37. MacGillivray, Fish & Hamdi: Influencers Part 3 – Construction

0:00:01 Kendall Lott: Hey PMs, exciting news. Final Milestone Productions is proud to announce that PMIWDC's PM Point of View podcast, is part of a new iTunes network focused on and dedicated to project management and project managers: The PM Podcast Network. To find past and future episodes of podcasts like Fix My Project Chaos and Scope of Success, search iTunes for the PM Podcast Network, and of course you'll also find PM Point of View there as well. And now to our current episode, Influencers Part Three: Construction.

[music]

0:00:36 Sandra MacGillivray: If you want to have predictable project performance like cost and schedule, you have to have a high degree of scope definition before you start doing detailed design in construction.

0:00:47 John Fish: You get the people that you're asking to do the work, to sit down and build a storyboard of what they need and how they plan to execute the project. And anybody sitting in that room can see every step of that project all the way from the very start to the very close-out of the project.

0:01:07 Olfa Hamdi: One point improvement in field productivity in the construction sector is worth $7 billion in value to the entire economy. So, we're talking about really a huge potential for value creation.

0:01:20 KL: The beginnings of project management go way back. According to ancient records, there was a manager assigned to the construction of each face of the Great Pyramid at Giza. The team that built the Great Wall of China was organized into three groups: soldiers, commoners, and criminals. Then there were the aqueducts and roads of the Romans. The great cathedrals of Europe. All with project managers. What's the source of this wealth of PM history? Construction. PMs can learn a lot from construction. The level of complexity in these projects is dizzying, especially when you get into the billion dollar range. Made to order parts must be precise. Sequence and timing are crucial. Players from diverse disciplines: Architects, engineers, diggers, pipers, plumbers and electricians all converge to realize one vision.

0:02:05 Announcer: From the Washington DC chapter of the Project Management Institute, this is PM Point of View. The podcast that looks at project management from all the angles. Here's your host, Kendall Lott.

0:02:16 KL: Once again, I tapped into projectmanagement.com -- the webinars and blogs -- to find my guests for this episode. The three influencers I speak with here have extensive experience in project management, particularly in the area of capital construction. What can we learn about this industry that applies across all industries? That's the value of these discussions, and I think you will

find much to ponder as you listen on. My first guest is Sandra MacGillivray, Managing Director with Valency in Waterloo Ontario, where she is responsible for helping clients implement best practices that dramatically improve capital project performance.

0:02:50 KL: How'd you get involved with project management construction to begin with, and how did that play out for you?

0:02:55 SM: I actually... My career started in the software industry, so I spent about 10 years in enterprise software. And the most recent organization before I founded Valency was a software company that did all of the project information management systems for mega projects. Our client base was only projects that were a billion dollars or more in scope, and they tended to be all international outside of Canada. They included things like offshore oil wells, nuclear power plants, large mines, infrastructure projects. And part of my roll -- I was the VP of Product and Marketing at that organization -- and I also had the opportunity to represent the organization at a group called the Construction Industry Institute. And I guess going back to about 2009, 2010 time frame, the way that most people engage with that organization is actually participating in research teams. The very first research team that I joined while I was part of the Construction Industry Institute, was to focus in the area of front-end planning in capital projects.

0:04:09 SM: I had the opportunity to work with some extremely experienced and talented individuals, and just started to get a good sense of just how rich and deep the research and implementation tools were that this organization had developed over the 20 years before I came along. When we finally made the decision to found Valency, it was really clear to us that there was an opportunity to take those best practices and implementation tools that had been developed through the Construction Industry Institute, and share that much more broadly around the world with organizations that probably would never get to a size that they could be a member, but they certainly could take advantage of the tremendous research that had been done.

0:04:52 KL: Are these tools are also related to some of the project management space?

0:04:54 SM: Yeah, absolutely. The way that the organization picks their research focus is based on the priorities of the membership, so whatever the most important construction project management issues were over time, those were nominated for research and they spanned the entire project life cycle.

[music]

0:05:19 KL: You were in software through the initial Agile revolution in terms of the development practices, and scope definition becomes a big deal. In software we deal with that in Agile often. But when we start talking about capital projects and construction, this shifts. This is almost the opposite of Agile it seems, or to me anyway. I guess you can't get halfway through pouring a foundation and decide you want to make a shift now because the requirements have come on site. Or maybe you have to. Maybe that spares you the millions of dollars later. What do you see in terms of scope definition coming from that software world of Agile into the construction world?

0:05:55 SM: That was probably the biggest single shift that I had to make to understand project management practices in that construction space, and that's that, all the statistics and all the results are pretty consistent. And that if you want to have predictable project performance like cost and

schedule, you have to have a high degree of scope definition before you start doing detailed design and construction. And the more gaps that you have in the scope, the more cost and schedule overrun you can expect to have. And I'm not sure that that's different in IT. We've worked through kind of ways to use Agile software development to deal with unknown scope issues, but it's certainly…you have to have a well-defined scope to be successful in construction projects.

0:06:43 KL: How can you tell if they've got enough scope definition happening?

0:06:48 SM: The Construction Industry Institute developed a tool set called the Project Definition Rating Index. It's basically a very defined checklist of all the business decisions and all the basis of design and all the execution decisions that have to be made in order to accomplish a well-defined scope. They had a number of research teams that have worked on this over the years, but essentially the checklist is weighted based on the amount of risk that each of the elements pose to successful project delivery. You can go through this kind of collaborative assessment as a project team, and at the end you get a score so it's quantifiable, and they've been able to benchmark project performance of their members to what those scores look like. You really can get to a quantifiable measure of how well-defined your scope is, before you make a decision to do funding of the next phase.

[music]

0:07:47 KL: The theory in the kind of more waterfall or traditional development process, and therefore the related project management processes for software development, is that essentially you can't really get all the requirements. That as you go through, things change or you begin to understand your stakeholders differently, and trying to build and get a long way through your build based on earlier requirements is almost doomed by definition. What makes construction any different than software?

0:08:16 SM: Yeah, I think that's just the fundamental difference in terms of when you're delivering software and you essentially don't have a physical output that you're actually trying to build, like it's by nature soft, right? And when we look at construction projects, it's not like we're innovating on the fly while we have people pouring concrete and people installing piping. We have to have taken care of those innovative steps before we've ever let workers actually build physical assets. I think the innovation can still happen but it's in a different cycle than what we see in software.

0:08:53 KL: You're saying it's all in the planning cycle?

0:08:55 SM: Yep, it is, so it's just much earlier.

[music]

0:09:03 KL: Now I assume with most construction processes, there's an actual architect or architectural step and is that where the innovation of design is coming in, or do you also see innovation occurring later than the initial design?

0:09:15 SM: That innovation is going to happen with project engineers or architects in what we call the conceptual design stage. They may look at different options for technologies or different options for process, different site options, different configurations. But ultimately, the team's got to come together and decide on a preferred solution that they then take forward.

[music]

0:09:43 KL: When people complete this, if I get that right, Project Definition Rating Index?

0:09:48 SM: Yep.

0:09:49 KL: When they get that score, that tells them based on the type of project that they had, how they're standing against an overall score?

0:09:56 SM: Yep.

0:09:56 KL: The idea being that if you fall below the benchmark, it's go back to something and go back and start finding which variables you need to understand more about the requirements, and it gives you a chance to go and improve your requirements capture?

0:10:07 SM: That's exactly it. When we have all of the elements of checklist weighted, you usually don't have an infinite amount of time or money to work with, right?

[chuckle]

0:10:17 SM: But we can pick the ones that we know pose the most risk, and make sure that if we've got six weeks left before we're going to make a decision or we've got however much money left to spend, we can focus those dollars, so we bring as much risk off the table as we can in that time remaining.

[music]

0:10:38 KL: What's your thought about on this use of this tool outside of the construction industry? Does it seem valuable in your mind or is it something we would try along with an Agile process or...

0:10:48 SM: We've done some work with some of our clients that come from the construction industry background, and using the same methodology and business process redesign. And if we step back from how the tool set works specific to construction, one of the main benefits that comes out of the process is that you bring all of your stakeholders to that meeting to do that review. And it doesn't matter if you're from engineering or you're from procurement or you're from project controls, we can have a meaningful discussion and you don't have to be an expert on everything to benefit from that discussion. That team alignment that comes from this type of a session is something that we have been able to see with business process projects as well. Again, it's not the same set of criteria that we're going through, but you still have to have the business decisions, the basis of why you're doing the project. There's still a basis of design and it's usually a combination of change management efforts, and system efforts, and new process development and then there's still an execution approach. We have successfully used it there but the objective has been more on accomplishing team alignment on requirements than it has been on benchmarking, because there's just not the data behind it to use the benchmarking.

0:12:10 KL: Interesting, because that opens a space for somebody perhaps to start looking at that. You're really hitting something that I hear a lot of. One is, team alignment. Everyone on the team

actually knows what's being developed, certainly the project manager gets it and one of the other things we hear is that the whole project itself has to be understood in a larger value context. We're hearing this a lot from our more advanced thinkers on it, is the project manager has to understand the value of the project and where it fits in in the big picture and then the team itself has to, as a group, understand all of the requirements themselves. Like the main business requirements for going on.

0:12:40 SM: I think that's probably the biggest jump forward that organizations accomplish quickly. In almost every case where we've used the PDRI toolset, the project managers are extremely competent and they do know what the full scope of that project looks like. And they've talked individually to each of their team members, but the team members themselves don't have that full view. And that's kind of how opportunities to fill gaps early or to mis-scope, that's how those things happen, when you don't have a good overview of the project.

[music]

0:13:19 KL: And it looks like what we're really doing is trying to take risk down right at the beginning of the project?

0:13:23 SM: Yeah, and that's one of the other practice areas where the Construction Industry Institute has just taken so much leadership. We tend to think of risk as a pretty technical project management discipline. And all the research that comes out of CII in this area, is that if you make a really intentional effort that your risk management practices focus on, "How do I improve team alignment?" and, "How do I make sure I establish a culture where there's transparency around risk and trust? That I'm not going to get shot as the messenger when I bring things forward," then you just take your risk management and how it impacts predictability to a whole new level. But that's a pretty intentional set of steps you need to take as you implement risk management in construction projects.

0:14:07 KL: Does that have a tool or a set of best practices? Because you focused it on, it sounds like a cultural issue, how the team will interact.

0:14:14 SM: Yeah, well I think if we take a look at what PMI has done in terms of establishing the general process of how risk management is done, they've done a phenomenal job. And what the Construction Industry Institute has gone back and taken a look at is, "Okay, so what do those mean in terms of risk identification toolsets that are specific to construction? What does that mean in terms of where we use qualitative risk assessment tools versus where we need to apply quantitative?" And giving people real clear direction in terms of when to pick the right set of tools. But more than that, they've gone and taken a lot of the lessons learned they've had around team alignment and said, "You know what, if we pick the right approaches for doing risk identification, we can make sure that everybody's voice is heard and that we don't exclude particular areas of our project where we have exposure. We can really encourage broad stakeholder participation, so it comes back to you can make some very intentional steps in how you do risk identification and assessment that really change the dynamics.

[music]

0:15:26 KL: You mentioned the clear direction for when to use qualitative versus quantitative.

What have they focused on there to be able to give that direction?

0:15:32 SM: The biggest thing is getting everybody past it's a dollar value of when you need to [chuckle] actually pull out your Monte Carlo simulation and get to a more higher confidence level. They really help their members focus on what project complexity all entails. And yes, yes it's dollar value but it might be, "Do I have a new technology that my company's never worked with before? Are we working in a new region that we've never worked in before? Do I have a large number of contractors that are going to have to work together?" Interface issues. They've got kind of this criteria of about nine different factors that come in through construction projects, and you can have a dollar value that doesn't look that high, but it could be a very complex project and warrants the most sophisticated risk assessment you can do.

0:16:23 KL: Where would people find these tools?

0:16:25 SM: We run a lot of the training and implementation services through Valency, but all the tools that we use are available to anyone through the Construction Industry Institute. They're a public organization, a nonprofit, and they just want to see the industry continue to progress in very positive manners. We have a bunch of blog posts out on these topics on our website as well, so either one are good places to start to learn more.

[music]

0:17:00 KL: How has the construction industry changed over time, as we look at how they're handling quality and collaboration and how stakeholders are handled?

0:17:10 SM: Yeah, I think especially in the public sector, there just seems to be much more emphasis over the past two to three years on having transparency, and what's actually being spent and how our capital programs are progressing. We work with a number of large cities and public sector organizations and they're very much making investments in, "How do we create more visibility to our portfolio, and be able to do that in a way that doesn't burden, or overburden our existing project managers? But acknowledging that we have to provide transparency in how our projects are performing."

0:17:51 KL: Sounds like, possibly, a workflow and a software issue. Is it servicing the data, or is it being able to identify the data that external parties actually want to see?

0:17:58 SM: Well, the biggest thing is, do we have processes in place that everybody's consistently following? I did a research team about three years ago with the Construction Industry Institute, all focused on portfolio management practices and the table stakes is we have to have consistent processes that everybody can follow, and from there it's do we have systems to do systematic collection of that data or are we still relying on an individual with multiple spreadsheets to be able compile that data? And unfortunately in the construction industry it's the latter. There is no kind of pervasive system that's been adopted to allow us to do portfolio level management in the construction industry. There's definitely solutions available, but it hasn't gotten to the point where there's a standard that's been adopted across the industry.

[music]

0:18:52 KL: So we started with front-end planning and the importance of alignment and ended up with reporting, as in communication, one of the knowledge areas. Reporting to stakeholders, reporting to governance and oversight groups. Go to valencyinc.com, that's V-A-L-E-N-C-Y-inc.com to check out a wide variety of interesting blog posts by Sandra and others, or visit construction-institutite.org.

[music]

0:19:26 KL: My next guest, John Fish, has been on the forefront of major changes in the construction field for five decades. He's currently the director of Project Support Services and VP of Business Development for Ford, Bacon & Davis, an engineering procurement and construction management company with a primary focus on chemical plant and refinery engineering. John works out of their Baton Rouge office, where I was able to reach him for a fascinating discussion. How long have you been in this industry, and what types of project have you focused on?

0:19:52 JF: Well I started in the industry in 1965 so I've been around for a little over 50 years. I've done just about everything, I started out as a designer, a draftsman type. Worked through almost every position of project management, procurement manager, construction coordinator, construction field engineer. Just tried to do a little bit of everything along the way and as a result I really focused on what I call the 'white spaces", and by that I mean that a mechanical engineer knows mechanical engineering, a chemical engineer knows chemical, a piper knows piping, an electrical guy knows electrodes, these guys are very, very good in their field. However, they draw a blank check when it comes to, "Okay, where does my information go? Who needs it, and what do they do with it?" So I really focused on the white spaces, what happens with this information as it flows through the organization? As a result I'm known as "the work flow process guy," the guy who maps all these things and draws all the maps, and then when the computers came out, that led me right straight into information management and the project information management flow and exchange of data.

[music]

0:21:17 KL: Let's unwind just a little bit to lead into that a bit. What were you seeing that was the problem, such that the white space became apparent to you? What's the project management point of view there that you observed? What was happening? What was going wrong?

0:21:29 JF: The big word here is flow. Very few project managers really understand the flow of information because really, that's what almost any project in engineering is all about. You've got to take some basic information, you've got to process it, and you've got to bring that all together for a logical output. And your basic output is to tell somebody how to build something and start it up and run it when you're done. But it's that flow of information that I think is the project manager's weakness. He does not understand all the different things that each discipline needs, and from each other, those interdependencies I guess is a good way to describe it.

0:22:16 KL: What is the way they pick that up though, without being an expert in each one of those?

0:22:19 JF: Well, and really the best way to pick it up is sit down, talk to each discipline, ask them, "What do you need now?" One of the tools that we use is called Interactive Planning. And an interactive planning process, I don't know, some people in architecture may be aware of the word

charrettes. And what you do there is you have each discipline sit down with a project execution plan, and let's just take the mechanical engineer. The mechanical engineer says, "Here's all the things that I am going to do for that project. Here is when I think I can do it them and here's what I need from piping, electrical, project management, the client and the other people, in order to do these key activities." I use the old colored sticky on a time chart on the wall and everybody puts their little stickies up and tells everybody what they need from each other and they start jockeying to make sure that that plan and the information flow will come together.

0:23:22 KL: Is this something just your firm does, or is this a change that you've seen, or a shift you've seen in the field?

0:23:27 JF: It actually started with CRS Sirrine back in the '80s probably was the first time that I ever heard of it, and again it was in the architectural mode. I have found that very few people are using this tool, and I think it's one of the best project management tools on the planet.

0:23:44 KL: Which tool specifically?

0:23:45 JF: The Interactive Plan, is what we call it.

0:23:47 KL: Interactive planning, yeah.

0:23:48 JF: You get the people that you are asking to do the work to sit down and build a storyboard of what they need and how they plan to execute the project. And by the way, there are computer programs that'll help you do this, and my advice is, Don't use them. Because it's very important, there's something physical. The word "interactive" says I want my guy up there on a wall and that wall may be 20 or 30 feet long, it may wrap all the way around a room. But anybody sitting in that room can see every step of that project, all the way from the very start to the very close-out of the project.

[music]

0:24:33 KL: Once you have that, what is it that you do then? You're saying this is your integrated project plan and you're up and running from there? That's your white space issue?

0:24:41 JF: Well, no, the white space... You're going to talk about the white spaces because most people don't even know they're there. The white spaces is, "What happens when I finish my work? Who needs this work? How does that information get to them?" That's kind of a information management thing there, but at least the project manager will say, "Hey, I'm expecting my mechanical engineer to issue this purchase order on January the fifth, but he can't do it unless he has this input from these other people. So it's my job to make sure these other people have what they need to provide this guy the input that he needs to deliver his product."

0:25:16 KL: And this is all happening long before we've had our first shovel turn?

0:25:20 JF: If you're not doing this in front-end planning, and by front-end planning I mean everything you need to define your scope, your project execution, planning your schedule before you submit the estimate, if you have not done interactive planning about halfway through this process, your project execution plan is flawed and will probably fail.

0:25:41 KL: How do we translate that into, I guess what would be called field planning, getting your support into the field?

0:25:46 JF: Well, you can actually do interactive planning for the field, but I'm telling you that construction guy needs to be up in the front-end planning early in engineering, before we start engineering, and that's where you're going to get your construction input. There is a Construction Industry Institute, CII, has a best practice called AWP, Advanced Work Packaging. And really that's what it amounts to. It says get the construction guys to develop their construction work packaging and how they plan to execute the project, and if your engineering people are not supporting that plan, you're going to have to readjust about halfway through engineering and shake up your entire execution plan.

[music]

0:26:37 KL: What has this done to affect the industry, have we seen improvements due to this?

0:26:42 JF: Definitely. You're looking at a roughly 15-25% productivity improvement in the field where it counts.

0:26:51 KL: Mostly I'm thinking it means you're going to have the right materials on site at the right time per the design everybody wanted.

0:26:58 JF: Yeah, it's not only that, what they observed was that the foreman spends a great deal of his time, in the past, running around looking for stuff.

[laughter]

0:27:09 JF: It's either materials, or drawings, or information, or answering questions. If you resolve all those things up front, your foreman spends what we call "boot time". He spends all of his time with the crew. When the foreman works with the crew they are more efficient, and they are safer, and they have less rework, and it's the rework and the running around looking and waiting for stuff that causes all of your schedule impacts. One of the stories I tell…my wife…when I went to a conference in Houston last year, and we're in a hotel room and I had to go down to the conference. My wife's sitting there in the hotel room and I came back up for lunch. She says,"I need to ask you a question." I say, "Why's that?" She says, "Look down there," And they were building a building right next to us. She says, "I saw those guys sitting on the curb from 7:30 this morning until almost 10:00. And then at 10:00, a guy brought a trailer full of materials and they went to work." And I said, "You just had a perfect example of wait time," and that's the whole purpose of AWP is totally eliminate any wait or non-productive time on the job site.

[music]

0:28:23 KL: This is the construction viewpoint of how to get essentially better work breakdown structure, starting at the interactive level, driving it down to the Advanced Work Package where you got the cross-professions looking at specific pieces of pipe and wire and materials that they need, and then getting down to the field planning. Do we have evidence that safety's been improved?

0:28:43 JF: Yes, definitely. Most safety issues are caused by the fact that you're having to hurry up and get things done, or rework, or skipping steps, or doing something without having everything you need. All the right tools, all the right equipment, trying to make it work. Once that's eliminated, foremen can really spend time ensuring that that crew is working safe and doing the right things.

[music]

0:29:14 KL: Tell me a little bit about project information, its work flow and its design.

0:29:18 JF: When you talk about project information management, you need to really define that, because a lot of people have different definitions. In our case, it's the act of planning and controlling the production, distribution, receipt, storage, and retrieval of information. And then the objective is, in a way, that you can get the right information to the right people in the time and the form required to support a process or a decision. And it's that form, and now that takes you into all these lean principles about push versus pull. What you really want to do, you don't want to just push a bunch of information out there on people. You want to make information available so that they can pull what they need, when they need it, in the form that supports their work process or procedure.

[music]

0:30:23 KL: Let's talk procurement for a second. What's going on in this phase of procurement in the project that's interesting, unusual, or a problem you've had to face with that?

0:30:32 JF: Procurement is really the heart of the project and the materials, in effect, are the blood. I call information the oxygen if you wanted to relate this thing. But information is the oxygen, and materials are the blood, and procurement is the heart that pumps all the materials and makes sure that they get to the right places at the right time, and the information you use and how to install it.

0:30:58 JF: Most people, they don't understand the role that procurement plays. Even when they try and understand it, they think in terms of delivery, getting it there on time. What they forget about is I'm trying to engineer a foundation, and in order to engineer a foundation…um… for a pump. I need to know, how big is it? What kind of anchor bolts does it need? What kind of overturning moment does it have? I need the vendor information for the pump that's going to be used on this project. I can't get that vendor information until that purchase order is placed, and the real problem with most projects is they do not place their purchase orders in time to support engineering, and if they don't support engineering in time, that's going to cascade right back down to the field. Even if they got their pump delivered, they may not get their foundation poured in time to set the pump on it, which means I've got to bring a pump in, set it on the ground somewhere, do a foundation, pick the pump up and move it over, and those are all inefficiencies. You can get into a lot of double-handling issues.

[music]

0:32:11 KL: How do we have project centric procurement?

0:32:13 JF: Okay. Let's talk about our industry, it's probably the same for lot of others, but you can take any major oil company or chemical company, they have a procurement department, and they pride themselves on their ability to buy stuff. And they're very good at it and they get very good

pricing, but what they have they take in terms of aggregate. In other words, "This plant needs 10 pumps, this needs five, this needs 12. If I bundle all these pumps together, I can get a real good deal," and what they forget about is we're executing projects at each one of these facilities. Each project has a schedule and it has a deadline. The guy who's responsible for the owner procurement is rewarded for getting a really good deal. The project manager is penalized if his stuff doesn't get there in time to support the project, but the guy who's doing the buying does not share in that penalty and, in fact, he can actually lose his reward. So you've got some mismatches there.

0:33:16 JF: When I say project centric procurement, I mean whoever is in charge of procurement, they have to make sure the objective is zero negative impacts to the construction execution plan and getting things purchased at a reasonable or fair price instead of the cheapest price possible.

0:33:38 KL: We've heard in other discussions in advances in project management and some of the refocus that's going on which is project managers need to see themselves as investment managers on behalf of the enterprise. That they're managing an asset. That's what you're hitting at here is them acting in a manner similar to how a CEO has to look across the entire enterprise.

0:33:56 JF: Yes, you have to think in terms of a project and its value to the overall organization, not procurement, per se. Procurement is not an asset.

[music]

0:34:13 KL: Construction PMs have really got complex systems here, complex projects that they're producing. How is it learned? How do project managers get exposed to this in a meaningful way?

0:34:22 JF: I think project managers, they have a pretty basic understanding of it. The problem is is that the owners that they work for are the, probably their biggest enemy is what I've discovered, is that the owner has, they have a project group, and they have a procurement group, and they have an operations group, and they have a maintenance group, and they've never really aligned these to make sure that they're project centric. The majority of the things that the procurement group buys is run and maintain stuff. And for run and maintain stuff, that's a totally different work process than when used for project procurement. The project manager's primary obstacle is to figure out how to educate the client to be project centric rather than run and maintain centric.

0:35:14 KL: Wow. Sounds like a form of stakeholder management problem. Again, where should we be learning that? Where should that be getting taught?

0:35:23 JF: Well, about the only place it really can be taught is in some kind of professional…PMI is a good one. Construction Industry Institute. Things of that nature, I think, where owners and contractors are both in the same professional organization. I hold them responsible for what I call identifying the differences between running and maintaining something and project execution.

0:35:52 KL: That's really interesting, and I like your point of everyone belonging to the same professional organization. I once heard some PMs talking from a different perspective which was, and this came out of the information technology space, which was until CEOs, the people who become CEOs, have come up through the PM chain, it's going to be hard to break that barrier of being able to speak to the executive.

[music]

0:36:20 JF: I honestly believe that we need a book that says, "Question driven project management". Here are the questions you need to be asking as a project manager of each discipline at this time in the project. And if you don't get the right answers, you're probably going to have a problem.

0:36:40 KL: What would you give as an example of that?

0:36:42 JF: A real simple thing. You're doing a 3D model. Well, a 3D model and they had what they called BIM, Building Information Modeling. In other words, how much intelligence are you going to put in this model? And that's really, really important because if the field is not going to use your 3D model, like I explained earlier, you don't have to put very much intelligence in there, and you can estimate really low and you can get your engineering done pretty cheap. But if your field planner is expecting to have this information in the model to be able to look into the warehouse and find things, then you have to put a lot more information into your model, which means I have to put a lot more work into my estimate, hours into my estimate. And what happens to so many people is that they get ready to do their field work planning and they look in the model and say, "Wait a minute! I don't have this, we're missing that, we're missing that." And the guy comes and says, "Well you didn't say anything about that in front-end planning. Nobody told me you needed that information in there." Again, begin with the end in mind. What is it that you need? And what are the use cases that different people need? And then start asking the piping designer, "Are you putting this information in your model?"

0:38:01 KL: I was just looking at an Einstein quote, "If I had an hour to solve a problem, I'd spend fifty-five minutes thinking about the problem, to ask the right question, and five minutes thinking about solutions."

0:38:11 JF: I teach a front-end planning course at the University of Texas and I use that quote all the time.

[music]

0:38:20 KL: So much to think about. Maybe I could do a podcast for PMs on the right questions. Because, remember, the right answers can help fill in those white spaces and help stakeholders and contractors find out what they need from each other. And what about multi-disciplinary organizations? It's these kinds of cross-silo forums of exchange, like PMI for example, that actually have serious potential to bring about full organizational evolution. You can listen to John's "Fish Talks" at FBD.com. Fish Talks is a series of engaging short audio essays on project management, originally produced for the Construction Industry Institute.

[music]

0:39:05 OH: I say, "Tell me how you're doing your project, as an organization and I'll tell you if I'll invest my money into this organization or not."

0:39:11 KL: That's Olfa Hamdi, founder of the Advanced Work Packaging Institute, which John mentioned in the previous segment. Based in San Francisco, Olfa is an expert in project

management practices for capital projects, primarily in the industrial sector. She's a researcher and an engineer by training. Most of her current research centers on a very specific area; how to improve the effectiveness of capital projects in the office and in the field.

0:39:36 OH: When we think about construction projects in general, we think about the field, we think about construction. We think about workers in the field, we think about foundation, and cranes and things like that. But the truth is, on capital projects, these are projects with large amounts of money being put in, with large number of people that are coming together to be able to produce these projects. What happens is that before we even get to the field and we start the first excavation and foundation, there is a lot of work that has already been done in the office. And I mean by that, basically all the engineering work or the definitions that come around; the schedule, the cost, the scope, the interfaces, the communication that happens between all the contractors involved. There is a lot. On a general idea, you would think of the entire project's life cycle, then two-third of the time, approximately, is spent in the office. That area is an aspect where there is a lot that needs to be done for the field to actually happen effectively.

0:40:44 OH: There's multiple studies actually of trying to measure productivity in construction projects and trying to figure out what's the potential there. And one of the studies that was published by the Boston Consulting Group, showed that one point improvement in field productivity in the construction sector is worth $7 billion dollar in value to the entire economy. We're talking about really huge potential for value creation.

[music]

0:41:15 OH: One of the major root causes for field productivity losses comes from work processes. Work processes in the field and work processes providing information to the field. There has been a lot of analysis and a lot of improvement on how we are executing work in the field, how we're planning construction. But, to a certain point, and this is the research that I've been working on for the last six to seven years is related to... Okay, when we reach a point where while we're organized in the field, we don't see more improvement in productivity, why don't we go back to even deeper analysis of the root causes and figure out where is this coming from?

[music]

0:42:09 OH: Fortunately there is a good consensus that is going on in the industry about the importance of reducing errors and improving the accuracy of information that is being produced before we start construction so that we get as much productivity as possible when we are in the field.

0:42:31 KL: Are we having a separate information planning during the early project management stage? It sounds like... You mentioned two things here around information, information flow to the field and then now the errors within the information that flows. Have we just now introduced a whole kind of information systems planning process to our PM world?

0:42:51 OH: Well, that's actually... You've predicted where we're going. What's happening is that there's a new system that's called the Advanced Work Packaging System, and that's the area where I did my research and wrote my thesis on. And so this system, as the name actually tells us, advanced is to bring in the work packaging of the field in an advanced point in time, which is bring it back to

the, as early as when you're doing the planning in the office. And the idea is to do the planning with the involvement of the construction and to make it driven by the construction sequence. We start thinking about the construction sequence in the field mostly late in definition, so couple of months before you start actual construction. That's when you bringing onboard the construction manager and that's basically when you almost have your EPC contractor, the Engineering Procurement Construction contractor onboard. And after the bidding is complete and you start actually planning your sequencing. What happens is that at that time we've realized is that starting to think about the construction sequence late definition or very close to when you start construction is quite late. And we need to bring that much, much earlier in the project phase. And that's what's actually led to the Advanced Work Packaging System.

[music]

0:44:23 KL: I love this idea that you guys did root cause analysis to understand, it's not really in the field, something's happening before that as we dig into this. We found out that it was about information, which is kind of cool. What were the performance problems? It's budget schedule, quality? What was it that we were observing that was problematic?

0:44:40 OH: Well, in a way that ties to the methodology, right? What do you consider an indicator of failure of a project?

0:44:47 KL: Yeah, exactly.

0:44:47 OH: And that depends. That depends. Well, let me put it in a larger economic context. Capital projects are very much related to commodity prices. And so if we look for example at oil prices, there was a period in our economy where oil prices had a certain comfortable price that allowed capital projects to be considered as economically still viable even if they exceed their initial budget. And so if you look at the project as a project professional, you're not happy because you exceeded your budget, but if you look at it as a business professional you know that even with that excess in spending you're still coming ahead because you're making money anyway. And so those kind...

0:45:37 KL: That's not really what we look for in project management, though, right? That's cheating, right?

0:45:41 OH: Let me put it this way. Business is always the driver of a project site. That's what makes project happen or shelved or cancelled.

0:45:47 KL: No, let's stop right there for just a second. That's great. Business... Because this is something we forget. Business is always the driver for projects. And one thing... We've had this conversation on Project Management Point of View a number of times in different ways, but this is a different one, which is... And that can mean an external pricing system, for example, variability among oil. From a business perspective, changes how people view the range of possibility of schedule delivery, of budget and scope on a project.

0:46:19 OH: Absolutely. Because you're actually putting emphasis on a very strong point in the industry right now, which is actually a gap, is how the business mentality is, in a way, lacking alignment with the project mentality, or vice versa. Simply put, project people do not tend to think

or communicate the same way business people think or communicate. And the reason is because, in a way, sometimes you're not under the same constraints and you're not under the same incentives in a way. Even the structure of the function itself, the positions themselves at the individual levels are not the same way. And project people and business people do not come from the same training. And so there is a gap in... I call it mostly a cultural gap.

[music]

0:47:11 OH: Now with the constraints that are happening in resources and the increased competition also with the challenges to the globalization that is happening all around, there are so many factors that are putting pressure on capital and on spending and on investment. And that are also putting pressure therefore on projects to not spend, to not overspend, to not build conservative estimates. We want the resources to be available to be invested, not to be put for one, two or three years as a contingency and we're waiting for them whether they're going to be spent or not. Those kinds of constraints are leading more toward closing the gap between the business side and project side, where interests are becoming more and more aligned. The more we move toward alignment in closing the gap between business and engineering and then between engineering and construction in the field, that's when we increase our chances of having successful projects on all levels.

0:48:10 KL: And that's where the project manager actually instead of having a different mindset could be that backbone that connects business engineering to construction?

0:48:17 OH: I'm a believer in the role of the project manager as a central point for the project. I know there are many new approaches or organizational studies trying to figure out what's the best profile for project manager. For me the way I see it, the project manager or the project management position in a way is a very tricky one. Because you need to be technically strong to understand what you're doing and you need to be, have the business skill to be able to communicate well in terms in a business language. And therefore you can connect both worlds.

[music]

0:49:00 KL: It seems to me that even as the pricing of something like a resource that's being pulled out of the ground or being developed, quality is an issue. Did we do it well? And did we do what we were saying, and I imagine in these we're talking some safety. At any price there's probably a cost to the health of laborers and workers and managers and etcetera. And also maybe to environment, does it take us there and to the local community at all? Are these elements that need to be considered or have been considered? Guess where I was going is, that doesn't change due to changes in oil price. The number of, whatever, deaths or days lost.

0:49:37 OH: Right. After having seen so many projects and having interacted with so many teams from all cultures or speaking various languages interacting with them across various industries, I came to a conclusion in a way where... This is how I look at projects. I say, "Tell me how you're doing your project as an organization, I'll tell you if I'll invest my money into this organization or not."

0:50:02 KL: Wow.

0:50:03 OH: Yeah, it's as simple as that. Because projects are the engine of the economy in general

but they are also the engine, it's kind of like the machine that turns the investment into value. Let me put it this way. I don't think we're in shortage of money in the world. I think we're in shortage of good ideas and a shortage of people making those good ideas become a reality. And those people are the project people. As simple as that. Sometimes you can have the best project case scenario but then if you don't have the right processes, you don't have the right team and you don't have the right environment then that great opportunity turns out to be a nightmare.

[music]

0:50:48 OH: For example, safety. Financial incentives for safety do not work. For example, if I'm hiring a contractor and I say, "I'll pay you more if you work safer," it's not going to make them change. If safety's not their priority internally, if they're not actually convinced that they need to work safely I cannot make them work safely by putting either an incentive or a penalty. And so it's a matter of also culture.

[music]

0:51:21 OH: Quality, there are two levels of quality. There is quality of your basic data and then the quality of the rest of the engineering data. In terms of basic data, which covers basically those errors that if we miss them then it's a major risk. I'm citing here the example of the Samsung phones that now we're talking about and everyone in a way is trying to really figure out. With a company like this with so many sub-contractors that they're working with, how come they can miss such a requirement that can lead to such error? And that's the kind of, what we call an error in your basic data. And so these, we tend to assume that we're going to do them right but the truth is when there are so many stakeholders involved and so many contractors and there are so many interfaces, if you don't do that right you may miss something like that that can come back later as a huge error that would jeopardize the project and the business space. And so these things here go back again to the alignment which comes from a specific problem in the industry which has been overlooked for quite some time, which is actually making sure that with various team members located in various locations with various contractors and with various access to information you still make sure that you have trust-ability and you have alignment on your major requirements.

[music]

0:52:58 KL: Are we seeing any advantages then with the AWP in terms of improving quality? Are we seeing it as an outcome yet?

0:53:05 OH: The Construction Industry Institute has declared the Advanced Work Packaging System as a best practice, official best practice for the capital projects industry. And we got to that point by documenting the evidence on the benefits. If you're implementing this, what improvements are we seeing on capital projects? And so one of the benefits, of course, are related to improved safety performance. And it's not a direct result, it's an indirect result that comes from the fact that when you're better planning your field execution work then allowing your foreman and construction managers and the supervisory line in the field to spend more time focusing on safety and spend more time supervising rather than consume all their time managing crisis. The more you take out of their plate all the issues related to planning, the more you give them time to focus on making work actually installed in a high quality manner and also in a safe manner.

0:54:15 KL: I'm intrigued that what caused this to be developed was because of the complexity of capital projects and a tightening between what happens in the field and what got planned in the long lead time ahead of time, in the interactions ahead of time. What would be the viability of something like this in other project management fields then? If it can work for capital planning, wouldn't it be still effective for perhaps less complex projects or even IT projects that may be very complex but not have that same two thirds to one third ratio in terms of time, back office and field. Do you see the application broadly?

0:54:48 OH: One of the ways I look at Advanced Work Packaging to really become a standard is for it to learn from what's happening in the IT industry. I've spent quite some time going back to the IT sector and looking at projects there, what are the methods that are ongoing. And let me put it this way. I'm quite fascinated with how the industry is, the IT industry is advancing in terms of project management. Now of course, the IT industry has the advantage of space being not an issue for them. It's not like a construction project where you're dealing with space as a dimension in addition to your information. It's not the same complexity. But the IT industry has made tremendous advances in terms of project management for their projects. And I think there is a lot that could be learned from there. I do believe that the capital project industry needs to open up more to people from other industries to attract the best talent in the IT sector to our industry, to make the breakthrough that we want in terms of field productivity, in terms of tools and information that are out there and methods that are out there to enable us to produce better projects.

[music]

0:56:06 KL: How does this dialog get stimulated? You just picked two very big industries that could work together and there could be others. Where's a forum for this?

0:56:14 OH: I actually created a forum for this which is the workpackaging.org website which is the Advance Work Packaging institutes. And it works in a way in terms of task forces. For example, I already put together on aspects to link the contractual side of the industry and the legal community with the capital projects industry community and try to figure out this multidisciplinary way to look at those issues in terms of contracts. And it's working on that side. There is also another task force that is ongoing that also works on trying to link the IT industry with the capital project industry. This is an open invitation for visionaries and people in the IT sector that actually do have an interest into the capital projects world and maybe want to learn about it and see if they have an interest. Please get in touch on the workpackaging.org website. I have a team that are, they do answer your questions and interact with any of your requests. And it's a nonprofit, so it's meant to advance the discussion and be driven by an objective industry-driven discussion, rather than one side or the other. I'm a firm believer in expanding knowledge by multidisciplinary and inter-disciplinary work. And that requires bringing people from various schools of thoughts and industries together. And that's how I see our industry can move forward and I hope I can be an agent for that change.

0:57:47 KL: Yes. That's what we PMs essentially are, right? Agents for change. Advanced Work Packaging grew out of a need to address the alignment issue in highly complex projects. The need to tighten up what is planned in advance and what actually happens in the field. And it revolves around the PM as the nexus that links all the players. The engineers, the architects, the construction team, etcetera. To learn more about AWP, go to workpackaging.org. Also, you can read Olfa's articles and check out her webinar on projectmanagement.com. One thing I found particularly interesting in these discussions is how construction highlights the importance of procurement,

something we don't talk much about. Project procurement must place the end goal of the project as opposed to organizational norms and incentives as its highest priority. Keeping the lines of communication open between all of the subcontractors so that they understand each other's needs and requirements is essential to effective and efficient procurement, and ultimately project success. In addition, good front-end planning and sequencing, alignment of all the elements and organizational culture all play a crucial role. Whether you're in construction or IT or event planning, these are issues that PMs confront on a daily basis. And I think a lot of interesting ideas surfaced in these discussions.

[music]

0:59:01 KL: Special thanks to my guests Sandra MacGillivray, John Fish, and Olfa Hamdi.

0:59:07 Anouncer: Our theme music was composed by Molly Flannery, used with permission. Additional original music by Garry Fieldman, Rich Greenblatt and Lionel Lyles. Post production performed at M Powered Strategies and technical and web support provided by Potomac Management Resources.

0:59:24 KL: PMPs who have listened through this complete podcast may submit a PDU claim, one PDU, in the Talent Triangle Technical Project Management with the Project Management Institute's CCR System. Use provider code C046 the Washington DC chapter. And the title PMPOV0037. Influencers Part Three: Construction. Visit our Facebook page, PM Point of View, to comment and to listen to more episodes. There you will also find links to the transcripts of all of our one-hour productions. You can also leave a comment at pmiwdc.org/contact and of course you may contact me directly on LinkedIn. I'm your host, Kendall Lott, and until next time, keep it in scope and get it done.

[music]

1:00:04 Anouncer: This podcast is a Final Milestone Production, distributed by PMIWDC.