IT METRICS STRATEGIES

Helping Management Measure Software and Processes and their Business Value

Difficult IT Conversations, Part 2

by Michael Mah

In the field of IT, measures are intended to frame discussions. Often, having the wrong measures, or no measures at all, results in difficult conversations. The substantive issues are clouded when information is sketchy, leading to disputes and fractured negotiations. Problems associated with late projects, aggressive deadlines, or fuzzy requirements become tough to solve.

Metrics practitioners hope to help solve these issues by getting at the substantive issues with reliable metrics. We seek to understand cause and effect and look for answers to questions like, "Compared to what?" Through this knowledge, we look for ways to do things better than we did the last time; make reliable commitments that teams can realistically achieve; and establish realistic expectations, targets, and goals.

But even with the right numbers, conflict can occur — sometimes because of good measurements! (The truth can be sobering.) What makes one organization more successful than another just might be the way it handles conflict. The best organizations aren't the ones that have *no* conflict — that's naive; even the best relationships with the best metrics encounter disagreements and letdowns.

It is the organizations that handle conflict *well* that succeed. We understand this to be a major differentiator. Those that manage this terrain well

Continued on page 2.

The Princess and the Pea

by Lawrence H. Putnam and Ware Myers

Once upon a time, there was a fairy-tale princess who was very, *very* sensitive. She could feel a pea through her mattress, and it kept her awake at night. In the version of the tale that we saw, the princess was played by comedienne Carol Burnett, and you can imagine how sensitive she could be! Her attendants piled up mattresses on the princess's new bed until they were seven feet from the floor. Sitting on top of the pile, Carol screamed, "I can still feel the pea!"

That is the mental picture of the software developer we would like to carry in our head, "I can still feel the *risk*!"

You all know the actual picture. Modern software developers and their cohorts — the stakeholders — are insensitive to risk. They

Continued on page 12.

executive summary

In the February issue of ***ITMS,*** I featured an interview with Sheila Heen and Douglas Stone, two of the authors of the best-seller, *Difficult Conversations: How to Discuss What Matters Most.*

Since that time, I've had the pleasure of working with Heen and Stone, presenting with them at various conferences. I can tell you that their message has struck a chord among IT audiences.

This issue also features two other voices familiar to ***ITMS*** readers: Larry Putnam and Ware Myers. Putnam and Myers contribute an insightful article about a princess and a pea. In this particular case, the pea is that nagging feeling about project risks that might be keeping you up at night. In many cases involving IT projects, that pea is really the size of a grapefruit.

The problem is that many IT organizations train themselves to become desensitized to risk until it is too late. Or they deny the problem, hoping that something miraculous will happen to rescue them from their fate.

Putnam and Myers offer another view: feel the risks, then plan for them and be actively attentive to signals that might emerge. Why? Because I once heard a wise person describe denial as "lying to myself and believing it." If we are to help create IT projects that truly succeed, it will be because there are those among us who consciously deal with various truths, act accordingly, and create better outcomes that benefit all.

Michael C. Mah, Editor

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CUTTER CONSORTIUM

Continued from page 1.

just might have a leg up on those that don't. But doing this involves things that are not in the traditional skill set of IT professionals, at least not formally so.

Sheila Heen and Doug Stone are two of the three authors of *Difficult Conversations: How to Discuss What Matters Most* (see Figure 1). The book has become a runaway best-seller for a very good reason — it is jam-packed with practical advice that everyone can use, including those of us who deal with the challenging world of IT and the pressures that go along with the job.

In addition to being partners with Triad Consulting in Cambridge, Massachusetts, USA, Heen and Stone (see Figure 2) are researchers with the Harvard Negotiation Project and lecturers at Harvard Law School. They have worked with a diverse group of organizations, including the Singapore Supreme Court, Technology Partners International, Ford Motor Company, the Citadel (a military college), the Organization of African Unity, and the government of Ethiopia.

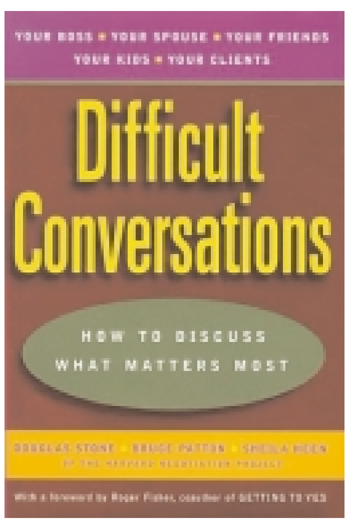

Figure 1 — Cover of *Difficult Conversations: How to Discuss What Matters Most* by Douglas Stone, Bruce Patton, and Sheila Heen.

All of these organizations have dealt with complex challenges in the face of rapid change. Heen and Stone bring a practical framework to handling complex problems, including those faced by our industry. This article is the second part of my interview with them (part 1 was published in the February 2000 issue of ***ITMS***).

A Conversation with the Authors of *Difficult Conversations*

Michael Mah: Say you're employed by a technology company, working under an "Internet speed" deadline, and something goes wrong. Do you think that we as a society are trained to react with a conflict response, which includes emotions of mistrust and anger? Or do we engage in resolution — getting into feelings of vulnerability, trust, and reconciliation — to find a solution? What do you think? What's your view of people in that regard? Are we trained to resolve, or are we trained to fight?

Doug Stone: I think we are trained not to fight offensively but to fight defensively. So we miss this deadline, and our first reaction is "Let me explain why this was not my fault!" First of all, my computer broke down. Second of all, you gave me bad instructions. Third of all, this deadline was unreasonable. From the time children are little, one of the first things they learn to say is "This was not my fault!" It is parents who say very directly, "Did you do this wrong? Did you break this lamp!?" And children know that, if they say no, they get to have dessert, and, if they say yes, they don't get to have dessert. You're training me to deny what I did.

MM: [laughs] I had to confront my daughter's behavior recently, and I asked her to tell me the truth about something. She said, "If I tell you, will you be mad at me?" It was an

Editorial Office: Clocktower Business Park, 75 South Church Street, Suite 600, Pittsfield, MA 01201. Tel: +1 413 499 0988; Fax: +1 413 447 7322; E-mail: michaelm@qsma.com.
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exquisite response for a 7 year old! I had to really think about her question before I answered.

Sheila Heen: Right after my sister was born, I drew with a red crayon all over my mother's newly upholstered chair. She said, "Did you do this?" And of course I'm the only person in the house that could have done this! And I denied and denied it all day! At the end of the day, I came in and said, "I'm sorry." And my mom said, "So, did you write all over the chair?" And I said, "No. But I'm sorry."

MM and DS: (laughs)

MM: Do you think people view the world — and their workplaces — fundamentally as a safe place or an unsafe place based upon their own personal history? If we grew up not feeling safe, we might be less apt to trust. Whereas if we believe the world can be a safe place — although from time to time, there are unsafe situations — then we might be more predisposed to trust. Many contemporary theories about conflict resolution involve the creation of "constructive trust." Let's talk a little about trust.

DS: I just had a really interesting thought. I was thinking about Sheila and my divergent tendencies both around criticism and around trust.

SH: I was thinking about that, too. And around client interaction.

DS: I will give you two examples of things based on a different way of being in an interactive world. If I get negative feedback from a client, I become very despondent.

SH: (chuckles quietly)

MM: Me, too. Big gray clouds start hanging over my head, making shadows.

DS: My reaction is that this feedback ruins our relationship. They think I am a bad person — you can't trust a relationship where someone has said you did a bad job.

Now Sheila's reaction is this: "We have a completely solid relationship, and we're just talking about this little memo that I wrote that they want me to change." And so Sheila and I have completely different reactions to the safety of relationships. Or Sheila and I will have a fight, and I'll say, "Well, I guess

Figure 2 — Doug Stone and Sheila Heen, authors of *Difficult Conversations* and partners at Triad Consulting in Cambridge, Massachusetts.

our friendship is over." She will look at me like, "What? We have an incredibly solid friendship, and having a fight demonstrates that." We just have a very different reaction to conflict. At the same time, I tend to be more trusting of people on the surface than Sheila is at times.

SH: Really? That's interesting!

DS: You're more like, "Well, we should have them put this in writing." I'm like, "Who cares about that?"

SH: Oh, that's not about trusting, that's about being naive…

MM: I guess it comes down to people having to be open to a very reflective process about their own personal relationship with the subject of trust and where it comes from — and encouraging people to explore the subject.

SH: Also, what did you learn about professional life from watching your parents or older people? The lessons I learned are that you have to look at relationships very long-term because my father, who is a lawyer, ended up leaving his law firm. Over the years, he has had disagreements with clients, but then two years later, the client comes back and says, "You were right in the first place, and I'd like you to do this work for me."

He had lunch yesterday with a former partner from his firm, and they were very much in conflict 15 years ago when he left. What I have learned from watching him is a very high tolerance for risk — also, a long-term view of client relationships. I think that has a huge influence on the way that I conduct my own professional life and the way that I respond emotionally. I also get depressed when we get negative feedback. But I think I have more underlying faith that this will work out in the end. We should own up to it and address it, rather than decide to just fire the client [laughs] and forget about it.

You were describing a very black and white view of learning to trust or not trust, and I think our family backgrounds actually were pretty similar; even gradations in difference in what we learned watching others have an exaggerated impact in our working relationship. We are the two ends of the pole, like in marriage. If you tend to spend even a bit more than I do, you are going to be "the spender," and I am going to be "the saver." And that happens in professional relationships and teams as well.

MM: The gradations become flipped into binaries — "tech-speak."

SH: That's what I wanted to say.

Interpersonal Skills Training

MM: Aside from asking the world to just read your book, what's your vision for how people and companies, then communities and countries might apply your ideas? Do you see a role for specific training and workshops that include experiential exercises? Much of your techniques involve some gestalt and role playing. Do you see "practice" as a component to help people "Just Do It" in their day-to-day lives?

SH: Hugely! Just think about the people who read your newsletter. I think what happens, particularly in the tech field, is that people are very good at the tech end of things; then, as they move up in the company, they become *people* managers. And they are just expected to do that job with very little training.

They received an enormous amount of training to be good at the tech end. *But it's assumed that you don't need that kind of training to get good at the interpersonal management issues.* People have an expectation that they have to go learn some of this, but experientially. I think training is really critical if the industry is going to move to the next level in terms of being well managed. Or they have to tap people who are good at it, which usually means bringing someone in.

MM: You bring up a great point. In the technology field, people are well versed in jobs where sometimes the primary challenge is the engineering. They might have even gravitated to science because communicating with people was believed to be a secondary issue, like other fields involving research.

SH: I want to be careful about stereotyping folks in the field, but it does seem true that whatever interpersonal skills you have tend to be based on the happenstance of your personal background.

DS: It's interesting. You would think, for example, that schoolteachers would be a group that would be particularly skilled at this. Yet because of the nature of their job — being the ones with knowledge to impart — a lot of schoolteachers are not good listeners. So it is not just a techie thing, it's all of us.

The Research Behind Difficult Conversations

MM: *Difficult Conversations* opens with the phrase, "This book draws from many wells." What was the inspiration behind it, and when did it occur?

DS: Do you want the interesting answer or the true answer?

MM: Both.

DS: There's a set of facts behind what happened, and then there is the emotional/philosophical answer. The emotional/philosophical answer is, we were observing the cost of conversations and relationships missed, where people would avoid each other or they'd have poor conversations. What happens when you start worrying about these conversations? People lose sleep.

Self-esteem is impacted when you feel something bad has happened to you and you can't raise it. We wanted to write a book that would help people with the tough issues in a relationship, something that would help people *have* the conversations they'd been putting off, and have them more successfully.

SH: I think these conversations are at the heart of what makes people happy or unhappy, stressed or content, in their lives — both in their jobs and their personal lives. That will then manifest itself in teams, creating dysfunction, or resolving dysfunction, at an organizational level.

MM: Was your own knowledge and awareness of, say, family issues instrumental? In the book's acknowledgment, you reference the Family Institute of Cambridge. Was it your own personal experience, as well as your knowledge of this field from your work?

SH: Well, that's where we go back to the factual history of how we came to this. The learning that the book is based on goes back to the 1980s, to the creation of an exercise called the Interpersonal Skills Exercise, or IPS. This is where these ideas started to take shape.

Bruce, Doug, and I were teaching a course on negotiation at Harvard Law School. Before my time, the folks at the Family Institute of Cambridge met with Bruce, and also Roger Fisher and Frank Sander who are professors at the law school, and they created an IPS, based on some of the prevailing ideas in psychodrama. That exercise was designed to tap into people's toughest "conversations," as we think of them now. At that time, they were terming them "negotiations." The Family Institute folks brought the psychodrama background, as well as a family systems background; we brought the analytic background and students. We'd have three students, two instructors, and one person from the institute for each session, and we'd run students through a series of exercises, focusing on their hardest conversations. It can be intense, and also really helpful. So that's IPS.

MM: Which we did recently during an all-day workshop at the Program on Negotiation.

DS: That's right. You did a modified version.

SH: What happened was that, over time, as we did this exercise and developed our own style and learned a lot from the therapists who we were working with, we started to see patterns in what was getting people stuck. We also saw patterns in what they were trying that was helping. Doug said [back in 1992], "You know what? We are getting really good at helping people with these conversations. We should write a book about this because there is something here that is separate from the negotiation stuff."

DS: Do you know the book *Getting to Yes*? On the one hand you have the negotiation field, and on the other hand you have the psychology and therapy fields. Those were the two ends of the spectrum, but there wasn't a lot in between. We wanted to write something to address that middle ground. On the one extreme of interpersonal interactions is advice for buying a car, and on the other extreme is deep personal stuff, like Freud and childhood and your grandmother [laughs].

We felt there were things we could teach people that would be really helpful that are deeper than transactional problem solving, but not so deep that you need another person sitting with you talking about it for the next five years.

SH: I think that, in *Getting to Yes* language, you separate the people from the problem; you really work hard on the problem, and you're soft on the people. But what happens when the people *are* the problem? What happens when it's really the dysfunction in the relationship, or anxiety, or past history that needs to be addressed before you can productively work together to address the substantive problems? Often, the *real* problem between you isn't the substantive problem. It's how you feel you've been treated in the relationship.

MM: The interaction between the parties.

SH: Right. So, we were bridging a bunch of these different fields.

MM: Sarah Cobb [executive director of the Program on Negotiation at Harvard Law School] described a theory in negotiation that explores this whole dimension of: it's as much — and in some cases maybe more — the *interpersonal* dynamics between the negotiators as it is the numbers and the substantive issues themselves.

DS and SH: Right!

MM: So what you are really tackling here is that you can influence the outcome by dealing with interpersonal dynamics of the people in the dialog.

SH: In fact, in some cases, you are not going to get an outcome *unless* you address the interpersonal issues.

DS: The book is very relevant to negotiation. At the same time, it is very relevant to things that don't have what you call an "outcome," like raising children or improving communication between you and your boss or between your department and another department. In a sense, it's the stuff of everyday life — difficult conversations come up.

Difficult Conversations that Scale Up to the Larger Organizations

MM: We have day-to-day interpersonal relationships with people, then we have organizations. How would the methods "scale up" when talking about disputes or conflicts between larger entities like departments, organizations, companies, or countries.

DS: That's a great question. It is all the same dynamics.

SH: Just exaggerated. Organizations are made up of human beings. So it starts at an individual level, where the four of us are working together. Two people may have a hard time working together, and that problem can reverberate throughout a team or department.

Soon, people start organizing into "camps," loyal to one or the other of us, and those camps start to build momentum. The questions of intentions, impact, blame, and feelings start to leak out and multiply in the organization. People hear about the conflict on our team, and they hear my version of the story and agree with me and think you guys are really trying to sabotage the project. That's their "attribution of intention." So, part of what is going on in organizations is that group dynamics like this exacerbate the same dynamics that you see in a one-on-one conflict.

MM: Because what starts to happen is that larger clusters of entities begin to emerge that are combinations of people with group intentions.

SH: Also, if we are a cross-functional team — you guys are the sales guys and we are the implementation guys — and we have perceptions of you or stereotypes or characterizations of you, those exacerbate the conflict between us. Our perceptions of each other also feed the animosity.

DS: People personify groups. For example, someone at IBM might say "People at Apple are all such and such …" as if that were true of all people at Apple. A lot of this work came from studying US-Soviet relations in the 1950s where people would look at views of the "enemy." People would say, "Communists are x, y, z…" as if all communist governments were one monolithic bloc, to say nothing of all the various differences within governments and within societies.

SH: Hugely simplified perceptions of the "other" party. With contractors, just to bring you back to the context that you are working in, I can imagine that this is a big issue when you're outsourcing. Because it's "*those guys* work like this"; "these are the problems with *them*"; "these are the things that we should do to make *them* more productive." Then on the other side, "*those guys* can't make up their mind what they want"; "*their* expectations are unrealistic"; "*they* don't understand how hard this is to do." Again, as if the organization is one bloc. Then on both sides, the feelings of being misunderstood and attacked combine to make that dynamic grow in intensity very quickly.

The Theory and Practice of Organizational Learning

MM: Both you and Chris Argyris and Donald Schon (authors of *Organizational Learning II, Theory, Method, and Practice.* Addison-Wesley, 1996) articulate a "highest ideal" that can be summarized in one word: learning. You can't always change the other person; you can't change the group. But if you actually strive for creating the environment for learning, then you may create the conditions for change.

DS: Very well put.

MM: This may not be so much a question, but just an acknowledgment that some people's agendas are not about learning. They may be about acquiring power, covering up shame, or building influence. But our capitalistic society might be described by some as being about winning: winning in the marketplace or winning in our department. Are those at odds with the ideal of learning?

DS: I don't actually think those are at odds at all. In fact, you're more likely to "win" if you're also a learner. But, yes, there are clearly people who are *not* interested in learning for whatever reason. Some people will say to us, "Hey, your book is great, but my boss is not interested in this kind of stuff." And, of course, there are easier and harder people to deal with. But step one is to say, "My boss is this way, but this is not about my boss. This is about what I can do." Regardless of what the person you're dealing with is like, there are always more and less helpful ways of dealing with them.

SH: Our assertion would be that the person who has a learning agenda has more influence. Because people view them as open, willing to own up to mistakes, competent, and — partly for that reason — easy to work with. That translates into professional credibility and success over the long haul.

DS: At the same time, interpersonal skill is not the be-all and end-all. Imagine your boss is the person in charge of making sure the project is done by March, and it's a US $100-million project. And you come in and say, "We're falling way behind, but we are really getting to know each other."

SH: [laughs] "We're learning, having fun, feeling really valuable, maybe not 100 million dollars worth of valuable..."

DS: "And we're feeling very self-actualized at work, and sharing feelings with each other." Your boss is going to say, "Shut up! We have this project that we have to get out, and I have to find someone who can do this." That's actually not inconsistent with being interpersonally skilled. You may come to work one day and say, "I want to talk about our relationship or my feelings" or whatever. Your boss may be thinking "I want to talk about what I'm feeling, which is that I am under an incredible amount of pressure to get this thing done, and that's what we're going to do."

Alpha Males and Alpha Females — Dominance Theory

MM: Some people who rise to levels of leadership positions in our society tend to be characterized as "alpha" males or "alpha" females. Some would say they got there because they tend to be highly competitive — dominating their peers — and ultimately leading the pack. Disputes often are between these kinds of personalities. Their personality type, by nature, may be less inclined to a cooperative, noncombative resolution of disputes. When things go wrong, their initial reflex might be anger and blame. Can they apply the techniques in your book and achieve consensus among the people that they're leading?

DS: That is a great question. I want to challenge the premise about the alpha male model. It's famous at the moment because of Al Gore. It's also the evolutionary biologist view, that people will rise to the top who are competitive and aggressive and stomp all over people. I think the truth is more complicated. Even evolutionary biologists acknowledge that cooperation among people emerged because it offers survival advantages. In fact, E.O. Wilson writes about possible survival advantages of pure altruism. He wonders whether some of us aren't hardwired to throw ourselves on hand grenades to save colleagues. My getting blown to bits doesn't help me at all, but it may ultimately help my genes get passed down. Because, in a small community, plenty of my genes are distributed through my relatives.

Closer to home is the work of Daniel Goleman. Do you know his book, *Emotional Intelligence*? You would love this book. He challenges the alpha male theory with a lot of data. He says the people who succeed in the world are the people who are good listeners. Look at Bill Clinton. Everyone says he is an alpha male, but the fact that he has certain sexual mores has nothing to do with why people follow him. What makes him a great leader is that he's incredibly compassionate. He has an astronomical ability to communicate empathy. He's not stomping over people, at least not in the public perception of him.

SH: I think that's what ends up keeping him in office. Whether you like him or not, you have to admire his political skills.

DS: Likewise, presidents of corporations are often viewed as the people who are best at enlisting people in their causes, good at working in teams and at building teams. All the management gurus will tell you that it's all about that. How much can one person get done in a corporation? Not much.

SH: Just getting to that position, they had to manage relationships very successfully. So that people feel they can trust them, that they get the work done, that they're competent — not just in the number crunching, stomping around way — but managing alliances, relationships, and subordinates.

DS: This is true even in the military. Recently, we showed a bunch of military cadets' quotes on leadership. The ones they liked the most were the ones about good leaders being people who lead by example, people who listen to the people they are leading, and people who inspire people rather than threaten them.

SH: Of course, there are people who do try to walk all over others. That's just the truth. Our book is written partly to help the rest of us deal with those folks.

The Notion of "Check Your Touchy Feelings at the Door — This is Business"

MM: With regard to the role of emotions in professional life, there's a film, *The Doctor*, based on the autobiography, *A Taste of My Own Medicine*, by Ed Rosenbaum, MD. The main character, a cardiac surgeon played by William Hurt in the movie, at one point tells his medical students, "I'd rather you *feel* less and cut faster — don't get involved." He underwent a dramatic personal transformation, however, when he got sick and became a patient. Do you think there are prevalent cultural rules against emotion? Are these "don't feel" rules part of the problem you're taking on with your book? Does someone have to have some kind of personal epiphany in their life to break out of that and apply the concepts you describe?

SH: I do think that there is an implicit understanding that when we come to work we "check our feelings at the door" — that they are not appropriate in a work context. That's what people will tell you they are doing. But they aren't. People bring their emotions with them everywhere they go, even to work. Strong emotions leak out all over the place at work. The real question isn't "Should I express my emotions?" — it's "How should I express my emotions?" So often, emotions are at the heart of difficult conversations, even at work. You can talk all around them, about the "substance" of the problem, but if what's really going on is that you feel frustrated, then saying, "I'm feeling frustrated, here's why," saves everyone a lot of time. Is that "touchy feely"? I think it's just skilled problem solving.

MM: It sounds like you're describing a new Darwinian Theory of Evolution in which the elements of our species who are evolving and rising are the ones who are actually managing, understanding, and in touch with their own emotional dimensions, as opposed to someone who is a cold fish?

SH: Right!

DS: There are certain apes that are extremely social, that live in networks, and they do things like apologize when they hurt each other, and so forth. William Ury just wrote a book called *Getting to Peace*. He points out that the archeological record for the first million years of human evolution contains virtually no signs of human violence against other humans. It's not until about 10,000 years ago that such things start being seen. So, while human beings obviously have a tremendous capacity for violence, we also have a million-year track record of cooperating.

SH: We're also using the word emotion as if it were all one thing. It's not. There are not only lots of emotions, but lots of kinds of emotion. There's emotion in the sense of appreciation. For example, I work on a 50-page report and turn it in. Does someone say, "I appreciate that you did this"? That takes five seconds, it's not touchy feely, and it's not going to ruin the bottom line. In fact, it's enormously helpful.

DS: There's also emotion like, "My wife and I are getting a divorce, and I'm an emotional wreck at work." How much support do I get at work? That's a good question. How much is reasonable? You can't have your boss be your therapist for three months if there are things to get done. But should your colleagues show concern and interest and be willing to offer support? Why not? These are people around you, and if they don't care a fig about you, that's a problem.

There's also emotion in the sense of getting your colleagues fired up to work on things, getting people motivated. Also a good thing, right? But I think a lot of times when we say emotions don't belong at work, we're thinking of the person who is constantly saying "You hurt my feelings, and I want to talk about it for four hours." You're thinking, "Okay, enough, we have to get things done around here."

So I think it's worthwhile breaking down this whole question of emotions in the workplace to: What are we talking about? How much time does it take? It might take *15 seconds* to change the emotional environment in a place by saying, "That was a terrific job" or "I really admired how you handled that client during the meeting."

When I was a lawyer, I'd get very few people saying, "Thank you for that report" or "You did a good job." The culture was, "We don't have to say thank you, we're saying thank you by giving you your check." For me, that was not satisfying.

Teaching and Coaching Style

MM: This is a good segue into your own styles. Both of you are lecturers at Harvard Law School. When you stand in front of a room, you include very poignant personal accounts to underscore your points. Your candor is very refreshing and special. The first time you did that, what was it like in front of a large group of people, when, for example, you talked about an interaction with a family member, which you each did on different occasions. What was it like then, and is it easier now?

DS: For me, there are two categories. There are the things I now remember as "good stories," and I can tell them as good stories, and they make a point that I think is a good point. I'm feeling the feelings, but a step removed. I feel emotion when I tell it, but I don't feel vulnerable or exposed, because I'm comfortable with it now.

There are other stories, particularly around feelings, where in the telling I actually feel vulnerable. I'm thinking, "I feel exposed." It's not like I feel like someone's going to attack me. I feel like I'm sharing something that is personal to me, and now everyone knows about it. Those are harder to tell. I'm not sure people in the audience can tell the difference.

SH: The difference for me are the stories where a lot of it is about your personal "identity conversation." There are experiences or mistakes in the past that you learned something from, and the learning and the story you bring out of it makes a point. Your identity conversation around that example is "I used to be this way, but I learned something and now I'm better." So it's really a success story, even though what you're describing is a failure story. Those are a lot easier to tell, because you have some closure emotionally, than stories that are more in progress — where you're still struggling with feelings of shame or you're exposing yourself as a kind of person that you are not very proud of. You may still be in process of changing that or dealing with that.

I have a really vivid memory of crossing that boundary to tell stories on a couple of occasions. Recently, I told the story of when I was at the Citadel. We were working with a group of about 50 cadets. They all had the same uniforms on, and they all had shaved heads. So keeping them straight was really hard in terms of learning names.

What I did in that situation was that I called on one of the African-American students and called him by the wrong name, which was the name of the one other African-American student. I just was kicking myself for the rest of the day because of how common it is for African-American people to feel like, "So I guess I'm just the *black guy* to you." And I was really embarrassed about that. Partly because, that *was* the tag in my mind, because I'm grasping for *anything* to keep the cadets straight because they all have the same outfits and haircuts. I felt that I may have embarrassed them, that it was a hurtful situation for them. And telling that story in class, I felt it exposed me all over again to exactly the same picture of me — one I wasn't proud of.

So, why do we use personal stories? I think we use them because, for us, coping with difficult conversations is a very real journey that *we* are also on. It's not that we're here as the "final product" of someone who handles everything appropriately and perfectly. You can just call my husband to find that out!

I also think that it gives the audience permission to be honest with themselves. When you work with people who are really competent and really successful, it's difficult to bring them to the edge of that competence to look over the precipice at the things that they're really screwing up. And everybody has that.

MM: You show by example, I think. When you do it in your presentations, I get a sense that people are receptive. They say, "Wow, that's great. I have permission now to do things like this, because *they* are doing it."

Evolution of Consciousness over the Generations

MM: Let's talk about our parents and their parents, going back to the turn of the century, World War I, the Great Depression, World War II. Many of our ancestors had to deal with issues of survival. There wasn't as much liberty to examine spiritual issues when they were trying to earn a paycheck, feed the family, pay the bills. I know my parents and their parents struggled in this way.

Would you say that today's generation — with awareness of modern day psychology, understanding family systems theory, addiction, codependency, and other human interpersonal awareness issues — makes the timing for this book right on, compared to 20 years ago?

DS: It's a complicated question. I think the answer is probably yes.

SH: The timing is right.

DS: I thought you were going in a slightly different direction with the question. I thought you were going to ask, "Does this book work intergenerationally?" I think that's also a valid question. I think about what Tom Brokaw describes in his book *The Greatest Generation*. Those men and women were getting meaning out of their lives in a different way, to some extent, than we do now. If you were a man in the 1940s and 1950s, and you provided for your family, then you've done your job; you've gotten great meaning out of your life. Because providing for your family was not a given in the generation prior, the depression era. So the generation that grew up during the depression, they didn't need to create something or save the children of Africa to derive meaning from their lives. Providing for your family was really valued by society.

That survival for many of us may be a given — at least not many in the US are going to starve — now, what have you done to define yourself and where do you get your meaning from? A lot of people feel we now have more time to spend thinking about what we're doing. Is it spiritual, is it relationships, is it family, is it work? What do I do with any emptiness? The emptiness used to be filled by the father just bringing home the money, and that was incredibly satisfying because that wasn't a given, and the mother raised the children and that was incredibly satisfying because that wasn't a given.

So we write this book about how to really talk about things and what's inside you. But not everyone holds that that is a valuable enterprise. I don't know if it's generational or cultural, or whatever. In our generation, learning about yourself, other people, is very highly valued. In other generations, it may not have been as valued.

Another twist, too, is that back then, there was a lot less awareness about self-medication. Now some of what motivates people toward self-discovery is the fact that self-medication is harder to get away with these days. Every single possible method of self-medication, from alcohol and drugs to sex and computers, gambling…

MM: And banana cream pie…

DS: Yeah, whatever it is, can be totally exposed as self-medication; even things like exercise can be self-medication. If you take that away, now you're confronted with only yourself.

SH: I would like to say another thing about that. I think that's right, that the cause in the WWII generation was fighting evil. That's what we were focused on in the 1940s and 1950s. And bringing home the bacon. There are pockets of society now that are very focused on survival, like farmers, who might say, "I don't have time for this, I have to get out in the fields, and I'm worried about paying off a loan for the tractor." Yet even those folks, the ones I know, are picking up our book and saying, "Yes, my relationships with my family members, with my neighbors, cause me anxiety and stress. Spending a little bit of time working on these conversations is a relief. Somebody is articulating what has been hurting for a while. Or intergenerationally, as I pass down the farm." Being from the Midwest, I have some connections to folks in these situations. So that makes me think that, years ago, when this was less popular in the culture, that maybe it would have still worked. Though it probably would have been seen as much more countercultural than it is now.

MM: In some ways, this could be seen now as mainstream.

SH: Just about.

DS: There is so much more work that went into this book than you see based on looking at 250 pages. We must have 5,000 pages of material.

SH: I bet we have 30,000 pages of stuff. It's unbelievable.

MM: Maybe we could get ambitious and describe a hope for changing the world, with the contribution that you've made with this work. Sometimes one can have a great wish for the world, and sometimes we have to scale it way back, and say, "Maybe we do it just *one* conversation at a time."

SH: Yes. I would say one series of conversations at a time because in really important relationships, it is rarely one conversation that completely transforms the relationship. Occasionally it is. But a lot of times it's not a one-shot deal. It's over the next few months. We need to keep talking about this and keep communication lines open. And we come back and say, "I wish I said this last time as we try to change the way we work together — or live together or love together."

MM: I close some of my lectures by saying, "If there are, say, 80 people in this room, and if I can help make a difference on just half of the projects, that's 40 projects that might have a different result. And that's just today."

DS: That's great.

SH: You by the way, are a great example of what we were talking about; as someone who is very successful in their field at least in part because you have such good interpersonal skills. That, meeting you, it's immediately evident that this is someone who is extremely thoughtful, articulate, self aware, and striving for learning.

And I think in particular, with the economy as good as it is now, with people feeling confident enough to be out as entrepreneurs, contractors, and starting new companies, it really is the personal competence that wins clients, alliances, etc.

Because I would say, "Hey, here's an opportunity to work with Michael, we should work with him." And it's based on people's perceptions of individuals, rather than saying, "He's an IBM, Cisco, or Microsoft guy, so he must be competent." I think it's a much more individualized economy right now.

MM: Thank you for the compliment! In closing, I'd like to express my appreciation to the two of you for this interview. I think that you're both incredibly courageous. It's inspiring to see how both you and your work bring a hopeful message for people to fundamentally change how we all relate to each other, live together, and work together in whatever field that we're in. Good luck!

Sheila Heen and Doug Stone can be reached at Triad Consulting, 9 Waterhouse Street, Cambridge, MA 02138 USA. Tel: +1 617 547 1728; E-mail: heen@post.harvard.edu or dstone@post.harvard.edu.

The Princess and the Pea

Continued from page 1.

lie directly upon a bed of nails and proclaim proudly, "I feel not so much as a pea!"

Studies show that almost one-third of projects are canceled before completion. At the time of cancelation, they average about 100% over schedule and over budget. Another one-third are completed, but at a cost of overrunning the schedule and budget by up to one-third. Most of the remaining one-third of projects exceed the original plan, though by lesser amounts. Only a few projects are completed in less than the originally planned schedule and cost.

Of course, there are numerous reasons for this dismal record, but one reason, surely, is the inability of the participants to feel risk. They need the acute sensitivity of Carol Burnett! Well, there is only one Carol Burnett, and she is busy elsewhere. We, somewhat boldly, step forward. You, too, can learn to be sensitive. There are three steps:

1. Feel the *critical* risks (grapefruit sized) before you even agree to undertake the project.
2. Feel the *significant* risks (lemon sized) before you commit to schedule and cost.
3. Feel the *ongoing* risks (pea sized) throughout the project.

If you don't become sensitive in time to feel the risks, don't despair. There are two further steps:

1. If you lack time initially to feel the risks, buffer your original bid for risk.
2. If you first feel risks late in the project, replan your schedule and budget to provide additional time to resolve them.

Feel the Grapefruit

When you first encounter that lumpy mattress, do you just look at it from a distance and tell yourself, "It looks like a mattress; it's on a bed frame; I can sleep on anything"? Or do you actually lie down on it and feel the grapefruit?

What are the grapefruits? Sorry, we meant to say "critical risks." They are the risks that, if they materialize, are *critical* to carrying out the project successfully. In other words, if critical risks are not mitigated, your project joins the long list of failed ventures. You lose stature in your organization. Your organization loses money.

Risk is something that might or might not happen. The possibility of your home burning down is a risk. It might burn, or it might not. You can take various steps to minimize the possibility of fire, such as installing fireproof shingles and shielded electrical wiring. You can also support the local fire department; it often arrives in time to save most of the house.

If your house does burn down — if the risk does occur — the risk turns into a *problem.* Your task then becomes solving the problem. In this case, the solution is building a new house. That takes money. The money can come from fire insurance.

Similarly, a software risk is something that might or might not happen. At the very beginning of software development, when all that exists is a broad vision of what the resulting system might be, all that is feasible is to look for the grapefruit-sized risks. Even to do that much, however, you have to know where to look:

- You have to delimit the project. Some activities are within its limits, and some are outside. (You don't have to look there.)
- You have to capture the key requirements, or at least consider what they are likely to be.
- You have to sketch out the central features of an architecture that can accommodate these key requirements.

Then, within the scope of these key requirements and the corresponding architectural concept, you have to look for the lumps — the grapefruit-sized risks. In general, these big risks fall into two categories: technical and business.

Technical risks are those at the edge of the state of the art for your organization. First, of course, you have to identify them (feel the grapefruit) and explore them far enough to understand what you are up against. Then you have a choice of several strategies:

- No bid. Recognize right upfront that some jobs are not for you. Trying to sleep on that grapefruit will surely ruin your back!
- Push the critical risks outside the scope of the project; that is, define the project limits to exclude these risks (let someone else try to do the impossible).
- Consider the probability that a critical risk will actually materialize on this project. If the probability is zero, you can proceed happily.
- If the risk might materialize into an actual problem, can you visualize an approach for coping with it?
- Is there a consultant or subcontractor capable of coping with a risk beyond the capacity of your own organization?

Business risks are the nontechnical happenings that might derail your project — loss of a key person, lack of staff on schedule, and so on. Perhaps the most important business risk at this initial phase is the client organization. Can the key players in your organization work successfully with their counterparts in the client organization? Working through the critical risks provides an opportunity to gauge this risk.

Feel the Lemons

Let's say you see your way past the critical risks. In many applications, of course, there are no critical risks: you have worked in the application area before; you are acquainted with the client organization; you are confident that you feel no grapefruit! Nevertheless, there may still be significant risks to take into account.

These are the risks that, if they materialize, may interfere with planning the project. They may throw your estimates of schedule, effort, cost, and defect rate well off the mark They are risks that you are sure you can surmount, but you are not yet in a position to estimate the time and effort to overcome them.

In other words, a certain amount of exploration of the proposed system should precede the firm bid — the bid in which you agree to schedule, staffing level, cost, and defects at delivery. The Department of Defense has called this phase "high-level design." The Unified Process labels it "elaboration."

In this phase, you flesh out the requirements some more. You turn the architectural concept into a baseline architecture. You may carry this architecture all the way to a working prototype of the unfamiliar features. Not only are you then sure your concept will work, but also that the client can see that the prototype meets its needs, not just its formally stated requirements.

If the prebid phase is carried this far, actual construction of the system should proceed pretty much according to plan, as well as within bid parameters. Well, surprise, surprise! Clients still expect software organizations to bid long before they have enough information (and have reduced the risks to known levels). So — no surprise — clients and software organizations still get into trouble in the construction phase.

Feel the Peas

If, and it's a big if, the critical and significant risks have been dealt with upfront, you will have only pea-sized risks to contend with during construction. We're going to assume that qualified software developers will feel the peas and deal successfully with the pea-sized problems that materialize. Moreover, they will do so within the limits of the plan, the schedule, and the budget. Everybody will be happy.

Well, it's a nice dream. In present-day practice, unfortunately, citrus-sized risks tend to materialize during construction, because they were not mitigated in the grapefruit and lemon phases. That leads us to two further issues:

- Is there any way to build into the project plan (and its reflection in a bid) an allowance for risks that were not adequately identified or mitigated upfront?

- Is there any way to include additional time and effort in the construction phase after the risks have turned into serious problems?

In both situations the issues become how to provide the time and effort to resolve the problems to which the materializing risks give rise. (The added issue of actually solving the innumerable problems that arise is beyond the range of this article.)

Buffer Your Bid

How do you estimate a project? You probably employ five core metrics:

1. **Amount of work to be done** — the functionality of the proposed system, probably expressed in a measure of size such as source lines of code or function points.
2. **Productivity** — the rate at which work is accomplished in your organization, probably based on the productivity of the project organization, rather than that of individuals: therefore, *process* productivity.
3. **Schedule** — the calendar months planned for accomplishment of the project.
4. **Effort** — staff-months planned for the project.
5. **Defect rate** — defects remaining at delivery.

First, you have to estimate the amount of work to be done, or the size of the final product. Second, you have to estimate the process productivity you expect to achieve on the project. Fundamentally, there are three approaches to estimating process productivity:

1. The method we employ derives process productivity from actual measures of work accomplished on past projects, such as source lines of code divided by effort (person-months) influenced by the time allowed (calendar months).
2. The second method arrives at a dozen or more "effort adjustment factors" through management judgment.
3. Arm waving, wing flapping, and cajoling for guesses from your team.

However, all of these estimates are just that — estimates. The very term estimate implies uncertainty. The exact value is *uncertain.* A project estimate, therefore, is uncertain in the following ways:

- The amount of work to be done is uncertain. The size of the eventual product cannot be predicted with certainty. Both are even more uncertain if you have not employed "due diligence"; that is, explored the critical and significant risks involved.
- The productivity level that you will achieve in attacking the work is also uncertain. If you base your process productivity number on managerial judgment, that can easily be off by 20%. If you compute it from the core metrics of completed projects, it will still be uncertain, but by a lesser amount.
- The new project will not be identical to the baseline projects — different staff, managers, and problems. Its process productivity is likely to be different, and thus, for the purpose of the next estimate, uncertain.

Despite all of this, the time, effort, and resulting price you have to set forth in a bid is precise. Going from *uncertain* estimates to a *certain* bid is a risk. The question before us is how to buffer that *certain* bid against this risk.

You produce your estimate of time and effort using a formula involving product size and process productivity. Since product size and process productivity are both uncertain, it follows that the time and effort estimates are also uncertain. For instance, if you took your smallest estimate of size and your largest estimate of productivity, you would get your smallest estimates of time and effort. On the contrary, if you took your largest estimate of size and your smallest estimate of productivity, you would get your largest estimate of time and effort. You can run a Monte Carlo simulation and calculate a range of time-effort outcomes, based on the span of the input estimates for size and productivity.

The mean of the time-effort results would be the most likely outcome. Still, half the time-effort results would be greater than the mean, and half would be less. In other words, if you were to bid the mean, the probability would be 50% that you would complete the project within the bid figures. Over a series of projects, you would break even.

If you did not have time to explore the project for critical and significant risks, you might not feel comfortable with this 50% probability. You might want to move out to the larger time-and-effort figures corresponding to, say, 90% probability of success. That would give you a time-and-effort buffer with which to resolve the problems that arise if critical and significant risks materialize.

Of course, we also operate in a competitive system. A competitor might choose to bid at a low level and take the job away from you. They might lose their shirts, too. Just what level at which to enter your bid becomes a matter of business judgment. All this methodology can do is give you a way to buffer the risks you may encounter. Competitors, unfamiliar with risk buffering, may still bid low. That is too bad, but low bids lead to losses, and it is better for you if they have the losses.

Amidst all these uncertainties, there is no statistical hocus-pocus that will assure you of bringing each project within bid, even if your clients are willing to accept bids in the 60% or 70% probability-of-success range. There will inevitably be risks on some projects that exceed whatever margin of probability you can obtain. Cheer up! On a series of projects, the risks should average out. Moreover, the experience gives you the opportunity to fine-tune your core metrics and your estimating methods. Fine-tuning somewhat reduces the inherent uncertainties.

Replan the Project

You're in the midst of the construction phase. You're bogged down in some citrus-size problems that you did not originally anticipate, plan for, or budget for. It is becoming evident — at least to you, if not to all your stakeholders — that you are not going to complete the originally specified system on schedule and budget to the intended level of reliability. You are going to have to replan, reschedule, and rebudget the rest of the construction phase or suffer the consequences.

At the time that replanning the project becomes necessary, you realize that the remaining schedule time and effort will not be sufficient to complete the system as originally specified. It follows that one or more of the three core metrics on which you based your original bid must be responsible:

- The amount of work to be done is greater than you originally estimated. That is probably the case, because you have now run into citrus-sized risks for which you did not originally make allowances.
- Your process productivity is probably lower than you originally planned because you have encountered serious risks (that have now become problems). Solving problems reduces productivity, compared to smooth sailing.
- Your defect rate during construction is probably running higher than you expected.

Of course, you could negotiate with the client to reduce the amount of work and the system reliability (defects remaining) and complete the project within the original schedule and budget. Let us assume, however, that the specifications of the system are firm. Your task is to revise the schedule and effort budget to accomplish those specifications.

You have to reestimate the first core metric — amount of work — the hard way; that is, think through the additional work that resolving the problems will take and express that additional work in the core metric you are using, such as source lines of code.

Your process productivity, however, can be recomputed from the work already accomplished on the project. Since you have accomplished less work in a given amount of time and effort than you have on previous projects, the revised process productivity will be lower.

Using these two revised core metrics, you reestimate the time and effort to completion. Clients are not pleased, of course, to encounter the need for more time and more money, but you, at least, have some good arguments on your side:

- Painful as it is, some real risks have materialized. In the haste of getting started, neither you nor the client allowed for them — now you have to. The time and money being added should have been there all along.
- The replanning methodology supports the need for more time and money in an impartial way.

And remember, if you can learn to feel a pea through seven mattresses, you can rest assured that you'll notice when a grapefruit-sized risk starts to grow.

About the Authors

Ware Myers has a bachelor's degree in engineering from Case Institute of Technology and a master's degree in management from the University of Southern California. For a decade he was an extension instructor in personnel management and training, and for another decade he was a lecturer in engineering organization and administration at the University of California at Los Angeles. Along the way he put in stints as a safety engineer, sales engineer, Labor Department representative, naval officer, training officer, vocational advisor, production control manager, systems analyst, drafting instructor, personnel director, engineering writer, contributing editor, and writer of software books. As a production control manager, he learned that estimates often fail to work out as hoped. So when he first heard Larry Putnam in 1977 explain his views of software estimating, he applauded their merit in the form of a long article in *Computer* magazine in December 1978; that led to a collaboration with Putnam on three books and numerous articles and columns. Mr. Myers can be reached at 1271 North College Avenue, Claremont, CA 91711 USA. Tel: +1 909 621 7082; Fax: 909 948 8613; E-mail: myersware@cs.com.

Lawrence H. Putnam has more than 25 years of research experience in software metrics, measurement, estimating, and control. He founded Quantitative Software Management in 1978 and continues today as its president. His most recent work employs statistical quality control to gain effective control of in-progress projects and to measure the commercial benefits of process improvement. Mr. Putnam has a bachelor's degree from the US Military Academy at West Point and a master's degree in physics from the US Naval Postgraduate School. He can be reached at larry_putnam_sr@qsm.com.