsq)

**SEPTEMBER 26-30, 2005**

The planning for the Third World Congress for Software Quality (3WCsq) is ongoing. It will be held in Munich, Germany, during the Oktoberfest (!), September 26-30, 2005. This congress is held every five years, and rotates among the American, European, and Japanese software quality organizations. The congress will last for five days and will consist of tutorials, workshops, panel discussions, paper and keynote sessions, excursions to the research laboratories of the main sponsors, and a five-day exhibition of software tool suppliers. There will be social events, receptions, and other opportunities to meet the experts and VIPs of the software engineering business. The Web site is [www.3wcsq.org](http://www.3wcsq.org). If you would like to submit a contribution to the conference, you can do so now via the Web site.

## KEY DATES

**Deadline for proposals of panels,  
workshops and tutorials**

October 15, 2004

**Deadline for full papers**

November 15, 2004

**Notification of acceptance**

February 15, 2005

**Final papers due**

April 15, 2005

**Congress**

September 26-30, 2005

The ASQ Software Division was the organizer and host of the inaugural congress that was held in San Francisco in June 1995. The Second World Congress (2WCsq) was hosted by the Union of Japanese Scientists and Engineers (JUSE) and held in Japan in September 2000. The European Organization for Quality (EOQ)—Software Group is hosting the 2005 congress. The local sponsor is the ASQF.

Patricia McQuaid is the program chair for North, South, and Central America for the 3WCsq, and did the same for the 2WCsq in 2000. She can be reached at [pmcquaid@calpoly.edu](mailto:pmcquaid@calpoly.edu).

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# 14TH INTERNATIONAL CONFERENCE ON SOFTWARE QUALITY

(TO BE USED FOR OCTOBER 3, 2004, EXAMS ONLY)

## 1. ASQ MEMBERSHIP NUMBER

If you are not an ASQ member, leave blank

## 2. NAME/ADDRESS INFORMATION

Mr.  Ms.  Dr.  Mrs.

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HOME ADDRESS APT./STE.

CITY, STATE, ZIP CODE COUNTRY

AREA CODE AND TELEPHONE NUMBER

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EMPLOYER ADDRESS

CITY, STATE, ZIP CODE COUNTRY

AREA CODE AND TELEPHONE NUMBER FAX NUMBER

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## 3. FEE

Check the applicable box below. If you are interested in becoming a member, include payment for membership options with your certification fee. You may pay by check, money order, bank draft, Visa, MasterCard, or American Express. Tuition vouchers and purchase orders are not accepted.

Your application will be returned unprocessed if payment is not enclosed. \$50.00 of your fee is an application fee and is not refundable.

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Certified Quality Manager.....  Retake.....\$185.00 U.S.  
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## 4. EXAMINATION DATE

**SUNDAY, OCTOBER 3, 2004**

Application Deadline – September 3, 2004

Your application must be received by the application deadline.  
**Seating is limited!**

## 5. EXAMINATION SITE

14th International Conference on Software Quality  
 Wyndham Orlando Resort  
 Orlando, FL

Exam Times: CSQE, Six Sigma Black Belt, and  
 Certified Quality Manager 8:00 am – Noon  
 CQA and CQE 8:00 am – 1:00 pm

## 6. EDUCATION

Complete the section below showing the **highest** completed educational degree or diploma you have received, the name and location of the institution conferring it, and the year you received it. You may not claim any credit for nondegree education or for partially completed degree programs.

**International applicants must provide documentation to verify educational equivalency.**

Degree or Diploma \_\_\_\_\_ Year \_\_\_\_\_

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Please complete both sides of this application.

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**Application Deadline - September 3, 2004**

## 7. WORK EXPERIENCE

**IF YOU DO NOT MEET ALL OF THE NECESSARY QUALIFICATIONS, YOU WILL NOT BE ALLOWED TO TAKE THIS EXAM.**

**CQE, CQA** and **CSQE** require EIGHT years of higher education and/or work experience including THREE years in a decision-making position.

**Certified Quality Manager** requires 10 years of higher education and/or work experience including FIVE years in a decision-making position.

**Six Sigma Black Belt** requires two completed projects with signed affidavits **or** one project with signed affidavit and three years of work experience. No education waiver given.

**ALL WORK EXPERIENCE MUST RELATE TO ONE OR MORE AREAS OF THE BODY OF KNOWLEDGE OF THAT SPECIFIC CERTIFICATION.**

**“DECISION-MAKING” is defined as the authority to define, execute, or control projects/processes and to be responsible for the outcome.**

If you have completed a degree, diploma, or certificate program beyond high school, you may waive some of the required experience as follows:

- |  |                                  |
|--|----------------------------------|
| Certificate/diploma from a technical or trade school | <input type="checkbox"/> 1 year  |
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| Bachelor's degree                                    | <input type="checkbox"/> 4 years |
| Master's/doctoral degree                             | <input type="checkbox"/> 5 years |

**You must attach a resumé or provide your work experience below; employment dates must be by month/year.**

**Completed affidavits for the SSBB exam must be submitted with the application.**

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Employer \_\_\_\_\_

Address \_\_\_\_\_

Supervisor \_\_\_\_\_

Job Title \_\_\_\_\_ From (Mo/Yr) \_\_\_\_\_ To (Mo/Yr) \_\_\_\_\_

Employer \_\_\_\_\_

Address \_\_\_\_\_

Supervisor \_\_\_\_\_

Job Title \_\_\_\_\_ From (Mo/Yr) \_\_\_\_\_ To (Mo/Yr) \_\_\_\_\_

Employer \_\_\_\_\_

Address \_\_\_\_\_

## 8. PROOF OF PROFESSIONALISM

Please check the appropriate box below.

- I am a member of ASQ.
- I am registered as a Professional Engineer.
- I have obtained the signatures of two persons who are ASQ members and who can attest that I am capable of meeting the ASQ Code of Ethics.

Signature \_\_\_\_\_

Signature \_\_\_\_\_

## 9. COMPLIANCE WITH RULES

Please read the ASQ Code of Ethics below. Compliance with the Code of Ethics is mandatory.

“I have read and I understand the ASQ Code of Ethics, and agree to comply with it. I agree not to discuss or release, in any form, the content of the exam. I affirm that all the information contained in this application is correct.”

Signature \_\_\_\_\_

Please print your name \_\_\_\_\_ Date \_\_\_\_\_

## ASQ Code of Ethics

To uphold and advance the honor and dignity of the profession, and in keeping with high standards of ethical conduct, I acknowledge that I:

### Fundamental Principles

- I. Will be honest and impartial; will serve with devotion my employer, my clients, and the public.
- II. Will strive to increase the competence and prestige of the profession.
- III. Will use my knowledge and skill for the advancement of human welfare and in promoting the safety and reliability of products for public use.
- IV. Will earnestly endeavor to aid the work of the Society.

### Relations With the Public

- 1.1 Will do whatever I can to promote the reliability and safety of all products that come within my jurisdiction.
- 1.2 Will endeavor to extend public knowledge of the work of the Society and its members that relates to the public welfare.
- 1.3 Will be dignified and modest in explaining my work and merit.
- 1.4 Will preface any public statements that I may issue by clearly indicating on whose behalf they are made.

### Relations With Employers and Clients

- 2.1 Will act in professional matters as a faithful agent or trustee for each employer or client.
- 2.2 Will inform each client or employer of any business connections, interests, or affiliations that might influence my judgment or impair the equitable character of my services.
- 2.3 Will indicate to my employer or client the adverse consequences to be expected if my professional judgment is overruled.
- 2.4 Will not disclose information concerning the business affairs or technical processes of any present or former employer or client without his or her consent.
- 2.5 Will not accept compensation from more than one party for the same service without the consent of all parties. If employed, I will engage in supplementary employment of consulting practice only with the consent of my employer.

### Relations With Peers

- 3.1 Will take care that credit for the work of others is given to those to whom it is due.
- 3.2 Will endeavor to aid the professional development and advancement of those in my employ or under my supervision.
- 3.3 Will not compete unfairly with others; will extend my friendship and confidence to all associates and those with whom I have business relations.



If you have special needs that we can address, call ASQ's Certification Department at 800-248-1946 or 414-272-8575.