TASKTOP

Episode 31: Gene Kim
Episode Transcription

Mik Kersten (00:00):
Hello and welcome to the Mik + One podcast, where I sit down with industry leaders to discuss the project to product movement. I'm Mik Kersten, founder and CEO of Tasktop and bestselling author of Project to Product: How To Survive and Thrive in the Age of Digital Disruption with the Flow Framework. My next guest needs no introduction as it is none other than Gene Kim. Gene has done more to elevate how enterprise software is built than anyone I know. He has a magical ability to connect the plight of the individual developer with the technology and business landscape of the entire organization. The mental models and success patterns that Gene outlined in The Phoenix Project and The Unicorn Project have done more to point leaders in the right direction than any other works that I know of.

Mik Kersten (00:53):
What's so exciting about this podcast is that Gene actually reveals the next book that he's working on, which in my opinion is going to have an even more profound impact on how leaders at all levels think about the intersection of people, technology, and business. Without further ado, let's learn where Gene's journey will take the industry next.

Mik Kersten (01:13)
Welcome, everyone. I could not be more delighted to have Gene Kim with us here today. Gene, I think more than anyone I know has influenced the way that organizations think about software delivery, about software at scale and about how we create what Gene has been calling these dynamic learning organizations.

Mik Kersten (01:32):
I think the really exciting thing about this particular podcast is I get to actually ask Gene about what he's working on now, which I've heard is another book. I think the amazing thing, Gene, is that each of these books for you is this incredible journey. I've had a chance to be in, I don't know if it's the backseat or as the passenger, or running behind your car on these journeys sometimes. It's just a thrilling experience, and you're in the midst of another one of these now. But before we dive in, I've just been amazed at the effect that The Unicorn Project has had on how the people I interact with think, and how it's really changed their perspective.

Mik Kersten (02:05):
It's given senior leadership a perspective on what it's like to actually be there on the ground floor. The struggles that Maxine had, and just the sheer fact that this book actually made it to the number two position on the Wall Street Journal Non-fiction List is a testament to the sort of impact it made and is continuing to make. Just tell us a bit about what this was like from your perspective and about the journey of the Unicorn Project. And then we'll dive into what you're doing next.

Gene Kim (02:30):
Oh, for sure. By the way, it's great to be back on the podcast. I can't tell you how much I appreciate all our collaborations over the years, and how much I've learned from you, and how much of that actually made it into The Unicorn Project. I guess I am thrilled with the way that I think The Unicorn Project has shown people what software development is often like in large, complex organizations. If we're lucky, they might have seen Silicon Valley. I think we have some preconceived notions of how productive developers can be or are in actuality.

Gene Kim (03:05):
It's just so sad that in so many organizations, they're in a tundra of technical debt. What I love about The Unicorn Project is that Maxine, who is the best developer at Parts Unlimited that was introduced in The

Phoenix Project. When she gets exiled to The Phoenix Project, she can't do anything by herself. Can't build, can't test, can't build a feature, can't deploy. I think that really describes the problems that most large complex organizations have in terms of delivering technical capabilities. I think that's really kind of at the center of the DevOps Enterprise community in terms of the stories that they share. The leaders in the DevOps community, that is what they're solving for. They are unleashing the full human creativity and capabilities of the 18 million developers on the planet. I think if that book has even shown a glimpse of what that reality is and what it could really, truly should be, then I couldn't be happier with that.

Mik Kersten (04:06):
Yeah. I think that hits on why I think this book is so important, and the way that I relate it to people who just don't have a sense, have never lived those kinds of dynamics. Which is that there's this aspirational reality that boards, that CEOs, that leaders want to have in terms of turning their organizations into software innovators. Then there's the reality that their teams are actually dealing with, where you end up with these beautiful roadmaps, plans to make the best systems of engagement, applications, mobile applications, and web experiences. That just doesn't translate to the dynamics that are in the organization. I think the amazing thing about The Unicorn Project is that in a language that leaders understand, it translates for them what these realities are like. It has them empathize with the teams, with the fact that you can't simply have these wonderful strategic plans and roadmaps when you don't have the right kind of... when you're in this, as you said Gene, this tundra of technical debt.

Gene Kim (04:59):
Yeah, right.

Mik Kersten (05:00):
How have you seen it get interpreted? Because I've actually seen the way that the book has helped bridge some of that gap between the dynamics that an individual contributor on a team or a team member, who was trying to do great for their organization and great for their customer, is struggling with day to day. The aspirations of the organizations who can become more innovative and survive and thrive.

Gene Kim (05:21):
Oh boy, that's such a big question. I can give you some stories that have delighted me in terms of how people have responded to it. I think one is, as you said, the sense of empathy. Where you have non-technology readers reading it and getting a glimpse of the reality, and getting a vision of what ideal really could be. Specifically some interaction that really made me laugh is the scene where there's a board consultant that comes in. They've actually allocated more money from contractors to come in and help shore up The Phoenix Project. It turns out that all the contractors are in the same position that Maxine is in. They're going out to lunch, and they're still waiting for license keys and credentials. They still haven't been onboarded. It does beg this very uncomfortable question like oh my gosh, where is all the money going? And all of those promises that were made in terms of, we need those additional people to achieve these goals. If they're not actually working productively, does that mean that we're in trouble? The answer is yes.

Gene Kim (06:27):
Another story I heard was about, in an outage, the postmortem meeting of just how fragile psychological safety is. And how leaders can do things that help, that make sure... I love this phrase, "Improvement requires honesty, but honesty requires absence of fear." There are things that leaders can do to increase fear, which suppresses important signals. Or there are things that leaders can do to create true environments that actually foster people to say what they really think, and those will amplify important

signals. I love that we're starting to really connect the dots between what is needed within technology organizations or order to co-create value with business leadership.

Mik Kersten (07:10):
Yeah, exactly. I think this is one of the fascinating things about The Unicorn Project, which it shows the stark contrast between what great looks like, what these ideals are. It's a very explicit contrast. Then of course what a lot of us, a lot of our listeners, are dealing with every single day.

Gene Kim (07:26):
By the way, I'm laughing not because it's funny. I'm laughing about quite the opposite. It's terrible.

Mik Kersten (07:33):
Yeah.

Gene Kim (07:33):
But someday, it will be more just. People won't have to suffer like this. They'll be able to appreciate the flow. The second ideal of flow, that feeling that we have when we're able to work, be as productive as if we were working by ourselves. But it's better because now we can work with friends and colleagues, right?

Mik Kersten (07:51):
Well, yeah. Exactly, and I think you're right. It's not funny in the cases where people are dealing with these things. But at least it gives them, their teams, their organizations, a goal and aspiration to focus on. It makes it very crisp and clear. Ever since the book was published, it is interesting to me how I come back to different ideals over the course of time. I think some of these map very directly into the way that you're starting to think about these signals being suppressed or signals being amplified in organizations, and how that maps to high performing organizations and some of the dysfunctions that we see.

Mik Kersten (08:21):
You touched on psychological safety. When you first put out The Unicorn Project, I didn't realize how big a problem the suppression of signals from technology teams was in large organizations, and how that really impeded the flow of work. If you could just tell us a little bit more about how you think about these signals. Because again, there's something that you've constructed here where when the right signals go up in the organization, go horizontal in the organization, we actually get to that point of flow. At least there's a chance to resolve these bottlenecks. Maxine actually manages to pull this off within her organization. Tell us a little bit more about how you think about these signals because I think to a lot of us, this is a really new concept.

Gene Kim (09:04):
This is what I've been working on with Dr. Steven Spear, who has been a mentor of mine for nearly a decade. There are a couple things. He is most famous for writing the most downloaded Harvest Business Review article of all time. It's called ‘Decoding the DNA of the Toyota Production System’. That was actually based on his doctoral dissertation at the Harvard Business School. He actually worked on the plant floor of a tier one Toyota supplier for six months. I thought it was just incredible.

Gene Kim (09:38):
So, he's taken those learnings and applied them not just to the high repetition manufacturing work, but to engine design at Pratt & Whitney, which is a very creative endeavor to healthcare systems, to helping build a safety culture at Alcoa. There are a couple things that he's said. Actually, there are many things

that he's said. But one of the things that always caught my attention is when he used the words ‘structure’ and ‘dynamics’. The reason why I think this is important is for me is it really started to form in my mind a very parsimonious way of explaining why organizations work the way they do, both in the ideal and not ideal. It's really saying that any organization has a structure. That's the way that we organize teams and the roles and responsibilities, and the interfaces between the teams.

Gene Kim (10:29):
I love it. Most leaders know about the two Rs, roles and responsibilities. This is the third R, relationships. As architects, we would call them the interfaces. What are the sanctioned interfaces? What components can talk to each other, and how do they talk to each other? That's structure. Then dynamics is everything else. We can imagine a set of dynamics, as you mentioned, where weak signals of potential failures are amplified. Because we have a tone at the top that says, "Safety is the number one thing." When someone pulls an Andon cord on a Toyota production system, the first thing someone says is, "Thank you." Those amplify weak signals. Or we can imagine a scenario where the cellular signals are suppressed or extinguished entirely. If everyone is afraid to tell bad news, if that causes people to not say what they really think or say what they really see. Suddenly, you end up with dynamics that lead to not great outcomes or maybe even disastrous outcomes.

Gene Kim (11:30):
Maybe just to add one more thing, a very kind of recent aha moment for me is that I think that you can actually predict whether an organization is high performing or low performing just by looking at the communication paths. In other words, do you have communication where the communication is not dominated by communication up and down the org chart? In The Unicorn Project, in order to get two engineers to talk to each other, you had to escalate up two levels and then down two, or maybe up eight levels and down eight. Just to do what the customer asks. But imagine another scenario, which I think is associated with the high performers, where the majority of the communication is happening within the teams or between teams, and they're happening at the edges. When they occur, they escalate one, not eight.

Gene Kim (12:21):
I think that's what the Toyota Andon cord is. If someone has a problem, they pull the Andon cord. In most cases, they can be resolved by the team lead. If they can't resolve it in 55 seconds, they may escalate it to a group area lead. These are all showing that people can solve problems locally without vast escalations and without vast disturbances in other areas of the system. Really, I think for me, the aha moment is these up and down communications tend to be very loss-y. They tend to be slow. To get two managers to talk to each other, it takes a week. To get two VPs to talk to each other takes a month.

Gene Kim (13:00):
The information flowing up is very incomplete, slow. That means integrated problem solving across two functional specialties are going to be not ideal. Whereas if you can get them embedded into the same teams, that's a very fast problem solving dynamic. I think in control theory, the four axes of these types of communications, it's speed, frequency, fidelity, and accuracy. You want fidelity and accuracy in the planning processes, so when leaders plan, we want them to be very specific. We want them to write things down. We want them to be very thoughtful in terms of how they organize. But that is not the dynamic we want in operations, when people are solving problems. You want those to be, especially in military operations and production operations, you want fast, frequent communications. Does that resonate with you, Mik?

Mik Kersten (13:52):

It completely does. The reason it resonates with me is because you're laying out a new set of tools that I think leaders and organizations, and everyone trying to get towards high performance, can use. Because so often, we've seen these amazing efforts to get to these points of flow and feedback and joy go sideways. Then the organizational or structure level, and then operating model level, the leadership starts blaming in the culture. The culture is the problem. Then actually the teams start blaming the culture, and the leadership culture is the problem. I just so often find that line of thinking is just a dead end, because everyone is now pulling up slides. How culture eats strategy for breakfast, and these great direct quotes and such.

Mik Kersten (14:37):
Again, I know my experiences are, when you actually start digging in, okay, well what's the problem with the culture? Then you start asking and talking to people, or looking at actually some of the system data. What you see is, the way things are structured, you've got a team who is incredibly frustrated because they've been waiting for input for three weeks. That meeting between two VPs that's had them completely blocked and unable to deliver on the needs of the business, the customer. Then of course getting blamed and all of this. I think the really interesting thing here is that this is actually... it feels to me like you're creating, along with Steven Spear, a new way for leaders to think about organizational structure that can maximize flow or that can impede flow.

Mik Kersten (15:19):
I feel like we just haven't had those tools. We know value stream flow is good. We know when you don't have these wait states, you don't have these bottlenecks, you don't have these long queues, things are better. But how do we get them from the organization point of view to that point? I think that's exactly what we're lacking. Would you say that you are creating those tools for us, and you're going to put all of this in your new book?

Gene Kim (15:44):
Yeah. The book, we're targeting the end of 2021, maybe early... I'm sorry, 2022, maybe early 2023. It's at the point where you're really in the early stages. I'm really on a learning journey just trying to clarify my own thinking. I can't tell you how much of that is informed by the regular discussions that we have twice a month. If I could just add one more thing. If you think about the cognitive characteristics of work, upfront, you have the planning, you have rehearsing, and then you have operations or performing. You want the performing, you want the operations, kind of in that fast mode. You want sort of the planning in that slow mode.

Gene Kim (16:21):
You return to slow mode, again, during retrospectives. It's like when you ask the question, "Are we achieving our goal?" That's what General Stanley McChrystal asked in Team of Teams. "We're winning tactically, but are we winning strategically?" The answer was, "No, something drastically different is needed." Again, that's the type of thinking we need for that assessment, improvement area. If I could wave a magic wand, I'm hoping that what this does is provide some more practical tools to be able to describe what makes for good culture and what makes for bad culture. It's something I find very satisfying about this very parsimonious, almost very mechanistic way about describing how organizations work. When I say mechanistic, I mean... it's almost like I've even heard Steven Spear say, "You configure the system and then you let it run." Configuration is a structure.

Mik Kersten (17:12):
Yeah.
Gene Kim (17:13):

Dynamics is the run. It seems like an absurd, redemptionist way to view the world. But I'm finding it to be incredibly useful to describe scenarios where we're seeing that's high performing, and scenarios where we know it's not high performing, like Team of Teams. Before, in the battled ways, they were larger. They had better technology. They had better intelligence, and yet they could not dismantle the terrorist networks in Iraq in 2004. The reason is that you had the intelligence analysts, army rangers, Navy Seals, all working in different functional silos. For them to actually work together involved vast escalations.

Gene Kim (17:49):
When they were able to embed into mission or in teams, where they could work in a simpler structure with a shared goal, the majority of the communication is happening at the edges. A 22-year-old intelligence analyst or a grown pilot can actually see something and actually do something about it. It resulted in sighting to capture in 45 minutes. I think we can say the same thing about dev and ops. In the battle days of The Phoenix Project at Parts Unlimited, dev and ops was exactly the same dynamic in the battle ways. When they embed into mission or into teams, it allowed for not only better outcomes, but innovation at the edges. They say the goal of science is to explain the most amount of observable phenomena with the fewest number of principals, confirm deeply held intuitions, and reveal surprising insights. For me, these tools are absolutely doing that for me.

Mik Kersten (18:43):
Yeah, I think that's exactly what we need. We need a simple, reductionist set of tools where again, we're not solving this massive culture problem and thinking that everyone needs to attend a whole new set of seminars every three days. But actually understand how we're preventing people from doing the great work and having those communication lines, which they tend to know are effective. They will actually, even if they have to go through the square problem, they'll find their way. The conversation will make those lines.

Gene Kim (19:10):
Can I give you one thing that I started recently that excited me?

Mik Kersten (19:14):
Please.

Gene Kim (19:14):
We were talking about the control theory, right? The notion of frequency, speed, fidelity, and accuracy. When you can get two people from two different functional silos doing integrated problem solving, and you have them working side by side instead of through tickets and through reports, not only is the information loss much lower, you can actually generate information. You can actually generate knowledge. I heard this story about a chief chemist named Beth in a large pharmaceutical firm. She said, "Hey, instead of having the biologist send reports, how about you present the data to our entire team?" That resulted in a whole bunch of new knowledge being created that allowed them to actually better target and prioritize pharmaceuticals with more accuracy, and deliver them to market with less speed.

Gene Kim (19:58):
You could say that's probably the same dynamic that occurs in product teams, when you can get the product owner directly in the team with the engineers. Amazing breakthroughs are made, just like you see the same patterns with Team of Teams. For me, it was just kind of an aha moment to be able to really say, "Here's how they're similar regardless of the domain."

Mik Kersten (20:21):

Yeah. I think one of the conversations we had recently was what a lot of organizations experienced in the past year, is removing some of the structure constraints and seeing how quickly things can move. Earlier today, I heard an amazing story about what happens in disaster response. All of a sudden, the procurement processes change completely. People at the lead of the organization can actually put purchases on their credit card just to get generators, just to get electricity, just to get emergency supplies where they need to be.

Mik Kersten (20:48):
I think this was, again, the fact that you've now accepted this notion of structure dynamics into my mind and I think into a lot of other people's, I think it shows us the power of that. If we just change this part of the structure to allow this faster flow, in this case to the edges, how much more quickly can we actually get those kinds of results? I think it's been absolutely amazing for me to see the number of large enterprise organizations who released some of those structural constraints due to the pandemic, and all of a sudden saw a kind of faster flow that they thought was impossible within their larger complex organization.

Gene Kim (21:22):
Yeah. One of my favorite presentations from DevOps Enterprise last year was from the Nationwide Building Society. It was the Chief Operations Officer, Patrick Eltridge, and mission leader Janet (Chapman). They were talking about how there were things that they had to do in this dire emergency that normally would have taken quarters that they could do in weeks, like provisioning out VPN access for every company employee. I think what the global pandemic has showed us is during these situations of extreme urgency, when we're willing to throw away the rule book, miracles are possible. I think that brings up the incredible question. How come we can't do that all the time?

Mik Kersten (22:03):
Exactly. Again, this gives us a language to think about, okay, what structure did we change? What communication lines did we enable in order to actually get to that kind of pace? I think, again, you're giving us a new tool for how to think about that. I think that just relaying back to... I just have these very vivid memories of this call that we were on together with Dr. Steven Spear where we were talking to one of our colleagues in the organization that had a very problematic structure that suppressed some signals that shouldn't have been suppressed.

Mik Kersten (22:36):
Those signals caused outages that shouldn't have happened, or those suppression caused outages that shouldn't have happened. Things that should have been resolved. Of course the question is always, okay, how do we get from where we are today to where we need to be? How do we proof this out? You said something I have not heard before, Gene. It's the configure and then run. It just made me think of what Dr. Steven Spear said in this particular conversation. How do you do this? Just make a model line. Just create a place in your organization where the structure is, what you think the structure needs to be. It is around flow and value rather than around all these things that have built up. Then see how that works.

Mik Kersten (23:12):
What's your sense of that? Because this whole configure and run thing, I see so many organizations trying to go through the next massive re-org. To implement the Spotify model across 30,000 global IT staff and hope that structure works. But there's nothing empirical to that. They haven't learned, there's no feedback cycle. There's no learning from actually, did this structure work for us? This is, I think, one of the big problems with some of the really big agile transformations. It's this big cookie cutter being applied without any learning for, how did this new structure that we implemented work? Did it enable the right

kinds of flows? Do we have some regular constraints that maybe the last organization that did this didn't? So, can you dig a bit more into this configure and run idea?

Gene Kim (23:53):
Yeah. I'm a long way from I think understanding and knowing kind of how to do the transformation. Here are some things that I have learned that I'm finding very dazzling in terms of bringing clarity. When you have the structures that are dominated by up down communications, which are slow, loss-y and so forth. And then you have the dynamic and energetic configurations where the communication is dominated across the edge, across the vast functional specialties. I think the two characteristics that are created, that are kind of a prerequisite. We're calling it simplification and stabilization.

Gene Kim (24:33):
Simplification means that you are creating a value stream. They tend to be simpler, meaning more linear. I know who my inputs are and I know who my outputs are. That means between the chief chemist and the chief biologist, and the chemist and the biologist in the relative organizations. That they have an input and an output. They tend to be more explicit, I guess you could call it. More explicit, less tasset. People know who their upstream and downstream customers are. That's how you end up with the value streams, so everything doesn't... I think the most obvious one is an assembly line where everyone just stays in one spot in the assembly line, and the assembly moves from one workstation to another.

Gene Kim (25:16):
You have things like work centers, where work can pass to another. You have Team of Teams, where it's the rangers, intelligence analysts, and the Navy Seals. You have one where it's like requirements, design, develop, deploy, operate, et cetera. Those are all flows that are more explicit and more linear. Then I think the really other exciting characteristic is that of stabilization. One of the stories that blew me away when Steve told this to me, he said back in the 1990s, he went to visit a Toyota plant in Japan with his mentor and advisor Dr. Kent Bowen at the Harvard Business School, and a VP of manufacturing from a big three auto plant. They saw many amazing things. One of them was the fact that they were doing 60 line side store changes per day. I didn't know what that was. It's basically at every work center, it's basically the racks where you put the inputs. The raw materials which are being processed, and then put it in the output rack.

Gene Kim (26:19):
The VP of manufacturing from the American big three auto manufacturer said, "That's crap." Basically in disbelief, or basically saying they're lying. Because he said, "We did six in one day and we ended up shutting the plant down for three days, because suddenly parts weren't where they were supposed to be. We couldn't do final assembly and we couldn't ship a car for three days." I think in our community, the equivalent story is the 2009 Allspaw/Hammond's presentation that said, "We're doing 10 deploys a day every day at Flickr." I think most people vomited when they heard that story.

Mik Kersten (26:56):
Right.

Gene Kim (26:58):
Our reaction was, "We do 10 a year and that's not so good. What manic would do 10 a day?" I think what's in common is that at the Toyota plant and at a Flickr, they showed that you could do small changes. Things were loosely coupled enough where local changes could be made without bringing the entire place down. It didn't cause global catastrophe, chaos, and disruption. Whereas in the big three auto plants, and in most, many IT organizations, everything is so tightly coupled together that you can't change

anything. You change one little thing, and then just like in the American manufacturing plant, you miss one setting in the MRP, and then suddenly parts aren't where they're supposed to be and you can't ship cars.

Gene Kim (27:47):
I think that stabilization. The ability to make local changes, make adjustments. That is obviously one of the properties and prerequisites of high performance, of dynamic learning organizations. One more thing. I think what's exciting about the Team of Teams story is that you now see these different structures and mechanisms to broadcast learning. It reminds me of the daily call they had. It was 90 minutes a day, 365 days a year. It was basically top leaders reaffirming the goals, reviewing the actions from the previous day, and then people asking for help. There's a way for 3500 people on this call to trade, say what's working, what help is needed, groups to form problems. It even became a mechanism of... they found that the constraint to doing raids was often helicopter transport or the ability to access surveillance drones.

Gene Kim (28:44):
What ended up happening is, everyone knows the goals. People would actually horse trade for spots and be able to say, "Hey, I think this mission is urgent." "I agree. How about we swap spaces?" So I think this emergence of an internal market that allowed for re-planning at the local level versus at the macro level. It has to be another property of what's possible. Does that resonate with you, Mik?

Mik Kersten (29:10):
Absolutely. I just want to go back a little bit because I think the things that you've challenged the DevOps Enterprise Summit audience for the last several years, is how do we actually elevate what we've known to work for technology? What we've known in terms of enabling fast flow and this kind of delivery of value to organizations? You call these things dynamic learning organizations. I think what you're saying right now is that some of these changes become very easy. How many times do you deploy per day? How quickly learning is incorporated into a flow and feedback loop. It's going straight back to The Phoenix Project, of course.

Mik Kersten (29:50):
The fascinating thing about this is that you're now actually looking at this through the lens not just of high performing tech companies, but actually organizations delivering all sorts of value. Can you just tell us a little... I think so much of the literature that a lot of us have been exposed to really does come from manufacturing. How do we apply? How do we learn from these manufacturing concepts and apply them to technology organizations? But you've now gone and, in this latest exploration journey Gene, you've gone well beyond that to studying other kinds of teams and structures at the end of knowledge work, which software is a type. It sounds like you're starting to see these common patterns of loose coupling. Of basically work and information being able to be processed quickly at the edges, of changes becoming easy, this notion of stabilization and simplicity as well. I guess what do you see happening? Are we learning from technology or are technologies going to learn from actually active organizational structures?

Gene Kim (30:52):
I, like you, am an avid follower of and a convert of Dr. Carlota Perez. I find her narrative of, any given technology or revolution, it will create a new management model that can properly exploit the new technology that's been created. I love that notion that scientific management, mass manufacturing, has led to a set of beliefs and a cohesive set of practices like the Gantt chart, like project management, like rigid, strict, controlled structures, like outsourcing development and technology.

Gene Kim (31:32):

There is probably another set of beliefs and practices and tools and techniques that lead to things like agile and DevOps, and the Toyota production system, and resilience engineering. I think our aspiration is really to describe what that is. Just as tailorism has led to the set of practices, I'd love to be able to describe, what are those principles that lead to these things that we all maybe aren't aware of, but be able to say, "That's actually all part of the same cloth?" That's kind of my hope. I think what I'd love to be able to stitch together is to say that, "Yes, it is the technology community that is pioneering it. But it is actually the same thing as what led to the effective harnessing of the atom, of what led us to be able to send a man safely to the moon and back." The Toyota production system, Team of Teams, those are all actually the same patterns at work.

Gene Kim (32:40):
By the way, I've got to share with you a book that I had so much fun reading. I got to interview Dr. Ron Westrum, famous for his Westrum organizational typology model. Dr. Nicole Forsgren introduced him to me in an email, so I actually was able to interview him for my podcast. In preparation for that, I realized that he had actually written a book on the Sidewinder missile program in the 1960s. It was just utterly fascinating. Basically, he contrasts the wild success of the Sidewinder missile program to the failed Falcon missile program, which eventually became the Phoenix missile and Sparrow program. It was just amazing. You had integrated problem solving in the Sidewinder group. The mechanic could talk to the engineers, could talk to the technicians. Very fast feedback. You say, "Let's try something." The machines would actually make it and you could try it that evening.

Gene Kim (33:33):
Whereas the Falcon program had I think 10 to 100 times the number of engineers working on it. At one point, it had 3000 to 5000 engineers working on it. They had prematurely specified what the architecture looked like. They had more engineers. In fact, some people say smarter engineers. But they were constrained and couldn't actually release creativity. Whereas the much smaller Sidewinder group really broke around on so many different fronts. It was the most successful missile program in history.

Mik Kersten (34:04):
Yeah. I think, again, we're missing these tools. Organization's leaders are missing the tools for understanding why let's say SpaceX can deliver so much more with under 100 people working on it than massive programs can. Just like the examples that you gave. I think again, if you can give us the language for understanding how to describe what are effective flows, what are ineffective. Why adding that next set of 100 or 200 people might actually have the reverse effect because all of a sudden, the communication patterns are not what you need them to be. This is why I think you and I have been studying these very effective patterns. Where there's independence and autonomy for value streams, things tend to flow faster. When there's large amounts of dependencies, you get into these communication patterns that are unsustainable and often self-destructive.

Gene Kim (35:02):
I have one more story, by the way, that we had talked about before that I just think really motivates your notion of a model line. I got to spend three hours with the chief operating officer of one of the four healthcare systems here in Oregon.

Mik Kersten (35:16):
Yes.

Gene Kim (35:17):

We visited the vaccination clinic that's happening at the Portland Convention Center, where they are vaccinating 8500 people per day. That was up from 250 to 500 to 2000. Just to see the sheer amount of creativity and ingenuity that was being unleashed in the service of the most important societal mission we have, which is to vaccinate everybody on the planet as quickly as possible. It was just amazing to hear this person reflect on the lessons that he's learning and wants to take back to other aspects of healthcare.

Gene Kim (35:49):
He's saying that the other... the chief medical officer who was with me, he said, "I'm in the emergency department. To change the brand of tissue we use requires weeks of committee meetings, and the answer is always no. How can we integrate these incredible learnings and integrate them into potentially all aspects of healthcare delivery?" I think it just shows the power of that model line. Again, another example of this terrible thing that's happened over the last year. How it's just uncovering a different way of working that I am sure is going to dramatically change how we're going to be working in the future for the better.

Mik Kersten (36:31):
Yeah. But again, only if organizations realize, they see that this is possible. They see that by changing the structure, all of a sudden a speed that was unfathomable before is possible. I think sadly, we have many counter examples where that didn't happen. Where we've got the same structure remains to try to do something as bold as the rate of vaccinations that the company is about to deploy, and then the place where we'll now be able to apply your approach of structured dynamics to understand why in some places, these things happen very effectively. The example of Oregon that you just described. Whereas in other places, it didn't.

Mik Kersten (37:05):
There was all the budget, there was all the desire, but the structure never allowed these dynamics of fast immunizations to happen. Gene, to me, that's mind blowing. I have to say that again, some of these concepts, I've been hyper focused on how they work with technology on communication and collaboration. In delivering value to software, you're actually now identifying a much broader set of... I think what you're calling it is right. It's these dynamic learning organizations that are going to define how high performance... how we strive for high performance in the age of software.

Gene Kim (37:43):
Sorry, I always get so excited when I talk with you. I would imagine in this book, in the first two paragraphs, you've been thrown into this competition. You've won the tournament that got you to where you were, yet you find your competitors are beating you. Designing things for the customers with less time, with less effort. Despite the same starting line, the same talent pool, the same physics. The line that I would just love to land is that it's as if your organization is actually fighting you. I think that is actually true. If you're not appropriately thoughtful about the way you structure the organization, the roles, the responsibilities, and the relationships, then you will get the wrong outcome. I think that's something really delightful to me, that we might have a better tool to think with in terms of, how do we solve problems that are more than one person? When you have a team of teams, how do you actually configure them in a way so that you can actually get... that you're 10 times better, not 10 times slower.

Mik Kersten (38:54):
I think this is reminding me of early on in my career, where I realized that high performing developers were... they seemed to be 100 or 1000, in some cases, times more productive than an average developer. The 1000 is rare.

Gene Kim (39:08):
Yeah.

Mik Kersten (39:08):
In terms of how much value they were able to create through their software, and how much value today something like the [inaudible 00:39:19] is providing the economy. So I think the thing that I'm absolutely observing play itself out right now is, I think we've understood it somewhat at the team level of high performing teams, low performing teams. I think it's less well understood in the empirical data that I'm seeing. It's that we see organizations with a flow efficiency, so just the efficiency of how they're delivering value. It's one or two or three percent. Then we see organizations with, and this is I think to your point, with the same budgets, the same number of staff. Just organized differently with a different structure and a different set of dynamics that's evolved around value delivery, and it's evolved much more incrementally. Who have flow efficiencies of 60, 70, 80%. That actually translates.

Mik Kersten (40:01):
When you scale that to a significant number of staff, you're getting into these one or two, maybe three order of magnitude differences. Again, this is the key thing that we need to help leaders understand how to approach architecting for flow for value that's missing today. Again, where culture is being blamed. We're not giving culture a chance. When your organization is fighting against you and you feel that every single day, culture does not have a chance. Yeah, illustrating that in the opening chapters would be very effective.

Gene Kim (40:36):
Yeah, we've had so many conversations about how the best, in these tech giants, the best development is to put on dev productivity. The most experience and the next best most experienced one are put on backend systems, and the most junior developers are put on features. Which is the opposite of what we often see in many IT organizations, where they put the best developers on the features and the next best ones on backend systems, and the most junior ones and some interns build systems and dev productivity platforms. I think what I find exciting about that is that I think that's a hint that there is a big advantage in being big. You can hire the best talent and you can get leverage on the platforms that you build. I talk so often about the trip that we made together to visit Chris O'Malley at Compuware. He told us about the Rupert Murdoch quote. "Big does not beat small anymore. Instead, it is fast beating the slow."

Mik Kersten (41:35):
Yeah.
Gene Kim (41:35):
Then Chris O'Malley correlate is that the only thing better than being fast is being big and fast. I think when you unlock, when you create the right structure and dynamics, then size can actually be an advantage, right?

Mik Kersten (41:47):
Yeah.

Gene Kim (41:47):
You get to learn from the best developers and engineers on the planet. That has multiplicative effects as well.

Mik Kersten (41:56):

Yeah. Again, I'm sure this is going to happen to other people listening because it happened to me as soon as Gene starts talking about this. It's been years. Journeys of years are quite long. It's probably been over a year since I've got this bug of structure dynamics in my mind. I think as you said that, I realized, why is it so important that those best developers are on dev productivity? We know that the software, the structure of the software, actually changes the dynamics.

Mik Kersten (42:20):
Software in the broader sense. This includes the operational software. If all of a sudden I can get myself tensor flow environments to pump data into without talking to anyone, any VPs, well guess what? That structure allows me to accelerate with my machine learning, experiments, or efforts much more readily. All of that of course comes from the developer productivity people, who are able to make it very easy for any developer to get these environments, to connect to a pipeline, to automate all these sorts of things. I think again, using that language and that tool, because software and infrastructure is just such a key part of the structure of a technology organization, investing in the people who can adjust and evolve that structure in support of better dynamics is a really good investment. That's it.

Gene Kim (43:11):
I've got to tell this story, and I haven't told you this before. I got a chance to talk to Admiral John Richardson. He was Chief of Naval Operations for four years. That's the highest ranking uniformed officer in the U.S. Navy. Responsible for 300,000 sailors. He was describing the leadership dynamic within the U.S. Navy. Apparently, the Navys are famous for decentralization because not so long ago, once they went over the horizon, you couldn't talk to them anymore. You had to write very good orders. Captains had a lot of autonomy. He talked a little bit about that in terms of, as a leader, you invest a lot in terms of building relationships, creating a common set of values, specifying what the mission goals are. He called it commander's intent. Here are the things we're trying to achieve. It's good if you do this. Turn over the card, here are the things that we'd appreciate if you don't do this because that's not helpful.

Gene Kim (44:08):
If you lose communications, here's some procedures. Then you let them go. He said this line, "Because by the time communication comes back to headquarters, the fidelity of the communication is so low and the speed of communication is so slow that there's very little useful feedback that you can give back." As you talked about that VP getting approval, for me, it was very startling to hear. Because it kind of reframed in my head what that role of the senior leader is.

Mik Kersten (44:40):
What is it? Given that's not it, and so often the structure is actually that, the approvals and such.

Gene Kim (44:49):
Right.

Mik Kersten (44:50):
What is the... I mean, maybe you're saving this for the book.

Gene Kim (44:53):
No.

Mik Kersten (44:54):
What is their role?

Gene Kim (44:57):
I know it has something to do with the planning and preparation. Enabling operations, but you can't reach down and meddle in daily operations. You can't require them to have to get approvals for every little thing because the tempo of operations so far strips the capacity of the up and down communication structures. Then they get back involved in assessment, improvement, progression. How are we doing? What adjustments are necessary? Is the mission wrong? Do we need to change the mission? In my mind, that was a pretty... I love these kind of things that bifurcate activities, fast and slow. Leaders are involved in planning and preparation, and then again at assessment and improvement, but not typically in operations, to be able to maybe oversimplify. The advice you gave to me, I think that's very helpful because it actually says what the roles really are at the most senior levels.

Mik Kersten (46:02):
Yeah. I think this should provide more clarity to, again, the role of leadership. Leadership can change the structure. It's actually very hard for individual teams to change the structure. For me, in terms of my growth, slow growth over many years as a leader, one of the things that impacted me most, which I think again, this is a much crisper and more precise language that you have here, Gene. Ben Horowitz, I read this in one of his blog posts. It was immediately forwarded to you, I think. It was in The Hard Thing About Hard Things, where he talks about communication architecture. It's the responsibility of the CEO, of the leader of the organization, or maybe the leader of part of the organization, to actually set up what we would now call the structure dynamic to enable an effective communication architecture. Again, I think your language here is much richer. To prevent too many things from filling up, because that's much slower.

Mik Kersten (46:57):
These are, I think, new concepts here as well. To actually understand and be able to measure how much slower value gets delivered to the customer, to the mission, if it has to go up versus if it was just horizontal. Fundamentally, I think what I just heard you say is that it is the role of leadership to actually change that structure, to make sure that the right signals are amplified. To make sure that there's room for improving of daily work across the organization. The improvement of daily work for leaders is really to improve the structure to support the right dynamics. Okay, so Gene, anything else we've missed in terms of key things that have delighted you, that have surprised you on this journey of helping us really as an industry understand what dynamic learning organizations are? And then how to help bring our teams and organizations towards that?

Gene Kim (47:48):
Yeah, I think there's one thing that has convinced me that understanding this is important. It's that functional specialization is not going away.

Mik Kersten (48:01):
Right, yeah.

Gene Kim (48:03):
You look at healthcare, the number of specialties that have gone from let's say two in the 1950s to like hundreds now.

Mik Kersten (48:09):
Yeah.

Gene Kim (48:09):

The same thing is obviously happening in technology. You've got not just operations. You've got virtualization experts, container experts, [inaudible 00:48:16] experts, comp experts. You can't do a good job using comp if you don't have experts somewhere that actually know how to... what to do and what not to do. I think what it says is that the degree of which we actually need to do integrative problem solving is increasing across an ever widening field of functional specialties. I think the reason why we've been able to get away with it for the last century is that the functional specialty was small enough where we could just muddle through. Whereas now, I think it's clearly not working. In fact, oh my gosh, Mik. I saw this incredible statistic. I saw Steve showing it to a group at MIT Sloan. He said, "You've got Moore's law, where the CPU computation is doubling every 18 months, maybe increasing these days. In the pharmaceutical business, it is actually going the other way. For every given billion dollars, how many therapeutics can actually get to market? It's actually going down over the last decades."

Mik Kersten (49:23):
Yeah.

Gene Kim (49:24):
The hypothesis or the conjecture is that it's the same phenomenon at play. Here's a way to measure the retardation of productivity, is you increase the number of specialties. Yet we were able to develop a COVID vaccine.

Mik Kersten (49:39):
Right.

Gene Kim (49:40):
Within a year of mass awareness of the outbreak. It just shows that again, during dire emergencies, yeah, we can get things done. But when it's not an emergency, things are not treating us so well.

Mik Kersten (49:53):
Yeah. You just reminded me, when I took a semiconductors course and then we were talking about Moore's law, the professor actually said, "Well, Moore's law is on track. Things continue doubling." This was years ago. "But the cost of fabs, of plants, is actually rising even faster than Moore's law." The complexity of plants got to that point where actually, I think you and I were delighted by the fact that processor performance is now coming from changing the structure of the processor itself.

Gene Kim (50:24):
Right.

Mik Kersten (50:24):
By sticking memory right next to the CPU, as Apple did with the M1, because again, the complexity of fabs is probably now somewhere near the top of complexity that we can handle in an organization. Just like the complexity of bringing a new drug to the market and testing it is probably at the limits of human... what the complexity of an organization can manage. Again, amazing that you are giving us a language for understanding these things, because I think one of the... this is back to, I think, I can't wait for the next things you're going to say to me around simplification.

Mik Kersten (50:54):
I think in the end, you're finding tools or this is a way of reasoning about how to reduce complexity, and how to reduce organization complexity. And how to basically move away from that complexity causing all of these communication lines that are ineffective to ones that actually delivery value. Gene, where I guess

I'm sure you're going to have a ton of people who are really curious about learning more on this, I know we've got my favorite learning event or one of my two favorite learning events. One is in Vegas, one is in London of the year. Virtual now, although it's just as amazing even though we don't get to see each other in person anymore. The learnings have definitely not slowed down, and the relationships that come from it have just been tremendous. Tell us where we can learn more. Tell us what we can expect to learn at the Devops Enterprise Summit London Virtual. And yeah, anything else that you'd like to wrap up with.

Gene Kim (51:43):
I'm so excited that we're putting together what I'm hoping will be the best DevOps Enterprise Summit ever, just as we've done year after year. We have some amazing stories. Julia Harrison is speaking from the UK Government Digital Service about how she developed capabilities that helped every government agency in a time of a dire global pandemic. You'll be speaking about lessons learned in terms of how treatment plans have worked and not worked when they were misdiagnosed, which I'm very, very excited about. We have an executive team from a nationwide building society. Corey Quinn, the Cloud Economist, will be talking about the top things that we get wrong in the cloud, which is great.

Mik Kersten (52:24):
Awesome.

Gene Kim (52:25):
We have an amazing story from HMRC, Her Majesty's Revenue Collection Service, in terms of what they did to make the lives of UK citizens easier, again, in the worst economic downturn in a century. Again, Dr. Ron Westrum, who many have read but few have actually seen or heard from, he will be presenting. I'm so excited that he's going to be sharing in more fidelity than I think any of us have had in terms of his decades of research. Both in healthcare and nuclear reactor safety operations and aviation. It is a phenomenal set of experiences, reports, expert talks. I am super looking forward to it.

Mik Kersten (53:02):
Excellent, me too. For those who haven't attended, I think one of the lasting effects of it is the fact that the whole community becomes on Slack. And connecting all of these individuals specialized in varied different areas. By the way, again, I think the collective relationships that come from this actually provide, to me and I think to many others, the kind of dynamics that has made this year much easier, as we've all remained connected throughout this past year. Gene, any last words?

Gene Kim (53:30):
Yeah. The help I'm looking for is, Mik, this is really actually one of the first times I'm actually speaking publicly about this thing that we've been working on. It's hard to say you're working on a book when as an author, you also know that this is a very treacherous, curvy path.

Mik Kersten (53:44):
Yes, I'm impressed at how bold you're being.

Gene Kim (53:49):
I am actually very much looking for feedback in terms of, how does the language resonate with you? To what degree is it helpful? Any suggestions or examples would be fantastic. If you have any feedback for me, you can reach me. Probably Twitter is actually a great way. I'm @RealGeneKim. Or you can email me, GeneK@ITrevolution.com

Mik Kersten (54:10):

Yeah, and I do encourage everyone listening to do that. Because once these ideas get in your head, they won't come out. I can tell you that from experience. They will give you better tools for evaluating what works. Again, some of these ideals that you want to see in the organization. What's suppressing them? What's stopping them? And how we get to, again, this faster flow in these high performing organizations. Gene, thank you so, so much. I hope everyone sends you the ways that they've started adopting this already, and then feeds that back into your book. Because I think it's just been amazing how you incorporate and always riff with the community through Twitter and elsewhere on how these things apply. And in the end, make everyone's days easier and make organizations more successful. Thank you so much.

Gene Kim (54:50):
I'm delighted to be here, and I can't wait for our next bimonthly call, twice a month call, which so many of these ideas came from. Catch you soon.

Mik Kersten (55:02):
Awesome. Thanks, Gene. A huge thank you to Gene for joining me on this episode. For more, follow me and my journey on LinkedIn and Twitter, or using the hashtags #Mik+One or #ProjecttoProduct. Gene's Twitter handle is @RealGeneKim if you want to reach out to him directly. I have a new episode every two weeks, so hit subscribe to join us again. You can also search for Project to Product to get the book. Remember that all author proceeds go to supporting women and minorities in technology. Thanks, stay safe, and until next time.