

44. Devaux, Hannan, & Iliff:

PMBOK® 6_ Scope & Schedule

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0:00:03 Announcer: This is PM Point of View. The podcast that looks at Project Management from all the angles. Here is your host, Kendall Lott.

0:00:11 Kendall Lott: So PMs, we're going to take a bit of a different angle on the episode this month. Today and for a couple more episodes, we'll be looking at analyzing PMI's new guide to the PM Body of Knowledge, or the PMBOK as you know it. PMBOK Version Six. It came out in September 2017. So we're going to go through it by sections with an expert panel. And we're going to have these experts talking to us about what we need to continue to pay attention to, whether it's in the guide or not. I have with me here today three expert PMs with points of view all. All of whom have been previous guests on the show. I first have Steve Devaux and he's the author of Managing Projects as Investments: Earned Value to Business Value, and Total Project Control: A Practitioners Guide to Managing Projects and Investments. He's an expert in schedule optimization and recovery. So Steve, where do you work now and what do you do?

0:01:04 Stephen Devaux: I work for my own company, Analytic Project Management, which is in business for now I guess 27 years. I also teach project management at U.Mass. Lowell. I work with a lot of companies, the US Air Force, defense contractors, pharmaceutical companies, etcetera etcetera.

0:01:25 KL: I also have with me, Randy. Randy, are you out there? Randy Iliff, you out there?

0:01:29 Randall Iliff: Yes I am. Good Morning Kendall.

0:01:30 KL: Okay, Randy Iliff. He's also been on one of our episodes and he's a seasoned large project PM. And he's a founding member of the International Council on Systems Engineering, and recently served as INCOSE's lead during the production and release of a new book called Integrating Program Management and Systems Engineering. So Randy what are you doing now?

0:01:49 RI: Hi, Kendall. These days I'm running my own organization under the title Eclectic Intellect. For a number of years I was Vice President at bb7. But most of what I'm doing professionally is trying to get the message of the new PMI book out to those who can benefit. Particularly the aspects that are recognizable to those who work in commercial product development. The integration of the engineering and PM dimensions has, I think, spectacular potential for the domain.

0:02:13 KL: I also have one of our recurring guests and co-host of one of the episodes, Mike Hannan. So Mike, you're out there?

0:02:19 Michael Hannan: Hey, Kendall.

0:02:20 KL: So Mike is the author of The CIO's Guide to Breakthrough Project Portfolio Performance. Say that quickly. And is an expert in Lean, Agile, and the Theory of Constraints. So Mike what are you up to now?

0:02:32 MH: So like the other two guests, I run my own project management consulting firm, Fortezza Consulting. And then also a PM-oriented nonprofit called Project Management for Change. And the unifying thread between those two is to try and show people, even we PMs ourselves, the unbelievable power and potential of project management to all of humankind.

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0:03:00 KL: Okay, so here we are with the "PMBOK Guide, Sixth Edition". I was reading through the introduction here to kick us off and it includes information on how to implement its approaches in Agile environments now. So this is a first for PMI. Agile's been around forever and a day. And there's always been an interesting discussion when they were going to incorporate it, or how they would incorporate it and sure enough in PMBOK Six, they've picked it up. Now, they've included some other stuff because it seems that the project management world has evolved, they've indicated, has evolved significantly since they produced the Fifth Edition back in 2013. They've also done some re-racking. For those of you that are familiar with the PMBOK and its normal layout, they've changed a little bit. They've added "Trends and Emerging Practices" to each section, and "Tailoring Considerations," which I thought was really interesting as I was reading through them. And they've put a greater emphasis on "Strategic and Business Knowledge" which has come through in their Talent Triangle as well as they try and make sure all of us as PMs are well educated and well trained. And they've actually added a completely new section on the role of project manager.

0:04:02 KL: Now today, what we're looking at is scope and schedule. These are two of the big ones. I was just noticing as I've leaned back and looked at the whole book, I saw a presentation once where somebody who had been involved with the very first PMBOK showed how it had grown over the first five editions from about 100 pages to the 589 pages of Version Five. We're up to 756 pages plus a 167-page Agile Practice Guide. So apparently, the PMI and PM world is growing and there's clearly a refinement on how they present this complexity of the information. The standard part itself is about the same size, a little bit larger which is now clearly identified under sSection Two. But I love something on the front page. I don't know if you guys saw this right at the beginning of scope. They added a sentence that says, beyond being the body of knowledge is basically descriptive, they've kind of almost even surrendered on that I thought, because they said, "The project scope processes are noted to be presented as discrete, but in reality, they overlap in ways that cannot be described by the guide."

0:05:04 KL: They basically said it's too complex for us to describe in our own guide. I thought that was kind of fun. So, that, with the implementation of some of the Agile practices, I think that was some of the breadth they're beginning to include here.

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0:05:22 KL: As you guys were looking at it and thinking about where you've come from in terms

of how you've looked at scope before, I thought I would start actually with Mike on this. Because scope has become something that you've really worked at at the portfolio and looking at Lean and Agile development. What were your thoughts when you were looking at this PMBOK Version Six from a scope perspective? Kind of at the highest level. What's something that stood out for you?

0:05:46 MH: So first overall, I was pleasantly surprised to see just how much work went into this when trying to incorporate what we could put under the Agile umbrella, right? So they had predictive versus adaptive, and incremental, and iterative Agile, they even had a bunch of Lean stuff. It went leagues beyond what we'd ever seen from PMI before, and it was really good to see the steps in those directions. What I didn't see, especially since we're talking about scope. If you look at Section 1.8, the PM Knowledge Areas, and it just gives a quick overview of scope management, it still kind of regurgitates the tired, old definition that we're only going to include all the work required, and only the work required. It's still this sort of scope cop type mentality. Which is kind of divorced from the whole reason we do scope, which is, because it's there to provide value. And I think what we really have learned, or what we should have known all along, but maybe the Agile world reminded us, and the Lean world reminded us, is you can have value delivery as a somewhat elastic concept. There might be a notion of minimum... 90% of a bridge might not do me very much good unless I use it as a fishing pier or something. [chuckle] But in other environments there is a notion of a partial product might still be valuable. Not only as a thing to get feedback on, but just it might actually have value as a deliverable unto itself.

0:07:28 KL: Is that Randy?

0:07:28 RI: Yeah, I'm sorry. If I can piggyback on that thought just briefly. Coming from the world of systems engineering, the idea of that emergent property... The bridge only gets you from one side to the other if all of it's there and working in tandem according to the original goals, that's very much is the nature of a system, and much of what we have been discussing is understood in this parallel dimension of system engineering. It's fascinating to me to hear, and to observe in this new version of the PMBOK, the acknowledgement of the reality of iterative development throughout every industry where you don't know quite what "done" looks like as you begin a project, or an effort, and you begin pursuing it. It's nice to see that reality in there. And I believe that will open the door to a lot better integration of practices between the domains. Because it's really difficult to have a static and a dynamic interaction that don't have any way of normalizing that interface with each other. I think this will improve that relationship a lot.

0:08:27 MH: And I'm going to ask Steve Devaux to pipe in in a moment, because I got the clearest reminder of some of this thinking from him and his work. And that is, even if it's highly prescriptive, and I know exactly what I want, and nothing changes, and the value proposition is the same, and it's stable. There might still be things I want to add on, that if it only cost me 10K, and a week of time, might be worth a million bucks. And it might be optional, but it could be enormously valuable. And that notion of "We have a minimum viable product, and then we have a whole bunch of other valuable things we'd love to get to if the scope-schedules-cost trade off is there."

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0:09:15 SD: Of course you're absolutely right. And I would take the additional aspect to that, which is that as you're going along and doing the project, it may turn out that something that has value, and made sense for you to do it, because it was only going to cost you \$10,000 to do it, and it was

going to add let's say \$50,000, or let's say \$100,000 worth of value, so you decided to do it. But then it turns out that this item has migrated to your critical path, and is suddenly delaying the end of the project by two weeks. And each of those two weeks is going to cost you \$75,000. The cost of those two weeks, therefore, is \$150,000 now, and it's only going to add \$100,000 worth of value. You would need to remove it. In very much same that Mike was just talking about adding it. And, I of course, am so glad that you raised the subject of value, Mike. I want to start by saying something. Which is that the PMBOK Guide is really an incredibly wonderful effort, okay? It does an amazing job. And there are two things I wish for it. One is, that it sort of in a way puts everything at the same level. And I sort of wish it would stipulate which things are absolutely crucial, and which other things are very much nice to have. In a way, that's sort of like a project.

0:10:49 SD: And I'm going to say something about the PMBOK Guide that I think is really missing, and has been missing... And causes them to miss other things in each edition. And it's the definition of a project. As an example, if we could take a game of soccer. Let us imagine that someone is going to write a Soccer Body of Knowledge. But it's not going to be people writing it. It's going to be robots are going to write a Soccer Body of Knowledge. And they are going to describe in detail the way to kick the ball most accurately, hardest, how to set up the players on the field, and even perhaps to get the ball between the goalposts. But if you leave out the fact, if you never educate and program those robots to understand that soccer is a game. That that is the most important aspect of soccer. It's not how hard you kick it, or anything else, it's a game. Then there will be all kinds of issues in that book that will not be explained, there will be other factors that will be left out which are just crucial to the fact that soccer is intrinsically a game.

0:12:07 SD: The definition of a project as a temporary endeavor to create a unique product, service, or result, but which excludes the fact that every project is an investment. And that is nowhere mentioned. That causes all kinds of aspects of project management and stuff in this book to just not make very much sense, or to be simply left as "It depends." No, it doesn't depend. The truth is, it's based on what is going to be the value of that project over and above the cost, or which in terms of any other type of investment is simply called return on investment, or profit, but which is left out of the PMBOK guide and project management. And by leaving it out, we don't understand certain things. We can't judge projects because we don't know whether a project was done better or worse unless we know what is the expected return going to be versus the cost.

0:13:23 KL: Let me ask about this because one thing they were very clear about in the guide itself is that it's not prescriptive, so they're actually aggressively trying not to tell people some of those minimum requirements from a metaphysical perspective, I think. But you just opened an interesting box there because we've had a number of guests talk about value of projects and also this idea that project managers themselves could see their identity as being investment managers. They're managing the assets of a firm. But I want to ask Randy, as I remember coming from more of the idea of the R&D projects, how do you see that question of value and being very definitive about it, as literally the definition of the project you undertake, including this value concept, when you're dealing with such huge, what-ifs, might be's, could be's, and in fact we developed a scope as we move along because we don't even know what tools we'll be using yet in the pure R&D environment?

0:14:18 RI: Yeah, excellent questions, Kendall, and I would like the chance to comment on a couple of things. One of the areas of PMI lexicon that I became very deeply associated with during the production of this recent book was the distinction between "program" and "project". And that's

not universally understood even within the community, it's a distinction that I don't want to get into on this call. But the point is, there is nothing in reality that simple. We are choosing to apply a model, however imperfect but useful that model may be that's described in an edition to the PMBOK or SEI or IEEE models or ASME or pick an acronym du-jour. Everybody has a model of what they think this abstract concept of "invention on demand" looks like. And those models are always imperfect. The areas of imperfection determine the types of symptoms you'll see at the end of the project. And anybody who's been around the end of projects can pretty much point to "well, this originated here, here, and here." You can point to where things originate after a while. But that distinction of "Is it evolving?" and, "How much is it evolving?" and, "In what ways is it evolving?" drives how much peripheral vision it is wise to acquire in addition to the effort of just the project itself.

0:15:31 RI: Think of if you're driving at night on wet roads and you want to make good time, really bright headlights are useful if you can have them. In the daytime they're completely useless because you don't need that additional vision. You have all the knowledge such as a manufacturing or a construction site sign type of simple execution project. But it's that "How much is changing?", "How much can be known?", "When can it be known?", "In what ratios?" that is the basis of the valid use of Agile and the whole Lean methodology, anything that's an iterative development model has the characteristic of responding and converging on that uncertainty over time. But it's delightful to see the PMBOK acknowledging the limitations of an artificial model, encouraging people to be responsible for the reality and the outcome, draw as much as possible on the model so that they're not reinventing the wheel but still not say, "Okay, I breathed in and breathed out on schedule, all will be well."

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0:16:30 KL: And actually, back to Mike, we triggered this all with some of Mike's conversation around this I think, talking again leading into the concept of value. When I think of how we've talked about some of the Lean and Agile, as I've understood it, not as a practitioner in it, was that that was often a form of almost recognition of the inability to get all of your requirements, and I think you highlighted that earlier Mike, that they still kind of hue to here. That it's about collecting them all and getting them all pretty much right at the beginning. But I saw the way a lot of Lean and Agile went was almost risk mitigation. Whereas what I'm hearing kind of from where Randy's coming from is, is the fact that it's unknown. How do you see that and playing with what somebody who might be reading the sixth edition might be able to recognize where they need to make the variations they need to?

0:17:16 RI: So the first comment would be any tool can be misused as well as used, [chuckle] it really comes down to the skill of the operator. The whole logic of Agile is it acknowledges the reality of a circumstance that cannot be pre-programmed successfully without enormous uptake of risk by, you know, just making assumptions that never turn out to be real. I encountered it in the late '70s before the term even existed at Skunk Works at McDonnell Douglas, so I'm sure it's been around since dirt. But it's just simply, I can't figure out what tomorrow looks like so I'm going to work on today and get as much lead on tomorrow as I can and then adjust. Without a destination for it, though, those kinds of projects can burn a lot of time and money. So the one thing that from a system engineering perspective I'd like to introduce is the concept of a critical path, not in the execution of tasks as a PM would normally think of it, but in the definition of the completion of the effort as it will be satisfactory to the various stakeholders involved.

0:18:12 RI: So what does it take to reach the as-built-done everybody is happy with it, you can punch your ticket and leave? The executional work is one thread, think of that as horizontal. But the definition of what should be happening in each of these stages is vertical. And the... Kind of a central theme of this recent work on the integration of PM and SE is that, if you can have really good communication between the individuals, by whatever title, that are responsible for the definition of, "What am I doing? And how are we executing that given the resources and constraints?" Then you can take that and create what you might call a "Project Trajectory". There is distance in the form of execution, there is lift in the form of definition, and you can adjust that trajectory just like you would a rocket trying to reach orbit.

0:18:57 RI: So, that if that's a useful way of thinking about it, that's the power of getting the definition dimension - whether it's a business dimension, or an engineering input, or a human factors kind of thing, or a legal or regulatory input. It's getting all of the drivers involved so that the simultaneous equation of design can be informed by all of the constraints, and you can make trade-offs in a single iteration or fewer iterations than would otherwise be required. And then Agile is the digitization of that space to enable you to operate in chunks that your organization is capable of managing and executing efficiently. Anyway, that's my two cents on it from a dual citizenship perspective.

0:19:36 SD: And let me just say that what you just said, Randy, is absolutely music to my ears. I'm not surprised at all because I do believe that systems engineering ultimately is going to be the discipline that's going to bring project management more and more around to the understanding of value, and to making good decisions about it. So, I think that's wonderful. And when you said that first of all, that this sort of stuff, this Agile stuff, which we used to call iterative development back in the '90s, and even the '80s. There's nothing really new about it in the sense that people weren't sometimes doing it before.

0:20:20 SD: At some point along the way, what now today gets referred to as "waterfall" became stultified. It became... It became rigid, and there was never any need for that. And indeed managing projects well requires that you not do that, that you constantly be making changes. But you also said, Randy, and I couldn't agree more, that we need a critical path even on Agile projects because of the fact that every project is in fact as long as its longest path, by definition. And so taking the opportunity to plan a little bit ahead while still using Agile techniques. But planning ahead and getting a sense of where we're going and how we might optimize that process is absolutely crucial. And finally the length of a project has huge impact for the value of the project.

0:21:25 SD: Any project, or program, as you pointed out, Randy, which takes longer, takes longer to deliver its value, and the value thereby becomes less, sometimes hugely less. And if it's faster, typically it delivers a value earlier. One thing I would like to see on every project is that right upfront the value or cost of time on that project to delivery gets quantified upfront, as a goal. It may not be perfectly accurate, but give us a sense. If we are a week late, how much is that going to hurt us? If are a week early how much would that help us?

0:22:09 RI: Or stated differently, when we run this giant balancing machine and try to decide what the best definition of "Good" looks like for all our stakeholders and constituents that we serve, "How do I treat time?" "How do I treat money?" "How do I treat risk?" "How do I treat public opinion?" So it's the totality of all the considerations. And I would say that every domain that has

the ability to inform the project stakeholders of dimensions that are important belong somehow represented within that project. And I say "Represented" because it's possible to get it from a standard or a document if you're in a known space because it's an accumulated body of knowledge.

0:22:48 RI: But if you're doing something unique, if you are like Virginia Greiman recently did with the Tunnel Project in Boston, there is no McMaster-Carr part number for a project like that. It's all unobtainium, it's all invented as you go. It's all surprises that have to be responded to that could not possibly be planned in advance. So, there's a skill set that evolves from that experience that is really very different than what a PM encounters if they've only operated in a fairly structured execution supervisory environment.

0:23:19 SD: Absolutely, and I would just add that what you are describing is the sort of thing that someone who is thinking about making an investment, never mind \$100 million or a billion dollar investment, would be doing. They would be looking at what is the import of all those things and that's just not being done.

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0:23:44 RI: I mentioned in the intro that I had served as Vice President of a product development firm called bb7 in Madison. They do approximately 250 development cycles per year. Ranging from everything as simple as a dental floss dispenser to as complicated as self-calibrating satellite instruments or neutrino detectors of the South Pole. But, anyway, one of the things that was universal and kind of stunning in my years with that company, was how few commercial clients we interacted with, had even the most primitive understanding of what the concepts of program management, project management, and system engineering represent. They were operating billion dollar corporations based on almost accidental successes they had been able to enculturate, and build on and defend for decades. And many of them no longer had the ability to recreate their own existence, if they were forced to do it. Which is great for companies like bb7 and others that, you know, come in and do the background work and then let others take credit for it.

0:24:41 RI: But I was stunned at how little access there was, in the trillions of dollars of investment money through out worldwide, to this body of knowledge and PM, and system engineering, and business management, operations research, all these other areas, that could create enormous amounts of money. There's a willingness to go spend a billion dollars on a wafer-fab plant in a heartbeat, because that's real capital, we can measure that. But an investment in a knowledge space, a domain, the incorporation of bodies of knowledge that could leverage what they already do, that might be orders of magnitude more powerful, seems to be outside the current vision space. I'm looking forward to somebody who wants to change that.

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0:25:22 KL: And you're leading us into some of this... Actually, Steve, some of yours was really taking us into this schedule section, in part, and that interplay that's very tightly bound to the scope play. But you mentioned something that rang a bell for me as I'd reviewed the PMBOK itself, some of the things that they've highlighted as their changes. What I just heard you guys saying was, "Time should be treated as an actual resource. Not a thing to manage, but a thing to understand its actual value."

0:25:49 RI: Relative value of time. And there's another very important aspect of time that hasn't come up in our discussion, and that is not only the duration, that's been correctly pointed out, but the predictability of when a project will be done. I had a conversation with the senior VP of IBM, decades ago now, who pleaded with me, that said, "I don't care how long the software takes, I just need to have some idea when it will be done so that I can integrate it into the larger business model." He did not care if that project was 10 times overspent, so long as it did not mess up where that cog fit in the larger business objective. And it's impossible for the PM of a project to have that insight, unless, somehow, it's brought down into the domain of the project or program that they're managing.

0:26:31 KL: Well, that takes us to Mike. Mike, you have to speak to that. [chuckle] This idea about what your through-put and how fast or how long things take to deliver, you know, based on the resources available. I know that's an area that you've focused in. It sounds like you would have probably agreed to that, or would you, actually? Is the idea that your predictability of time is that important when looking at it as an investment?

0:26:53 MH: Yeah, clearly the example Randy cited, due-date performance was a key driver of value. And it was even kindle value, as Stephen calls it. Because it wasn't... The project, by itself, was only valuable in the sense that it enabled something larger. Right?

0:27:08 RI: Right.

0:27:08 MH: And if that larger value proposition is time sensitive and we're unaware of that time sensitivity, that, boy, we missed a huge opportunity. What's interesting to me about all this, is there's so much emphasis on continuous value delivery, or frequent increments of value delivered, and things like that, which is great, but if the whole value proposition itself is fuzzy, which is part of the reason why we might want to break things into durations in the first place, right? If better be so large, that we are okay with the fuzziness. And if it's super large, that we're okay with the fuzziness, but it's still very sensitive to time. A number of us have seen an Agile iterative, R&D Skunk Works-type projects, as Randy said, just gobble up a whole bunch of time and money, and then not deliver any value. So, like Steve said, "If you don't have some understanding of what the overall duration is, even if it is fuzzy, and what the value sensitivity is of your project duration, maybe you shouldn't undertake the project in the first place." [chuckle] I'm seeing signs that the PMBOK like maybe Version Seven, is going to nail it.

0:28:30 MH: I'm the cockeyed optimist in the group, maybe. I saw things in Version Six, or the Sixth Edition, that I just had not expected. Things like, we now have 132 tools and techniques that, Quote, "Represent those that are considered to be good practice on most projects, most of the time." That might sound like a very humble statement, or not all that interesting, but keep in mind that PMI has steadfastly maintained, throughout the decades, that they are not proposing any tool or technique over any other. They are merely harvesting common practice, whether that common practice is excellent or still improving. And now they say, "No, we're going to actually say what we thing the good ones are, and we're going to give you 132 of them." And some things made the list that are obviously really valuable, some things didn't. So, for example, they included cost-benefit analysis, which is great, but they didn't really talk about whether that includes time sensitivity, like we're discussing right now. It didn't really say how to optimize your triple constraint to maximize net present value.

0:29:39 RI: Right.

0:29:40 MH: And, of course, that's so fundamental and central. And, in fact, with most junior PMs we see in practice, do it intuitively.

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0:29:52 RI: So one of the challenges we have is that a lot of the metrics and management tools we use to judge the projects and program progress, don't give visibility to all of the subtleties that Mike and Stephen have been talking about here. There are completely beyond the management radar in most organizations. Therefore their sense of value has to be defended by experience by understanding either by training or the uptake of something like the PMBOK is a good start. But you really have to get it at a gut level how the business of invention on demand functions in order to be able to use all of these tools properly and not pick the wrong one just because it has a gold star next to it in a book.

0:30:33 SD: If I may say so, I completely agree with that but, to me, just adding the word "investment" to the definition would suddenly start making project managers...

0:30:49 RI: It changes everything.

0:30:51 SD: ...program managers and everyone else start looking at things differently. Start measuring some of these things, determining that a future value of this investment is not to be one day late, as in the case of the IBM situation. And all of a sudden you start doing that, other things start becoming obvious. Like, we can spend millions more, if necessary, to avoid being even one day late. And by the way I just want to mention, one of the things I find very hard for people to understand who are addicted to this Civil War concept of the deadline which really is incredibly destructive, is to understand that in fact there is almost always a value to finishing early. Sometimes that value can be vast, but even in the case of the IBM vice president who said "we don't want to be even one day late." What is the best way to avoid being one day late? The answer is to be early. If you can deliver a week early, as soon as you do, you retire 99% of the risk of being late. You still don't retire 100% of the risk because maybe you didn't really finish it.

0:32:16 RI: One other thing you can do by delivering early, and I was actually on a project in Martin Marietta back in the '80s that did this as a deliberate competitive strategy, we delivered every C-drill, every document delivery that the project had, or delivery of goods and services to the government, precisely one day ahead of its schedule. So if it was a 30 day deliverable, it went in on 29 days. If it was 180, it went in on 179. And it was the only project that purchasing command had ever managed that had all of its deliverables in early. You couldn't have bought that kind of publicity or prestige any other way than simply by executing. So from the view of the stakeholder of a corporation that strategy investment in this level of performance yielded a benefit completely outside of the project but at immense value to the stakeholders when you expand your view to the corporation instead of just an effort behind a key lock someplace.

0:33:08 SD: Absolutely, and all of these things, so it increased, what I hear you saying, is that it increase that reliability factor which had huge value to the organization.

0:33:19 RI: In a world that honors the elite teams in each of the services and things like that, it

moved you from really good to elite. And that kind of distinction is easy enough to lose, and hard enough to purchase, that it's worth an investment to go get and retain.

0:33:35 SD: And so to take it back to the PMBOK Guide for a second, what I would say is as part of the charter and business case, one of the things we need, in addition to the project, once we have the project as being defined as an investment, then in every charter and business case it should stipulate how much value would there be, an increased value to being early? And what is the cost per unit of being late? And maybe, as in the case of IBM, that first day late is worth \$50 million. In that case what we need to do is make sure that we have a project with less and less risk of being \$50 million worth of late.

0:34:26 RI: If I can go back to the IBM example for just a second and clarify. In this specific case the VP was communicating to me that as long as he had some idea of a date at which the software would be reliably available to him, he could then optimize all of the other variables in the system to accommodate the uncertainty that existed around this really critical piece of development. He didn't want a promise that would in turn be invalid and then disrupt or create risk that transferred across that boundary to the rest of the work. But I have certainly had cases where it has to be done by December 31, or an operating business, or the frequency license or things like that, or a Draconian hard deadline where time is – in one case \$100 million on a project.

0:35:10 KL: One thing that I noted as I was looking some of the changes that they've highlighted in this "weighty" 600, 700 page document and to Mike's point about some nods in the right direction and maybe for some future development. They've been very specific that they are trying to highlight the role of the business case and benefits management throughout the project not just as a process sitting somewhere but that's integrated from project charter all the way through the close of project phase. And they've highlighted that they've tried to integrate that throughout to get project management planning to hue more to benefits recognition and the observation of what stake holders are expecting out of these projects. And that ties to your points, I think largely here that we needed to integrate that more with the concept of time and concept of schedule. Now having said that, I'm going to take a quick break and then we'll come back to tackle this issue of the project management of schedule, which right there should set off some interesting bells for people because in every previous version of the PMBOK it was the project management of time. So there has been a shift in their nomenclature and the question what that might imply might be interesting as well. So we'll get right back to our panel after a short break.

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0:36:24 KL: Hey listeners this is the 30 second break where in the future you could have a shout out about your organization or your company's support for the PM Point of View Podcast. Now think about it. Thousands of project managers from around the world would be hearing about an organization you care about; yours. So if your organization is one that supports PMs and that supports this type of PM educational product, contact me on LinkedIn or on our Facebook page PM Point of View and we'll see what we can do to get you as a sponsor. Now back to our panel.

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0:36:56 KL: It's interesting to see how you can't talk about scope without talking about schedule, when you start talking that the core issue here seems to be around value. We've come back to that

value concept but focusing more if we can a little bit into the schedule. Again one of the interesting things I found about this, every project manager I have ever met seems to talk about "Managing schedules" or "Project management of schedule" but if you look at the older versions of PMBOK it was always "Time management" which seemed to be off to me as well. But they've changed the definitions here, they've changed the focus in this case. When I looked at the schedule I think they're still missing some of the things that you guys have been talking about although they did seem to grab the Agile development concept in the estimate activities resources because they moved it out of the scheduling section completely. The idea of actually looking at the resources as tied to the schedules, so I thought that was interesting, they seemed to be trying to refine or purify the section around schedule management. So, Steve, when you looked at it, I know schedule optimization is your game here, and you've been talking value. You've been talking how it works, what did you see they got right or missed specifically in their schedule management section?

0:38:10 SD: There's a lot I could say. I did go into the review copy and suggest a portion in terms of schedule recovery and schedule compression. One of the most important things that project managers and most difficult things project managers I think wrestle with is compressing or especially recovering schedule and unfortunately there's not much guidance for it. So I put in a couple of paragraphs as a suggestion but it was decided that this would not be included.

[music]

0:38:50 SD: Can I take just a second to discuss a little bit about Critical Path Method?

0:38:54 KL: Oh, please do.

0:38:54 SD: Okay. Critical Path Method most people will say has been around since about 1957, in actual fact it's been around longer than that. It was used during World War II largely by Navy logisticians for planning armadas and flotillas and attacks. During World War II, as a secret process the Navy would put together these battle plans trying to collect all of the ships for an armada in advance of an attack but one thing they didn't want to do is to have one ship get out ahead of the others. It would be blown out of the water by the enemy who would see it coming. So they tried to get all these ships assembled at a certain point. And some of them could get there faster, and therefore they would have to float for a while when they got there. And then later on when the Navy logisticians taught this to the British in advance of D-Day, and where it was also applying to army units. Well, Army units don't float but they could slack off. The other aspect of this is they deliberately did not want any of these ships to get out ahead of the others, which basically in Critical Path Method terms means putting a "finish no earlier than" constraint on all of the paths. With the result that accelerating the longest path would really have very little value for them.

0:40:35 SD: When in fact, we know as project managers that accelerating that longest path is hugely important. Now float, or slack, is always off the critical path. But what does this methodology say about stuff that's on the critical path? It says "zero" to be precise, it says that its float is zero. Anything on the critical path will have zero float unless there's a constraint in there somewhere. Yet, what is more critical? Something that is critical or something that is non critical? Well, obviously something that's critical but the methodology of float or slack only tells us about stuff that is not on the longest path. What the software and the methodology should be telling us is how much time is each item on that longest path adding to the duration of the project. And that is called Critical Path Drag, I've been using it on my project for years with clients to try to pull in their

schedules that's what they pay me to do. And it's an extremely powerful tool yet for years there's been no software that even calculated this. Now by the way there are three software packages which I won't mention that are out there that have started calculating critical path drive. Yet the PMBOK guide does not include this.

0:42:07 SD: And, by the way, that drag also has a cost component if we see it in terms of investment. The fact that we have a 30 day activity on our critical path that has let us say 10 days of drag, so it's adding 10 days to the project duration, if each of those days is costing us \$20,000, that activity, quite apart from its budget and resources, is costing us \$200,000. \$20,000 times 10 days. And if we can find a way to add \$5,000 or \$10,000 or even \$50,000 of resources, and remove that drag, pull in the activity from 30 days to 20 days, we just made the project \$200,000 more valuable, yet this is something that's not being done, it's still not mentioned in the PMBOK guide because they basically, as Mike was suggesting, are trying not to get out ahead of the methodology and so we have the interesting situation where Wikipedia is actually telling us more about how to manage critical path than in the PMBOK guide. And that's kind of sad.

0:43:25 KL: We're back out to the concept that if the definition included value, a lot of this would become clearer and in fact, drive new techniques and then ultimately tools to tackle it.

[music]

0:43:39 MH: Yeah, so let's stay at the project level for a sec and then you know my heart is at the portfolio level, I'll get there in a moment. If you go back to again, Section 1.8, where the PMBOK just tries to lay out some basics, what the PM knowledge areas are, these definitions largely haven't changed I don't think since the very first edition. It describes scope management as something separate from scheduled management as something separate from cost management and that's probably fine. But at some point you have to say that the whole reason you do the scope is because it's going to deliver value, and the value delivered better not be lower than the cost you just spent to get it and if it's time sensitive, you haven't harmed the value by taking too long. So you have to find some way to say that those three items, the triple constraint, have to be optimized for value. Even if you don't have the word "investment" in the definition yet, I think every PM would intuitively nod their heads that of course we want to take those three components of the triple constraint and optimize them according to value. Right? So in my mind that's sort of maybe we'll redefine projects with the word investments, I hope we do but even if we don't, just some acknowledgement that these are not just fixed things that have to be managed independently in a vacuum.

0:45:06 RI: One of the challenges PMs have even when they have the understanding that you're discussing, Mike is in large organizations, the measurement of money, the measurement of time and other measurements are so segregated in the political structures and reward structures that the PM actually serves multiple independent masters and the value of integrating all of those different poles is lost or is impossible for a PM to serve simply because of the environment in which he or she finds themselves.

[music]

0:45:38 MH: So now if you imagine all of this in a portfolio context, pretty much with very few exceptions, every project I've ever been exposed to didn't really live independently of some context. It wasn't just something that began out of nowhere, went on for a while and then ended. So this

definition of a temporary endeavor...it didn't exist without some organizational construct, some hopefully stable resource pool, if you've been I guess like a classic example, like Randy was talking about and some of the large defense contractors. Those project guys probably went project after project, some of those guys probably stayed in the same company for 20 or 30 years, right? The key is, how much value are these guys delivering as a team? Their value... The value they deliver is triggered by a project completion.

0:46:37 RI: There's a really interesting component that when we talk about value and having been an officer of a corporation where a value was the accumulated knowledge of all of the employees in that space, we obviously sought really bright people, we worked hard to retain them, all that kind of usual stuff but we exposed them to fascinating project after fascinating project after fascinating project, and these were different enough that each one provided an orthogonal boost to the knowledge they had before. So if you think of filling in areas of a hologram, there is no richer way to advance your professional understand and experience than to go through cycle after cycle of things that are different enough that you get different aspects of learning and experience from each one, rather than the absolute repetition benefit that you might seek in manufacturing. So just the nature of the job itself was such an appeal to professionals that it made it easy to staff with the very best candidates in the market.

0:47:32 SD: I completely agree, Randy. I think that is a huge aspect of value and it's part of the aspect of the project scope of doing a project where people or staff actually expand their skills, expand their satisfaction, etcetera, and that should certainly be considered as part of the value of doing a project and can be taken into account. But it's usually smaller, I would say, than the value that they will achieve by getting a new satellite up there, or whatever it may be.

0:48:06 RI: Oh, absolutely. It's the dividend check, if you will, that comes along as a byproduct of executing the effort. You don't have to cash it, but if you want to grow and retire rich, it's smart to go grab those.

0:48:15 SD: Absolutely.

0:48:16 MH: All the goodness that comes to individuals in their career progressions, the joy they get out of their work, the value delivered to the company's bottom line, or to our defense posture, if it's a defense project portfolio, for example, that the more we can complete without boosting resources or without increasing costs, the more we can complete, without burning out our teams, without spending more money, the dramatically higher value we just delivered. Because if you think about it, if you could somehow magically deliver twice the number of projects without adding resources, you've basically just quadrupled your ROI. And so while you see talk in the PMBOK, there is some portfolio management mentioned here, even though that's not its focus, it talks about making sure you're consistent with organizational objectives, but it doesn't say with getting the value to be sky high.

0:49:13 MH: It says things like, "We want to optimize resource allocation", but it doesn't say toward what end. And again, it could be to deliver the highest impacts possible, which we might not even be able to envision. And that's where this... Not even the sky is the limit. And we see all this stuff in the Agile practice guide here, and the Agile community generally, about "Let's talk about flow, let's talk about frequent continuous value delivery and all that stuff", but take that to the portfolio level, and if you say, "Look, the real value delivery moment is when the project is

delivered," even if it's some initial minimum viable product or whatever, if that's the primary value delivery point and we can double or triple it, we could treat the whole portfolio as a flow that runs through a stable resource pool that gets thrill and joy out of doing more and more of this stuff within a standard eight-hour day...

0:50:06 RI: It becomes better each time, yep.

0:50:08 MH: Better each time, and nowhere do I see any emphasis, certainly not in the PMBOK, not in the standard for portfolio management either, not in standard common practice, but in certain communities and certain organizations, you absolutely see it. Let's set the drum beat of execution for our organization around our biggest bottlenecks and constraints, and let's find creative ways to get more and more through it. And that's, in my mind, where you really get into the high impact zone because you can add some of this optimization stuff, the triple constraint for each individual project. But if all you did was boost a through-put of your completions by some enormous number, which organization after organization has figured out a way to do, who knows where the limit is?

[music]

0:51:03 MH: If you're listening to this and you're not sure what I mean by all this doubling and tripling stuff, and it doesn't sound feasible or realistic given how busy we already are and how hard it is to actually get projects done sometimes, I want you to imagine that you're a highway system engineer who's just been asked to design a highway system based on achieving optimal utilization, maximum utilization, every square inch of asphalt should have a car on it. I would design for you a system that looks more like a parking lot than a highway. Its through-put of cars actually completing their trips would be so low in order to make the utilization so high, that every time we try and govern our project worlds around high utilization, we're creating this very slow-moving traffic jam, and we all know what it feels like when the traffic jam finally breaks and we can finally just go. Or if you've been on that special project where some boss finally says, "Clear the way for this project. These guys get a lane all to themselves. Everything they need, they're going to go at full speed." Why don't we treat the whole system that way? Why don't we treat every project that way? Why do we clog our project portfolios with more projects than they can handle? And if we can allow the system to flow and optimize it around the through-put of completions, we'll never have rush hour again.

0:52:21 SD: You're absolutely right, but I just would point out again that if we started measuring value and saw that by doing fewer projects, we are doing them faster and more efficiently, that we so much increased the per project ROI.

0:52:40 MH: Yup.

0:52:41 SD: Ultimately, this is the direction that companies would go in. But as long as we're not catching and capturing that ROI of each project, we will continue to look at other substitute metrics like utilization rate, which is one of the most damaging sort of metrics that most large corporations are using.

0:53:04 RI: The word "damaging" is important here because, again, going back to the bb7 example, that company did and continues to routinely do work in half the time and half the cost that well-resourced corporate development teams are able to do the work. The reason isn't magic, they're not

that much brighter people than other people on the planet, but they use a process that is consistent with the nature of the task they're being presented, instead of one that's off-the-shelf approved standard that must be followed. Every one of the 250 projects a year gets examined to say, "What does this effort need in order to be successful? How much variability is here? How much is new and will the information come along? Is this Agile? Is this a bridge to production, or what is it?" And they essentially design the design process and execution process to match the nature of the task and then apply it. And because they are able to adaptively respond to the needs of any task, they can do everything from a dental floss dispenser to satellite instrumentation with the same crew of people as equal efficiency.

[music]

0:54:13 RI: One thing I found that was really important and underrepresented in the PMBOK, is that there are really two types of schedule activity a PM needs to think about. One of them is an activity that is defined, in a sense, anchored to the past with a clear objective: "Buy this power supply, put it on the work bench by this date", kinds of stuff. Those are simple and clean and can be driven by essentially manufacturing type discipline. The other type, which is really scary, and is a completely different class of thing to track and manage is the one that says, "Figure out what power supply we need." One of them can be driven to the minute, the second, the time and materials, industrial engineering surveys and stop watches are great for it. The other one is useless. It's like sitting there waiting until it happens.

0:54:58 RI: Steve, you were talking about accelerating projects. One of the classic things is to take a look at the task to buy bicycle and say, "Hey, do we have to buy a whole bike or can we get wheels and rims and all your gears and handlebars and stuff and build our own as we go?" You can do that just great for the pedals, and the seat and the handlebar, but getting 50% of a tire is pretty useless. So if you can identify the things that are not a product until they reach some finite output, some emergent property that is more than just the pieces in place, you can't sub-divide them any further maybe is the way to think about it. Those tasks are special, those are the ones that PMs get burned by when they attempt to break them down or when they don't honor them. Think of them as, essentially, balloons in a series of bowling balls that are going down an alley. The bowling balls are the nice solid things you know what to do about, the balloons are the stuff where people get to make up the rules as they go or may not have complete information to work with at the beginning.

0:55:54 SD: I'm trying to relate it to another concept in the scope process which is the WBS. Which, of course, the PMBOK guide talks about and which is where we typically not only identify the work, but we plug in the resources, and thus costs that are going to be needed. The one thing that it doesn't include is a value breakdown structure. Each of those items of scope that we're doing not only is going to have costs associated with it but is going to have value. So that bicycle tire, that's only a half of a tire, has zero value until we make it a complete tire.

0:56:29 RI: Yep. It's a zero 100. The perception of progress on programs and projects is another thing that, in some point, haunts people's ability to put schedules together. If you're in a manufacturing environment and you put a schedule together that says, "let's all sit around at lunch and look at each other for a while before we go build something," you get taken out back and shot. [chuckle] Because unless you're shipping something off the back of the line, you'd have no value. On the other hand, if you're sitting there getting ready to launch codes for the next release of your smart phone and people start coding because they're being beaten up on for how much memory they

fill up in a day as opposed to thinking about what it should be, you'll kill yourself in the market with an unsustainable product. And it comes right back to requirements. It's "be careful what you ask for" and we're always asking for an incomplete version of reality because we lack the ability to articulate reality and all of its subtlety. So it's "which parts do we talk about?"

[music]

0:57:25 KL: So, in kind of a summary, what is it you think that you'd like people to hear most out of all of this as we talk about what we've covered. Mike, you want to go ahead and jump in there.

0:57:35 MH: Really, that how we think of ourselves as Project Managers is unnecessarily constrained by some of what's in the PMBOK. Again, I do see some really encouraging changes. I did see the word 'investment' appear, probably a couple of dozen times. I even saw a little example of expected monetary value. It looked like something right out of a Stephen Devaux text book. Was that you Stephen? Did you put that in there?

0:57:58 SD: No, that wasn't me. [chuckle] that's nice to see.

0:58:01 MH: That was cool. I saw some reference, this might have been more on the Agile practice guide, that was kind of slapped onto the end there. Some notion of single-task focus to speed execution. Obviously we're assuming there is great value in there even though we don't state it explicitly. I'm seeing signs that this is moving in the right direction, but this notion that we're not just middle-management cogs in the wheel. We're not just pressured from bosses and customers and underlings and just trying to survive the day. We're here to deliver what could be unbelievably large value. If you think about it this way: Year after year PMI does this survey of, I think around 3,000 people all over the world in project space, and the metrics roughly show that the project's success rate is around two-thirds. 60-some percent of the time we delivered the intended business value. Now sometimes that business value is delivered late and over budget and all that, but we'll still call it a success if it delivers the intended value, right? But if you think about that, two-thirds is pretty poor.

0:59:13 MH: I imagine that that means one-third is delivering near zero value or maybe negative. It's hard to imagine that two-thirds is all supremely valuable and then one third has zero value. It's probably that one-third has zero value, one-third has minimal value and another third has all the rest. And so if you think that we invest billions and billions more every year around the world in projects just based on the power of the ROI of that one-third, imagine what we could do as PMs if we could harvest the other two-thirds.

0:59:47 KL: Yeah, that's pretty shocking right there. So, we're going to wrap this up here today. What I heard is our experts in systems of systems, optimizing schedule, and optimizing throughput, that's the big thing here. And imagine how big and effective we could be. So let's make sure we can find out how people can get in touch with you. Steve, how can people find out more about your work, get in touch with you, and follow up with any questions?

1:00:11 SD: On LinkedIn, my name is Stephen with a P-H. Last name Devaux. D-E-V-A-U-X, or my email address, which is a little complicated because it's an old one. But it's A-P-M... Numeral seven, A-P-M stand for analytic project management, my company, Numeral seven, @IX.netcom.com. And if you link with me and want to ask any questions, or just send me an email,

I love discussing project management in case it doesn't show.

[chuckle]

1:00:45 SD: Thanks a lot.

1:00:46 KL: Randy, how can people get hold of you?

1:00:48 RI: Likewise, I'm very visible on LinkedIn. I have a lot of content there. Anyone who might happen to also be a member of the International Council on Systems Engineering, you'll find a lot of my work out on INCOSE.org if you want to look there. I have material out on PM.com. The easiest email to reach me at is Randall R-A-N-D-A-L-L @ E-I-N-T-L-L-C.com. That's Echo, India, November, Tango, Lima, Lima, Charlie dot com. And likewise, I live for this stuff. I have an absolute passion. One of the things that guided me to help found the INCOSE organization was very much what I heard earlier here about the passion to make the world better. We live in a world of systems. Unless we acknowledge and manage them as such, our future is at risk.

1:01:33 KL: And Mike, how do they get to follow you and your work?

1:01:36 MH: I'm on LinkedIn as well. Probably the best way though to find my content, since I've got a bunch of blog posts that go back ways, is my website. It's fortezzaconsulting.com. Fortezza is the Italian word for fortress. My wife has Italian heritage. So that's a bit of an honor to her. And it's also of course supposed to convey some strength, stability, and hopefully vision. So check me out there. And my email address and all that stuff is there, too.

1:02:02 KL: Excellent. Thank you. And I'm Kendall Lott. Everyone knows me who has listened to these podcasts before. And you can get in touch with me on LinkedIn as well. You can check out our Facebook page where you find this episode, other episodes, and transcripts for all our one hour productions. And you can let us know of any guests, or topics, or sponsorship ideas that you have. Make sure you rate us if you go online at iTunes. So that will raise our profile so other project managers can find us. And watch out for a change in our logo. Same podcast, different logo on your phone. Speaking of phones, for those of us who do use iTunes, you may want to look at the broader group that we're a part of. I'm a proud member of the PM Podcast network, which goes beyond just this production of the PM Point of View. But includes "Scope of Success" and "Fix My Project Chaos" podcast. You're going to love them. So for those of you that want a PDU, that are certified project managers, you can go to the CCR system and use the code C046, the Washington DC chapter. And make sure you flag Technical Project Management in the talent triangle. This has been a Final Milestone production, funded by M Powered Strategies. And as always, until next time, keep it in scope and get it done.

1:03:10 S1: 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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