

47. Stephen Devaux, Mike Hannan, & Randy Ifill: PMBOK® Book of Knowledge - Edition 6_ Quality

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00:04 Kendall Lott: Before we kick off our third round table on PMBOK® 6 and this time with a focus on quality, I want to remind all of our PMs that PM Point of View® is part of the Project Management Podcast Network. Check it out on iTunes to find other Project Management Focused Podcasts that will help you up your professional game.

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00:23 Announcer: From the studios of Final Milestone Productions overlooking the White House in downtown Washington, DC, this is PM Point of View®, the podcast that looks at project management from all the angles. Here's your host Kendall Lott.

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00:37 KL: So today, we're back to our round table format on the new Guide to the PM Body of Knowledge, version six, with our expert discussion on quality: What's changed and, particularly with the new agile impact on the guide, what might be new. Back with us at the round table are the mighty knights of advanced project management, Randy Iliff, Steven Devaux, and Mike Hannan.

01:00 KL: Randy, author and founding member of INCOSE, the International Council on Systems Engineering. We've heard you on scope, we've heard you on schedule. But tell me, in your book, does it even address quality?

01:10 Randy Iliff: It certainly does, Kendall. And it... Matter of fact, the systems engineering dimension that is brought up in the book, along with program management, tracks the entire path from reality through the modeling we do of that reality, either in specifications, when we're able to link the stuff we've done in the past, or requirements, which are a huge source of quality shortfall on projects. So our definition of future... We use those as we go through the project. At the end we take a look to see how we did, ideally, not waiting to the end. All that stuff is documented in the book.

01:42 RI: And one of the key findings from the book about the impact that a lack of harmony between program managers and system engineers create is quality shortfall in the definition of requirements of the time spent in each of these domains, and selection of the appropriate transition point. And there are huge risk consequences that go along with the quality of choices that are made about when to start or stop requirements, and when to move from one project stage to another stage. It's a wonderful, rich topic area.

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02:15 KL: So taking a hiatus from agile while we did that was Steve Devaux, who's back with us today. The author of Managing Projects as Investments: Earned Value to Business Value, and Total Project Control: A Practitioner's Guide to Managing Projects and Investments, which is a good thing

to talk about quality. And welcome back, Steve. I'm going to be interested in hearing how you connect your focus on schedule optimization and recovery with quality. So I'll be looking forward to that in these next few minutes. But for now, what will you be working on in 2018?

02:45 Steve Devaux: Oh, I don't know. I will be working on just about anything that comes along that's interesting. For me, the main thing of interest is I'm expecting to do a good deal of work with the US Air Force in the early part of this coming year, which I'm always excited about. Being myself a Vietnam veteran, I'm always interested in working on project management with our military.

03:12 KL: Well, maybe we'll get a chance to hear some of the lessons that you learn out of that as we get to the end of next year, having done a full year of work on it.

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03:25 KL: Telling it like it is, Mike Hannan rounds out our round table today. Author of The CIO's Guide to Breakthrough Project Portfolio Performance. (I always struggle with those Ps, Mike.) Mike's blend of lean, agile, and theory of constraints casts a long shadow, or perhaps a bright light, over our quality and later risk sections. So Mike, what theories or practices are going to happen for you in 2018?

03:48 Mike Hannan: I think the big thing in 2018 is actually trying to figure how to optimize all this to drive the maximum value. All this stuff is very interesting, and it gets into a lot of detail over the hundreds of pages in the PMBOK® Guide. But I zero in on the parts that really are talking about engineering maximum value. And so even though some of that can be buried in the boring sections on the cost benefit analysis and things like that, in my mind, what good is quality unless it's driving value? What good is managing risks without driving value? And there's a lot that goes into projects that doesn't always return great value.

04:23 KL: So back to the value question, driving value. We've had some episodes on that, you've gotten to speak on it, as have Steve and Randy. So we'll look forward to that, and obviously quality's an aspect of that.

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04:38 KL: So let's get right into that, talking about quality. I wanted to highlight just in my own reading in the chapter on quality in version six, was that they had changed some of the words, separate from the format. They actually seemed to have changed some of the words, and I think it may have indicated some change in thinking. Essentially, in the PMBOK® section on quality, they always basically said plan, do, control...was kind of how they laid it out. And I noted that we used to perform... It used to drive me nuts, actually, when I was having to study for the test. We perform quality assurance. And I have always wondered... It's kind of weird to say, perform this other thing. Right now, they've come straight up with "manage quality". They've changed the verbiage to manage quality, and it seems that they've slightly de-wonkified, de-consultant-ized the language with that. They're stating it more directly.

05:22 KL: So I think in highlight, as we look at what the book says, just from each of you, what does quality mean? What would be your thesis statement subject to a rational person having honest

disagreement, if they had to, on what is quality? So Steve, tell me what you think quality is in a sentence or two.

05:42 S4 SD: Sure. Well, once again, I'm going to relate cost to investment, and the aspect of investment. As I discussed in our previous discussion, every project is an investment. And the purpose should be to derive as much ROI from that investment as possible. And when one is planning a project, and often doing a project, one should be focused on what are the things that are going to give us, are expected to give us, the more ROI? Now, in that respect, projects are a very special type of investment, because if you think about it, most other investments, the investor has very little control over what the return is going to be. If you go out and you buy a Microsoft stock, for example, you have no control over whether that Microsoft stock is going to go up or go down. You hope it's going to go up, and you make decisions based on the expectation that it will go up, but you have no control over it. In project investments, you do. The team does have control over what the return is going to be, and can maximize it. And one of the crucial ways of doing that is building in quality.

07:12 SD: However, I still have some reservations about this building in quality. It has to be done carefully, with consideration of scope, time, and cost. However, quality is certainly hugely important, and it's a way of increasing return on investment and project value.

07:33 KL: Wow. So quality is a method of increasing value directly, and hence the need for planning for it, right up front.

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07:44 KL: Mike, talk to me about your take on quality.

07:47 MH: So my biggest thing is, it's just a dimension of scope. Right? The scope of any project is what's guiding the value. And quality is just a dimension of the value that you hope to get from your scope. And so, a lot of times I've seen very heavy-handed quality management initiatives, quality assurance, whatever, that seeks quality as if that was its own end. Take when we do tax quality management from scope management, that's a natural calamity that occurs. Because... If the whole point is, let's achieve some measure of value from the desired scope, and then quality is some other thing over there, we have no idea whether the investments we're making in the quality aspects are really enhancing the value of our projects.

08:37 SD: I could not agree more.

08:39 KL: So quality is part of scope, and we need to not manage them as separately, perhaps, as they're often called out or defined. Or at least executed in large projects, is what I'm hearing there?

08:49 MH: Mm-hmm.

08:49 KL: Yeah?

08:50 MH: Some little examples from my life is back when CMMI was coming on the scene in the 90s and becoming popular, managing quality was a pretty key aspect of achieving certain levels, especially starting at level three. And I was a big proponent of all that, like, "Wow, we finally have

some discipline around this. This is fantastic." But some of the requirements were things... Were very mechanistic. Make sure you do this, this, this, and this, no matter what you thought the value of those activities might actually be. And so it's more of a, "Always follow this, whether it's worth it or not." And I remember one example, we had a very small piece of software to develop for just a very limited user base, and it didn't really care about the quality, because any errors are usually caught, they just wanted it fast. And so we produced something fast that I would consider relatively low-quality, but it was perfect for them. And it failed CMMI maturity level optics and all sorts of other things. But it was exactly the right thing to do for that customer.

10:02 KL: Yep. And I just heard overtones... Having listened to our last podcast related to agile, I just heard some interesting overtones as a summary from that one, which is, we really need to think about using the method we actually need that represents the underlying work, and only as much of it as we need. So both picking the right kind of method, and how much of it to use to actually drive quality in the final completion of project. So now I'm hearing that again with what you're saying there.

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10:34 KL: So, Randy. Your turn. From a systems engineering perspective, what do you think about quality, and how does that function for you?

10:43 RI: Well, perfect segue, because all of us are talking about the entire system. I'd like to give people another analogy to think about, to frame this entire conversation of what we're talking about, instead of referring to the brand name *du jour*, on common sense. If you think of reality as the source of all potential energy, whether you're talking about solar energy, or wind, or an investment opportunity in bringing a new piece of infrastructure into being as a result of a program, or project, or development in the commercial sector, or military tools. I also have a lot of sympathy for the E5s out there who don't often get their voice in this. But if you think of reality having the potential energy, we lose potential energy at transitions, just as we do in infrastructure of getting from sunlight that hits the ground, all the way to your laptop computer, or your phone, or something. The models that we make of reality that we then use to manage effort are where we get the greatest loss in this conversion.

11:40 RI: One type of model are the things that we can anchor stuff we've done in the past to. We call these specifications. If you do thousands of things you can, over time, eliminate almost all of the variability that isn't just somehow worth keeping in that. And you can dial it in as close as you want. So there's a set of stuff we can model based on experience that can be as deep as our record keeping works. The domain of manufacturing. If you haven't done it before though, it's really difficult to point to the specification for anti-gravity, and it's the future stuff where we substitute the body of requirements as placeholders. That quality of representation of future requirements is by far the weakest element in this energy conversion from what exists in the market as a potential opportunity for every stakeholder involved, all the way to the delivered result.

12:30 RI: So anyway, we have models. We then use those models in a classic program management environment, more or less lean, more or less agile, depending on the circumstances, again dialing it in to whatever mix of past and future ratios are present. And at some point, we can then start comparing the delivered result, not just against the project specifications, or the verification piece, but against the reality that exists on the outside, which is the true test of how a system works. And

in large infrastructure... Virginia Greiman, who did the Boston Big Dig project PM work, wrote a wonderful book, Megaproject Management. One of the points she makes in that work is that the delivered result comparison to the reality of need in large infrastructure, that test can take place 20 or 30 years after all of the books have been closed for the project, and everybody's newspaper clippings are filed away. Because the timespan of need and the timespan of solution are so much greater than the project duration. And that brings up then the tales of projects, and ongoing support, and maintenance, and things where we don't treat stuff as static. In software, no project ever completes anymore.

13:37 KL: I'm thinking when you said that, and I'm still looking at the PMBOK®... We can have a far-ranging conversation, but I'm trying to link it to what they've actually written in their guide here. And I'm struck that two of the areas we've poked out on... Well, actually really three. When we talk about the focus to value, when we have talked traditionally, meaning amongst us of late, over the last year or so, about the undefined tasks, undefined scope, the nature of research in unknown areas. You talked about the quality of representation of future requirements. And now you just mentioned the megaprojects around infrastructure, where a lot of it's not known for three decades. That all three of these examples are really extending well beyond how I'm reading the PMBOK®. The PMBOK® on quality seems to be... It's not that it's wrong, but it strikes me that it's not quite as rich as any of the three areas that we've been touching on, and that you just touched on. Is there anything...

14:32 S3 RI: Well, it's a lot richer than it was before.

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14:40 KL: What did they add in PMBOK® 6 that you're saying is getting you where you're thinking?

14:43 RI: Just that they've added recognition of agile into the body of methods for looking at schedule and projects, as we discussed previously. They're now acknowledging the richness of quality as a term to describe emerging effort, especially emerging effort along an unpredictable path, as opposed to the more manufacturing pure definition of quality that I think was familiar before. Like you, and I suspect a lot of people on the call, I still find it still biased a bit towards the terms and structures of production quality, and that's probably useful for a lot of the audience, just doing more traditional projects. But in the true program world, that focus on how do we get to our representation of reality that we then use to manage the project, that's where the big improvements will come from.

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15:33 KL: Mike, you speak often from an overall portfolio look, which obviously has quality input as well. How did the PMBOK®... Or the current version, read to you in the aspects of quality you find interesting?

15:45 MH: Well, the purpose, of course, is not to address portfolio considerations, but I do like that it talked about organizational considerations. Because, obviously, many organizations that are project-centric do a lot more than just one project. So this notion that quality is something that is built into the fabric of how you do things... That makes sense to me and that is consistent with

longstanding disciplines like CMMI, right? Certainly a Level 3 CMMI. But in my view, the big thing is, how do you balance it across your portfolio if you have it? Do you have a portfolio?

16:24 MH: So if you have, for example, a project that's just suffering all manner of problems. It's just... Murphy's Law is striking every which way. Obviously, that creates lots of temptations to slash scope, including quality aspects of scope. If you're trying to hit a due date, for example. And the fact that you have an organizational context there with other projects, other resources, that presumably, hopefully, are healthier than this poor project that's suffering so badly, you might make an organizational or portfolio-level decision, and say, "You know what? We can probably scale back some quality thresholds or other scope aspects if need be to help rescue this less healthy project." And that way, we can balance the quality in a way that might be much more effective and higher-value to the portfolio as a whole, rather than having 95% super healthy and then one disaster.

17:17 RI: In effect, you then move optimization of the system up to the portfolio level, and you give yourself a chance to drop outliers, or to treat them separately, so that the maximum gain is obtained from the whole. That would make sense in any system or any investment logic, so it seems to hold up nicely here.

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17:39 KL: One of the other things that I noted in the book as I was reading through it and comparing it to earlier PMBOKs® was this... And I don't actually know how to say it, I've heard it stated as SIPOC, but I don't know if it's "saipahc" or "sippick". But the Supplier Input Process Output Customer model, it seems to be a pretty standard model that's used often, and as I was looking at that, I was wondering, is this still a meaningful concept in the way we've been talking about the effect of more modern project management techniques and development techniques that are being blended in with this guide? Is that still so standard that we're okay and people should be studying and learning it, or is that just too simplistic and outdated?

18:19 RI: It applies to a subset of the task, Kendall. Like we've talked before, if we can look at stuff that you can anchor to the past, references that have been used in the past, the manufacturing, if you want a really simple hook, there, SIPOC makes perfect sense. It's been validated for a long time. It solves a number of problems you run into if you don't think across that set of boundaries and transitions. It's useless for the future part, though, and that's what you're pointing out. So when we're dealing with projects that have this mix of stuff that's anchored to the past and stuff that's anchored to the future, none of the tools that work in one space or the other will ever be sufficient. We will need a cocktail of the two, just as a patient would need perhaps two medicines if they had two overlapping conditions that they were being treated for. And that's very much a useful analog to what's going on in development. We have to treat the quality risk of deviation from known behaviors that we trust and have confirmed in the past, and advance to the levels of industry standards, or specs, or golden unit kinds of behaviors, but then we've got this other class of stuff where the objective is to make you better, or healthy, or something which is a much fuzzier type of statistic.

19:32 RI: Anyway, we could go off on a limb there, but there are so many analogs to the goal of matching systems that have multiple types of non-homogenous elements in them, and I think that is where we will ultimately get the refinement, is not trying to paint everything with a single brush, but recognizing that there are two primitive conditions, each one of which needs its own class of

remedies, and then going to the wall and the formulary that has that class that it belongs in.

20:00 KL: To the extent that we're recognizing that there's a difference, as you've laid out from your verbiage, defined versus predictive tasks, that pretty constantly... I guess the newest guide here is beginning to help us have some tools to get us towards the more predictive, but maybe not as much or not as thoroughly or well-understood perhaps.

20:20 RI: If you look at where we've gone from PMBOK® three to four, and now into this edition, you can see a tremendous adjustment of the PMI community to the reality of agile circumstances, which are often met with agile methods. But, certainly, do you have an evolving iterative problem discovery as opposed to just a problem solving condition in many development projects, that's reality. Any method that doesn't, by whatever name, honor that reality is going to have weaknesses and opportunities for improvement. So I really would like to give a lot of credit to the team that worked on this edition. I don't think we're completely there yet, I think there's lots of room to continue to recognize that dynamic and static combination, but the progress is much bigger in this edition than I've seen in any other stuff prior to this.

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21:14 SD: While agreeing with that, can I make a couple of just negative comments?

[chuckle]

21:20 SD: First of all, I think, Randall, what you're...

21:22 KL: Opportunities for improvement.

[chuckle]

21:26 SD: Well, I think what Randall is saying with regard to agile, and I'm using agile as an adjective here rather than as a noun, just the agility of project and program teams, Randall, I think you're right on there, is hugely important. And we need to recognize that things are going to be changing, that... For example, estimates about value 20 and 30 years down the road will be changing, etcetera. However, the decisions have to be made now. It's no good for a poker player to start thinking... Who is right at the start of a round of bidding, to be thinking about, "What are we going to do? What cards are going to show up fifth in the hand?" You start thinking about what the situation is now, you make probability-based decisions on that, and you go from there. As a very famous economist once said, "When the circumstances change, I change my mind." And I think we have to do that, but the project team needs to have some guidance in terms of what the value and cost and everything else of the project investment is going to be down the line, so that they can work towards the maximized expected return, even if that return does not turn out to be what was expected.

23:00 SD: Now, in light of that, on page 274 of the new PMBOK® Guide, it talks about something it calls the COQ, and that is the cost of quality. What's interesting about this is, they call it the cost of quality, but what they're really talking about is the cost of a lack of quality. [chuckle] They don't talk about the cost of quality, and you really need to look at both sides. You need to look at what additional quality scope, as Mike said, will give you, and you also need to look at what leaving out

that quality scope, what the results of that will be. So Mike, in your example that you gave earlier, you decided that much less scope was actually the way to go. Well, why was it the way to go? Because A, it involved less work, and thus less cost, but also, quite likely, because it involved less time. And that's something that's absolutely not taken into account in terms of quality, and risk also, by the way, that we're going to get to, including more quality measures, or quality scope, and doing better risk analysis, are very valuable things, but there is a cost to them. And one of those important costs is time if the activities involved wind up being on the critical path.

24:31 SD: So in terms of quality, and getting back to the cost of quality again, on page 288, it shows quality as being an input to the schedule baseline. But the truth is that the schedule should also be an input to the decisions about quality. If we're going to include a quality measure that, let us say, is going to add \$500,000 of value when we do our cost benefit analysis, or even if we don't, if we don't do it. But if it were going to add \$500,000 of value, but the cost of the additional time is... On the critical path is going to be an additional \$2 million, then that clearly is something we shouldn't be doing. And we need to really... The whole concept, again, which... Even though the quality stuff and the risk stuff are very good and interesting, unfortunately, this PMBOK® Guide continues to fail to fully understand the concept of schedule, the concept of time on the critical path, and that every project has a critical path no matter whether it decides to plan it or not. And that added time to this project tends to reduce, and sometimes dramatically reduce, the value of the project.

26:06 SD: Would we want to add time? Getting back to my work with the military. Do we really want to be adding scope and quality to something if the result is that 500 of our troops are going to get killed in the meantime because of the delay? And that sort of situation does happen.

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26:37 RI: The one thing you mentioned in this that we've talked about in different ways is that there are carryovers from the purely manufacturing view of quality that makes their way into this developmental document. To the extent they cover a subset of the effort, great, they missed the other part on the overall effort. So if you think of this idea of cost to quality, there's an assumption built in there that you never get better than a perfect unit off the end of the assembly line, so therefore everything that happens is bad. When we look at the investment, though, that comes... The return on investment that comes from better definition of requirements, or better understanding of the reality of market needs, or what that E5 really needs, and what's valuable to them, and where the priority should be in all the decision making about use of time and resources. Those kinds of decisions are very, very valuable to the project. They have not just a quality downside if you make them badly, they have an enrichment multiplier if you do them well.

27:33 RI: And again, I go back to this idea of potential energy and reality. Our conversion yield into projects is at, I would guess, arguably less than single digits, if you wanted to compare it to something like how much sunlight falls on a photovoltaic panel that makes it to a light bulb. There, you're in the 18% or 20% range. Here... I have seen so much opportunity lost just from a lack of inadequately identifying stakeholders or their true needs at the beginning, versus anything that's done within the mechanics of once a target is selected, hitting that particular target.

28:04 KL: So for you, the under...

28:05 S3: The selection of target, not hitting it, but the opportunity.

28:08 S1: So Randy, what I'm hearing when... We're highlighting a couple of different things about the logic of the relationship of quality to value, the cost of doing it, and the implicit costs of not doing it. But what I'm hearing in yours, is yet a different piece, which is essentially quality needs to be considered earlier.

28:24 RI: To narrow this down and maybe give your listeners a clearer understanding of what I'm trying to share, there are quality errors in how we represent the underlying infinitely complicated, at some level unknowable, reality in which we work. Those errors should be relatively small for things we've done a lot of times in the past, and are going to reduce if we have the discipline to keep records and improve them.

28:48 RI: The other class of stuff that we haven't done before, and then how all of those pieces fit together, which even if you're integrating nothing but existing pieces, the integration creates a new system whole. So anyways, the old and the new, if you want a really simple way. Our modeling of the new is terribly weak compared to the potential richness that exists within reality, both for opportunity and for risk. It is our inability for our headlights to see very far into the future that drives this need for the steering wheel that comes up by different names, and agile happens to be a really popular one right now. Iterative design and development has been around for a long time. But basically, it says deal with the emerging reality of requirements as the projects execute, but that's still trying to create some sense of what the true reality on the outside is. We have our artificial reality that we execute to in the project, because we do things in the artificial world, and then we dump them back into the real world and see how they compare.

29:46 RI: But each of those transition points, think of them as a cable connector. When we go from reality to what we capture in specs, that could be a 90% or 95% quality capture. But we get it into the requirements, it's maybe 5% or 10% of what's really out there. And to everybody's point, that 5 or 10% may be exactly what we want. If it's a medical device, or control of nuclear weapons, or physical security at airports, or something, I'd rather we set our bar a little bit higher than that. But if it's put a bird house up, or get something to a trade show, or plug a hole in a dam before it leaks and destroys a village, I'm fine with taking the dead minimum of things that allows you to move out. It's all about the objective and reality you're trying to get, and then matching all of the choices you make about use of time, about use of models that are available, about use of stakeholder influence, to align the work you're doing towards the reality that exists such that you can deliver within that cycle the maximum return. I don't disagree with anything that Steven or Mike has said, and I think we're just kind of explaining it from different perspectives for the benefit of anybody who comes into the call with different sets of analogs that they like to build upon.

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31:00 KL: And now, a resource for you. In these round table episodes, we've been talking about the various ways the new PMBOK® 6 addresses the dynamic nature of project effort. And guest Randy Iliff has had a lot to say, and there's a reason. He's part of the professional team that produced the book [Integrating Program Management and Systems Engineering: Methods, Tools and Organizational Systems for Improving Performance](#), by lead author and Editor-in-Chief, Eric Rebertisch. The book is a joint effort between PMI, the International Council on Systems Engineering, INCOSE, and the Consortium for Engineering Program Excellence at MIT. Yeah, that

MIT. The book represents the collective knowledge of program managers, systems engineers, and academics of some of the best approaches to improving program results through a unified working relationship, that relationship between program managers and systems engineers.

31:54 KL: And as you've heard in these podcasts, you don't have to be a systems engineer to be getting the thought-provoking PM knowledge from this type of relationship. Many of our projects have that essential R&D element, and the case studies presented in the book will, at a minimum, stimulate your lateral thinking. Another great resource for your professional library, this book will give you more insight into what Randy has brought to us as a guest, and it's available to PMI members at a discount. So visit the PMI bookstore to order.

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32:24 KL: And now, back to our round table discussion on quality.

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32:30 SD: There is an expectation, and I think there is within the PMBOK® Guide, that somehow this other aspect which... They talk about cost of quality again, but they're actually talking about a cost of lack of quality. They never talk about the cost of having that quality, of incorporating it, its not being managed. For example, if we include a test, a quality check, a quality activity of any type, and we decide to include that in our plan, our project plan, and we plan to do it at a certain point of time, and it's going to give us, just throwing numbers out here, it's going to give us \$100,000 of value, and it's going to cost us \$5,000 to do that work, it makes perfect sense to do it. Even if we don't do that analysis, let's assume that those are the underlying numbers that we don't know.

33:29 SD: But at some point along the way, this activity winds up getting onto our critical path. Now the true cost, this concept of true cost, the true cost of doing any work activity is the sum of its resource cost, or budget, in this case \$5,000, plus what's called the drag cost, the cost of the time that that activity is adding to our project duration. And if the cost that activity is adding is worth \$200,000, now we have an activity that's costing us \$205,000 to get \$100,000 worth of value. That needs to be removed, and yet what I see all the time on projects is projects being done incorporating work often of a quality or risk mitigation nature that are adding less value to the project than they are costing if we took into account the cost of time, which, unfortunately, is nowhere discussed in the PMBOK® Guide.

34:39 RI: Well, absolutely agree with you, and the thing that's coming up into my mind is how many Quality is Free banners I have seen walking through manufacturing facilities over the last 35 years.

[laughter]

34:52 RI: The message here is that in manufacturing, where it is possible to dial out variance, where you do things over and over again, where you have all of the information in the world, where you control everything except gravity, and heck, we're working on that with lowering the orbiting manufacturing capabilities, in that environment, all those rules make sense, and the oversimplification of saying, "Quality is free," works in sharing it with the masses.

35:16 RI: When you get outside of that special protective little special case bubble, and you now have to deal with the fact that there's an upside, and a downside, and a cost to every action that is not free, somebody's paying for all this stuff, now you have to challenge the ritual of, "Well, we always do it," with, "Well, what are you getting from it this time, and given that objective, what is the right amount at the right point to give you the information?" Many things that happen in manufacturing are wonderful, because you wait until you have absolute certainty, and then you apply that certainty millions of times. I can't tell you the number of times where I had to make a guess where there was almost chaos in the incoming data simply because that was the window of opportunity for that decision to be made, plus the consequences of downstream cascade actions overwhelm either one of the choices. A or B didn't matter. Picking one and moving downstream saved you \$1,000,000 of cascade impact. A versus B was a \$50,000 optimization.

36:13 RI: So Steve, every time people get in trouble with these pieces, I'm usually there whispering in their ear that they're looking not at the system, they're looking at pieces. They need to move up a level. They're micromanaging something. They're micromanaging quality, because they have a department that does that, that has hours that need to be billed to some charge account, [chuckle] as opposed to, this is the mechanism by which the project accomplishes a goal that is present this time, given the objectives and the reality of execution. And it may change tomorrow, and I'm alert to that, and I'll keep adjusting as we go. But today, it's the best solution we got.

36:48 RI: The pilot in that F-15 or F-22 that's doing air-to-air intercept has a completely different mission than the person who's making sure that the tires are pressurized adequately before flight and everything else is checked. They're both incredibly important, but there's a degree of freedom given to the pilot for their mission that's very much like the degree of freedom that the program manager must adopt, and he or she must then actually fly that machine or project along the best trajectory to intercept whatever the objectives are, and use whatever situational awareness that they're given.

[music]

37:28 SD: It's a very small caveat, but the only thing that I would say is that even in my experience working with manufacturing groups and manufacturing floors, the shop floor that is using critical path scheduling is very much the exception also. [chuckle] So while I agree that working in manufacturing, one can know a lot more about what's going on than one would ever see at the ultimate program level, I'm not convinced that quality is free even at the shop floor level.

38:08 RI: Well, there's always a threshold. I've been part of cultures that were pursuing the operation review chart status of Six Sigma at least, whether they were getting it in reality or not. And at some point, you realize that there's a set of behaviors that have increasingly high cost and lower marginal return, and the smart decision is to pick whatever point matches your reality as opposed to trying to get to the cover of a trade magazine.

[music]

38:39 KL: And that's what I want to step in on just a little bit with this. When we talked about it being free, I think we see how we're talking about there is a cost to doing things related to quality, which we also get wrong. And of course, the real question is, what was the cost of not doing it? And to me, the next part is, how do you know? One of the questions I'd queued up that was driving me nuts even without this enlightening and richer conversation around it was there seems to be a lot

of... You just mentioned the output from different tests, reading the quality measures and things. There seemed to be a lot of updating of lessons learned, and risk schedules, and risk registers, and stakeholder registers and things. And so I was looking at the documentation, I was just kind of groaning and thinking of, as a student trying to learn from the PMBOK®, and think about what I need to think on my project right now. And then I realized as I'm looking at this fairly superficially, it strikes me that it's really a knowledge management process.

39:34 KL: So even as you are discussing Mike's earliest example in the discussion, the two of you are batting back and forth here, isn't part of the problem as well, what we're saying is the cost of even knowing the information of the knowledge management? And can there anything be really done with that? And the deeper question to me was, Mike, you mentioned that example where they made a decision not to invest in the quality procedures, essentially, because they needed to increase the value related to time, essentially. And that the cost of bad quality was not going to be as devastating as their need for the value by getting it done on time and getting it sufficient. But how did you have that, or how did that team have that information? It seems to me that we can complain about it, and they've highlighted the documentation requirements here, but again, there's a cost of knowledge management, but how else will we get the information that we need? What's the role of knowledge management in this?

40:31 MH: I think what we tend to do pretty well as humans, and as project managers, is when a situation is dire enough or extreme enough, our intuition kicks in and we tend to do the right thing. [chuckle] So in that particular case, the customer was like, "Time, time, time, it's got to be fast. I need it immediately, this is crucial." And it was very clear to them. I don't care how many bugs are in the software. I'll be the judge of quality, but ignore your normal quality processes and thresholds and things, and focus on speed. That was just an extreme circumstance that made it painfully evident.

41:07 MH: But what Steve Devaux talks about is, does it have to only be done when it's painfully evident? Couldn't we find a way to actually measure this? The value of time was extreme for them, but what if it was just high and not extreme? Could we do some sort of trade off of, "Hey, Mr. Customer, if we took an extra week or two to make sure it was higher quality, what would that be worth to you? And should we take that extra week or two?" And it's that kind of conversation that I don't think PMBOK® Guide is helping us on very much. To PMI's defense, they're trying to capture common practices, not necessarily best practices.

41:49 KL & RI: Yeah.

41:50 MH: And in my mind, we need to encourage PMs to go beyond the common practice, and take some of these common sense things that the dire situations teach us, and start measuring them and applying them as a best practice.

[music]

42:07 RI: Well, just as PMs don't have to be experts in every nuance of HVAC operation to be able to manage the installation of equipment in order on a particular site or something, they also don't have to be expert in what my field of system engineering would offer as a tremendous body of knowledge on how to get requirements to prioritize them early. There's some very basic principles that are easy to communicate and carry across, and then of course there are mechanics to whatever

level a project requires. The thing's as simple as, you want to flatten the entire life cycle of the project into a moment. So I want to bring past, present, and future into the now, because now is when I make decisions. I don't make decisions in the past, I don't make them in the future. They have to be now. And Steve is talking earlier about something 20 years in the future has some impact on me, but that's not the same impact as, "Will I be shot in the next 15 minutes if I don't do something?" [chuckle] So there's the equivalent of a Maslow's hierarchy of needs that takes place within, again, the common sense of the program management environment that guides a lot of the stuff.

43:11 RI: But the quality of the decisions any person can make are limited by the quality of information he or she has available to make them. So if you look at the analog I was citing earlier of what's happening with advanced air-to-air weaponry, right now all of the advantages taking place in terms of information sharing, and making that pilot more... Or more knowledgeable of the situation, and as that information becomes available, able to act instantly, and with very high probability of effect. That's not a bad model at all for the PM to think about. And that at any given day, they don't have to be responding, but they have to have the plane in condition to respond rapidly to whatever piece of information their emerging awareness and sensors on the projects deliver.

43:55 RI: And that takes us to another analog that's useful. When we talk about quality, sometimes what's on that gauge that the pilot's looking at are completely useless measures. If all it had was a Hobbs meter of how many hours since the airplane had been built and how much fuel was left, it would be very, very difficult to go engage and take out a target. But that might be exactly what the operations manager was interested in keeping track of, and how he or she gets her promotion, [chuckle] their shot at Pentagon ashtray-emptying at some point.

44:23 RI: But all of those things tie together. It's how you measure success, and what information you put in front of people, and then how timely you can make that data, that's powerful. I worked on one major project where... I probably shouldn't disclose it too publicly, but to the best of my knowledge, the official reporting was never within three or four months of the reality of day-to-day decision making made on the project. It was a trailing diary of project decisions, as opposed to the tool it should have been to model the work, enable decision-making, let you look at alternatives, select from the best ones, and then engage. People used 27 overhead slides in daily briefings to manage a \$5 billion project just because they could. And at that time, this was the early 80s when dinosaurs roamed the earth and dirt was under warranty, the Primavera was still a pretty primitive product that needed 15 or 20 people in an IT room to support, [chuckle] and the overhead of the tool, regardless of the potential value at some future point, at that time, didn't beat the existing seat-of-the-pants methods of skilled people who had been doing it since the 50s.

[music]

45:30 RI: Lots of stuff out there. It doesn't have to be tools. It's more about the knowledge and control of project that makes you successful. Tools are about efficiency. The understanding is about the potential to succeed.

[music]

45:47 S1: And that's interesting, you just mentioned on control. That was one of my questions I queued up as well. When I was reading this, I kind of liked the manage quality section. I felt like I

was learning stuff, I felt like I understood. And then I hit the part of control, and it was kind of just like, "Do control," as far as I could tell. And I'm not trying to beat up on the book, I'm saying I didn't grasp an underlying... And it may just be the structure of how they present the guide. It was a list of, go do these things. What's relevant in control that we need to think about other than the cost of doing control, which we've just talked about a lot. The planning of all of this, and then having to execute it. What's worth highlighting for people who are using this as a guide in control? What should they be thinking about beyond the book, or what's important in the book, in this guide, related to control?

46:31 RI: I guess two things real quick and then I'll hand it off to my colleagues. The first one is that there are two different types of things you're trying to control. Solids and gases, if you want to think of it that way. [chuckle] The past and the future, stuff you can trust or stuff you're still working on. So you have two different types of things you're trying to control at once. You'll need a cocktail. And the other piece is don't focus on just the inside the project execution. Worry a lot about, is the model the project is executing the right one that the stakeholders in reality are going to judge you against at the end? It's one thing to get all of the checkmarks on an acceptance test plan, it's another to be standing in front of television cameras explaining why something doesn't work after billions of dollars have been spent. You can't just point to the past ATP and say, "Hey, we're good, it passed." Those kinds of things just don't work at the large project reality. So sooner or later, you're going to be tested against the underlying reality that drove the need for the program in the first place.

47:26 RI: To me, a critical quality measure is during the execution of that project, how well does the project remain engaged to reality, increase its understanding of that reality, and refine that reality as new information or nuances become available? And of course, reality changes as individual decisions are made. The decision you made yesterday changes the reality of the circumstances on which you're planning today, and regardless of whether agile existed or not, some equivalent of that would have to exist. It's no different than terrain following or closing path.

[music]

48:04 SD: I think one of the issues here is talking about the project and project manager versus the program and program managers. Speaking from the project manager's point of view, the tradition has been the project manager is supposed to deliver X on time and on budget. Well, I don't go along with that. I think that the project manager is supposed to try, if possible, to deliver X plus, if necessary, in shorter time and for less than budget, anything that will increase the ROI. But the project manager relies on the program and the program manager to give the project parameters as to what will, in fact, increase these things. And in general, that is not being done.

49:06 SD: The program manager who does have the big view that... Or should have the big view that... And the constantly-changing view that Randall's talking about, needs to provide parameters to the project team, and then update those parameters if they change. And as far as the analogy to the F-35 pilot who keeps having to make changes or whatever, and has lots of information coming in... The sad thing about it is there are really only four variables that the project manager needs to deal with, or should be dealing with, because those are the ones that will affect project investment. And those are scope, time, cost and risk. And if the program team were to give the project manager those factors in quantified and monetized terms, they could be constantly looking for opportunities to increase return on investments. That's not happening. But again, it gets back to that difference

between the project team and the program team, which really does need to be looking at the entire program. And the entire program, if not 30 years out, five years out.

[music]

50:35 KL: The control function is about producing a feedback loop. It provides information back into validating scope, for example...

50:43 S3: Perhaps a more elegant way of trying to express something I was sharing earlier is, "What is the quality of our capture of reality? How well have we modeled that?" Because errors in that, that we bring into the project, will get used in day to day decision making. There'll be errors just like there would be a reference standard error on a piece of production equipment if our volts reference was off or something. I think of the Hubble Space Telescope mirror as an example of calibrating against an uncalibrated standard and then getting in trouble. But there's this whole idea of, "What are the references against which you compare?" And then, "How much weakness is there in a guess of the future, compared to what people think of normally with quality of experience built up over decades in a manufacturing facility or culture?" They're night and day different.

51:31 RI: So, if you're looking for where to prioritize, just like we use critical path as a way to distinguish the emphasis of our schedule management time, look into stuff that's got fuzzy requirements, where the stakeholders aren't really well-understood, or whether they've been, in some cases, muffled or silenced. That's a really good red flag indicator for any of your listeners. If you're not allowed to talk to the end users of the system when you're designing something for them, usually you're being held hostage for some kind of a domestic dispute, and you'll be the one in front of the cameras at the end. [chuckle]

[music]

52:06 KL: As soon as we hit program and portfolio, and people getting in trouble around projects, and things not happening, I know that's a very experiential thing.

52:13 MH: It will add to the control quality part of the conversation here. It's kind of the same theme we've been hitting a lot today, which is, as we control quality, the important thing isn't to go through some checklist that the PMBOK® Guide gave so much short shrift to. Right, Kendall, as you said? Say... Well, what if it's the highest-value thing we can do for this project to adjust quality upward or downward? In my mind, that would be great in some future PMBOK® Guide edition. To see, in control quality, how we flex quality in order to max value.

52:52 KL: It's about the monetizing it then, to be able to flex it even. I think maybe that's the part of the guide we're missing. Even if people were saying... Again, as you said, this is common practice, not best practice. But I think this question of being able to quantify and monetize just allows everyone's normal project management skill to come forward, then. People would make better decisions simply having the data. This is a case where taking it away from processes, or a sense intuitively, might help by having actual data around it.

53:22 MH: Most PMs I know get a lot more pleasure out of feeling like they've done something even higher impact than anyone could've imagined at the beginning of the project, rather than... There are certain PMs who just want to follow the rules, and stay inside their triple constraint box,

and execute according to some original envisioned plan as their only guiding light. But I think most project teams think in terms of how proud they are to have left some really great mark that was back in their careers, and they think, "Wow, that Hubble Space Telescope thing really made a difference in the world, and this other project maybe was more modest, but still made an impact." And to try to engineer maximum impact, maximum value, I think is what really PMs feel in their bones, even if they can't quite pinpoint why they love doing PM so much.

[laughter]

54:17 RI: I had an early mentor that described much of what you're talking about here. His comment was, "When you win a bid or a proposal, what you're given is almost just a placeholder just like an engineering budget would be for weight or power or something." He was talking to a young engineer, me, at the time. He said, "And then as you get closer and closer to building this thing, you get more and more information about it. If you don't need all of the weight or power that you're allocated in your subsystem, you don't bolt on lead weights just to use up your budget, you give it back to the next higher authority so that it's there at the bank of negotiation for other people who are running a little bit high or low on theirs." So there's always a next higher system piece to look for optimization context in.

55:00 RI: As we move away from the manufacturing roots of a lot of this stuff into more of the system side, some of these decisions move all the way up into the management chain, well beyond what a normal program manager would typically be exposed to in most organizations. I have seen decisions that were made within very modest development programs, single seven figure kind of number, that had to go all the way to the board of directors, because what was being developed was a different direction for the brand of the organization. And at the strategic level, that exceeded any of the costs or impacts associated with a single rock in a box that's going out of a store someplace. So it's a much richer space, and particularly with services and value being delivered more heavily through software, now and into the foreseeable future, the ratios change exponentially, everything is going to be a continuous development. Everything will have evolving requirements on it. Everything will be continuously in delivery and continuously in quality check for the stuff that's been done in the past, and forecasting and management for the elements that are coming in. So it's almost like we'll be living in boiling water as opposed to going from freeze to thaw type of thing.
[laughter]

[music]

56:18 KL: Well, I tell you what, guys. Let's go with Here Endeth the Quality Lesson. Thank you for speaking with such clarity and quality on quality. [laughter] And I think we need to be ready to attend, our listeners as well should be ready to attend the next round table or podcast episode on PMBOK® 6 and Risk, because I think that's the next big one, and we're going to have the same kinds of questions, I suspect, around quantifying, monetization, and what's really going on with risk. And of course, extending beyond project, because we can't help ourselves, to portfolio program, and now I just heard strategy leaking in. But people may want to follow up with each of you on these great ideas, so how do they get ahold of you? Mike.

56:55 MH: Fortezzaconsulting.com. Two Zs in Fortezza like pizza.

57:00 KL: Steve.

57:00 SD: My email address, it's a very old one and a little complicated, but it's APM7, analytic project management, it stands for, seven, @ix.netcom.com. And I'm delighted to talk with anyone. Again, apm7@ix.netcom.com.

57:22 KL: Apm7@ix.netcom.com. You know, we may just need to get you a new email address.

57:28 SD: I can't! [laughter] I'd break out in hives.

57:32 KL: Okay. Okay. Randy?

57:34 RI: The easiest way for people to track me down is through LinkedIn. Randall Iliff. ILIFF. If it looks like five vertical scratches from a claw with a few things going across it, you've got the right last name. Or email is randall RANDALL @ EINTLLC.com.

[music]

57:55 KL: So lack of quality might well be more costly than the cost of quality. It should be viewed as an integral project component, and incorporated into scope and schedule at the very beginning of your planning. Keep in mind: Quality might not be your highest priority. You have to weigh the costs versus the benefits, especially if quality control measures cost not just money but time on the critical path. Remember, we've connected value to time. With every project, you should use the minimum tools and methods required to achieve maximum return on investment.

58:27 KL: For PMP®s who want a PDU, go to the CCR system and use code 4634 and the title PMPOV0047, PMBOK® 6 on Quality. Make sure you flag "technical project management" in the talent triangle. Special thanks once again to my guests on this episode, The Knights of the Project Management Round Table: Stephen Devaux, Mike Hannon, and Randall Iliff.

58:54 KL: This has been a Final Milestone production, sponsored by M Powered Strategies. I'm your host, Kendall Lott, and until next time, keep it in scope and get it done!

[music]

59:05 Announcer: Our theme music was composed by Molly Flannery, used with permission. Additional original music by Gary Fieldman, Rich Greenblatt, Lionel Lyles, and Hiroaki Honshuku. Post-production performed at M Powered Strategies.

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