Four Big Ideas that Drive Agile Quality

A whitepaper by John C Goodpasture

Managing Principal, Square Peg Consulting, LLC

www.sqpegconsulting.com

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The fundamental ideas of quality capture customer value, commitment to continuous improvement, participation by everyone, and respect for culture

"…the dynamic force in Globalization 3.0—the force that gives it its unique character —is the newfound power for individuals *to collaborate and compete globally"*

Tom Friedman

In a remarkable book of its era entitled *"A New American TQM"*, authors Shiba, Graham, and Walden wrote in 1993 about four big ideas in quality that even today resonate well in agile projects.[1] The 'big four' are: 1—focus on 'market-in' drivers from customers; 2—be committed continuously to learning and improvement; 3—involve everyone—no one gets a free pass on quality; and 4—maintain awareness of societal implications for quality.

The focus should be on customers

Joseph Juran started us thinking in the customer's direction with his idea of fitness for use, a sharp departure from Edwards Deming's focus on product compliance to specification. *But 'focus on customers' means customer-driven, not just customer-accepted*. Customer-driven means 'market-in' in contrast to 'product-out', an idea similar to the 'pull' concept in Lean Development.[2] But how does the customer know what he wants? How does the customer come to be the driver? Customers did not conceive the Sony Walkman™, an 'ah-hah!' product of its generation, or the unique touch screen features that came along in the iPhone™. The agile answer is close involvement and collaborative engagement with the customer to do what Jim Highsmith calls envision, speculate, and explore.[3] The answer is to lead the customer both with innovation and technical excellence, but also follow the customer's evaluation of fitness to use, a concept of value to everyday usefulness.

Continuous improvement is a project imperative

Edwards Deming started continuous improvement and pushed it along, making it a centerpiece of the PDCA [plan-do-check-act] cycle. However, the ideas that came along since Deming really turned continuous improvement into a problem-solving paradigm, and ultimately that led directly to the "Six Sigma" revolution.

Six Sigma is really a two-part process that has some interesting features applicable to agile projects

—Part 1 is problem identification and solving methodology that builds off Deming's PDCA. Six Sigma is said to "follow the defect" which fits well with the agile mandate to always deliver a working product.[4]

In Six Sigma-speak, the process is dubbed

DMAIC with the letters standing for the Design-Measure-Analyze-Improve-Control steps of the methodology. DMAIC really implements the Check-Act component of PDCA in a more sophisticated manner.

—Part 2 introduces into the popular lexicon the idea of an 'opportunity space' partitioned between good and not-good.

The opportunity space is populated by defects that are known, knowable, and unknowable. Known errors or defects that are going to be fixed should be fixed as soon as they are discovered. The knowable errors are those that can be discovered if only an effort is made to test and evaluate scenarios and conditions where these errors might be.

However, discovery is a matter of project economics: there may not enough time and money to discover the knowable errors. The unknowable are errors arise from untested, unlikely conditions that are not even known at the time of product verification. Only customers are likely to fall upon an unknowable error by invoking some set of conditions during validation that no one would have thought possible.

The idea of continuous improvement is continuous learning; to apply the lessons learned in a feedback to the next iteration to improve outcomes; and to make the best bet in partitioning the opportunity space, improving performance with every iteration.[5]

Opportunity space

- In the agile world where the emphasis is on verifying the quality with robust testing, both technically and functionally, the opportunity space is challenging.
- Historically, the error rate in software code is a 1000 times worse than the popular Six-Sigma boundary. In a Business Week interview in 2005, Watts Humphrey, a fellow of the SEI, declared that companies that comport with SEI's capability maturity model were averaging a one-in-a-thousand error rate.
- Obviously, such performance is target-rich for improvement possibilities. In fact, in a NIST study released in 2002, the government reported that the impact of software errors had reached 0.6% of U.S. GDP, almost $60B in that year!
- Continuous improvement as a quality concept and as a project practice by means of root-cause analysis and feedback of lessons learned is a means to better performance.

	Six Sigma is supportive of Agile
A project management tip	• Six Sigma provides a very effective problem solving method, DMAIC, which enhances the PDCA cycle. The principles of DMAIC are usable without invoking other aspects of Six Sigma • Six Sigma brings understanding of the defect opportunity space, and promotes the idea of setting limits beyond which we know customers will not be satisfied. • Many defects will never be known and others are not economical to fix. All have the potential to contribute to the customer experience

Total participation involves everyone

As a quality concept, total participation envisions a synergistic involvement of all members of the project community – the executives, managers, supply chain members, and customers.

Total participation brings in all elements of the balanced scorecard. Success may require training and education from the learning perspective, resources and promotional support from the financial perspective, benchmarking and improvement initiatives from the operational perspective, and development of the customer and the supply chain as active project participants.

Total participation requires respect for the nemesis who has a counter-idea. So-called group-think where a common belief becomes unchallenged dogma can be destructive to innovation. Consider the ditty: '*Process guys always want to make the trains run on time, whereas the better idea may be to do away with the trains!'* The current slogan to 'think outside the box' is not only a call to break-up group think but also a search for new applications for old ideas, and to conceive new ways to do ordinary things.

Societal networking is flattening

Social networking has been a real revolution in the Web 2.0 space, first as a personal touch, but now much a part of business. We have spoken already of project portals and scorecards as information aggregators. Business networks predate web technology of course, but web technology has removed the friction and increased the velocity.

Business communications now run in near-real-time, and there is ever greater information transparency and democracy for ideas and commentary. But it's a lot more than reducing friction, increasing velocity, and making communications more democratic. Culture, as a framework for communication, has changed dramatically as technology has facilitated the means to interact. Culture has become more ubiquitous in business and technology. Tom Friedman has famously captured the idea of a nearly worldwide culture in his best seller, *"The World is Flat, a brief history of the 21st century"*.[6] Among the flatteners he spoke of was a common platform which enables collaboration on a global scale, but also flattens differences in outlook and presentation as global audiences are addressed.

In the global culture, there is more personal informality, greater personal connectivity up and down the chain, expectations for rapid work flow, real-time 24x7 communications for instant answers, total and continuing access by wireless, and transparency within the market and the organization. These changes facilitate the cultural changes that go along with a move to agile methods. The agile culture is decidedly more personal, stresses the productivity gains of face-to-face interaction, and requires a motivated team of professionals that really want to do a good job.

	Participation and networking are quality values
A project management tip	• Agile projects are intrinsically social, relying as they do on interpersonal relationships. The success of the project is predicated on acceptance of the quality values of participation and networking. • These quality concepts, reduced to practice, can be measured and therefore managed, a task of the project manager.

Summary and take-away ideas

- Our idea for this discussion is that the fundamental ideas of quality capture customer value, commitment to continuous improvement, participation by everyone, and respect for culture. Customer value is a 'pull' idea meaning the customer is the ultimate judge of what is useful and therefore what is valuable.
- Continuous improvement means continuous learning and application of feedback to reduce errors and improve quality outcomes.
- To be successful, a project should involve everyone who has a stake in order to get the widest possible contribution to the value proposition. Everyone includes the project nemesis.
- Culture is becoming more ubiquitous in professional and technology circles, made all the more so by networking aided and abetted by electronic communications. Organizations are flatter and more informal; relationships are just as likely to be vertical as lateral.
- The ideas of quality are timeless and fundamental to good project results.

Endnotes

1 Shiba, S., Graham, A., Walden, D. *"A New American TQM", The Center for Quality Management*", Cambridge, MA.,1993.

2 Womack, J. and Jones, D. *"Lean Thinking"* Simon and Schuster, New York, 1996, Chapter 4. In a word, 'pull' means that features and functions are not developed unless customers ask for them and state a requirement, and the requirement is properly valued and prioritized.

3 Highsmith, J. *"Agile Project Management: Creating Innovative Products",* Addison-Wesley, Boston, 2004 pg 81

4 See: Hallowell, L. *"Software Development Convergence: Six Sigma-Lean-Agile"* http://www.isixsigma.com, retrieved June 2009.

5 Editor, "*Watts Humphrey: He Wrote The Book On Debugging"* BusinessWeek online, May 9 2005 retrieved June 2009

Editor, "*Software Errors Cost U.S. Economy $59.5 Billion Annually"* NIST 2002-10, June 28, 2002

6 Friedman, T., *"The World is Flat, A Brief History of the 21st Century*", Farrar, Straus and Giroux, New York, 2nd edition, 2006, pg 205

7 iPhone is a trademark of Apple; Walkman is trademark of Sony in the United States.

About the author

John C. Goodpasture, PMP and managing principal at Square Peg Consulting, is a program manager, coach, author, and project consultant specializing in technology projects, strategic planning, project office operations. He is the author of books, articles, and web logs in the field of project management. He blogs at johngoodpasture.com, provides presentations at www.slideshare.com/jgoodpas, and his work products are found in the library at www.sqpegconsulting.com.