

SEI Podcasts

Conversations in Artificial Intelligence,
Cybersecurity, and Software Engineering

The Product Manager's Evolving Role in Software and Systems Development

featuring Judy Hwang as Interviewed by Suzanne Miller

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Suzanne Miller: Welcome to the SEI Podcast Series. My name is [Suzanne Miller](#), and I am a principal researcher in the SEI Software Solutions Division. Today, I am joined by my friend and colleague, Judy Hwang, a senior software engineer in the SEI's CERT Division. Today, we're here to talk about Judy's work exploring the role of product management in software engineering. Welcome, Judy.

Judy Hwang: Hi, Suze.

Suzanne: Let's start by having you tell our audience a little bit about yourself, what brought you to the SEI, and what's cool about the work that you do here.

Judy: Well, I like using emerging technology to solve challenging problems. It is pretty much on par with what we do here at the SEI. I am on a team called Applied Systems. We try to optimize software development work across all the parts, all the different parts of the software development lifecycle.

Personally, I have been working on a lot of digital transformation projects for customers. That means mentoring product managers, release train engineers, and helping to stand up and optimize software factories. I am passionate about product design, customer experience, process improvement, and data-driven decisioning.

Suzanne: There you go. Product management is something that is well-known within the Agile community, but is not necessarily as well-known in other parts, other ways of developing software. You recently wrote [a blog post](#) that is exploring the importance of product management across the software development lifecycle. Why don't we start by talking about what was the catalyst for taking this more broadly, and why did you think it was important to explore this topic?

Judy: In my day-to-day work, I was seeing an anti-pattern as folks were adopting Agile that was continuous delivery, sometimes without a product vision or a product roadmap. Coming from the automotive background and having gone to business school, I understood the importance of having that vision and roadmap going into the day-to-day work that development teams are doing. I was seeing that teams weren't putting in enough time and effort into thoroughly assessing the product opportunity any way that you can—from talking to users, looking at the market, looking at your competition, and trying to figure out how will you create value. Is it value that's going to lead to competitive advantage? Should it be outsourced or should we truly invest in it? Then comes the product vision and the roadmap. I was really seeing that some of the time spent up front would pay off, and I wasn't seeing teams doing that.

Suzanne: OK. What you are really highlighting is the fact that product vision is something that is really part of organizational strategy. You talked about do we want to outsource this? Is it for competition? Why are we doing this? A lot of times, the software development teams are not the source of the *why*. The *why* comes from systems engineering, comes from other parts of the organization. Can you talk about sort of how the way you are looking at product management differs from the traditional product management role, which tends to be more centered just on the software?

Judy: Yes. I get it. As developers, we love to build. I think that is contagious, and it has kind of tipped over to some of the organizational leadership. So this blog is also a gentle reminder to get back to those product management roots. In legacy consumer goods, brand management has been in the forefront for a while, a long time, with product management just as

important but traditionally working more behind the scenes. Think automotive, which was my background prior to SEI. Cars have a four- to five-year model lifecycle with yearly enhancements. I also have some peers from business school who went into consumer-packaged goods. Probably a little shorter lifecycle, some uniqueness there in food and beverage. Also, in the way that the automotive industry works with suppliers, pretty hand-in-hand with adhering to safety standards and then also testing products via standard operating procedures. I would say consumer-packaged goods have a similar aspect. And then technology comes along. Tech changes so fast that it has challenged, if not flipped the dynamic. So I ask our viewers, are you as a consumer loyal to a technology brand or a technology product or platform? With tech being more embedded in our work and everyday life, I think the product experience is becoming a more prevalent experience for users in work and in life.

Suzanne: I was just doing something where I needed to complete some forms. I was so angry at the end of that session. I completed the task, but the product experience of that website was so different from well-designed websites that I have interacted with before. It's like, *Why can't you get this right?* That is what I am hearing you say is that we have switched to where consumers are much more knowledgeable about and users are much more knowledgeable about what is possible in terms of product experience. We are not willing to accept a product experience that is subpar because we know it can be done. We want to give that to our DoD users as well. We don't want any of our users to have to suffer from some of those kinds of issues. Do you want to talk about how that plays into all this?

Judy: Yes, exactly. You have hit the nail right on the head. I was thinking recently, if somebody changed my car usability as often as people change website and app usability, I don't know if I'd be able to drive a car, let alone my parents or my parents' parents.

Suzanne: Yes.

Judy: Faster may be better in technology, but I ask our users and our customers, are you able to make an informed decision on what problems your team should be working on now and next? Do you need to slow down to be able to make that decision?

Suzanne: That is where a good product manager is invaluable because they know when to ask that question, who to ask that question, and how to take the results and actually turn it into a backlog that actually reflects the

product management vision that your leaders have. That was one of the things that I have loved about that role is that it is the synthesizing role when it is used well. You said you saw anti-patterns. What are some of the things that people should look out for in terms of anti-patterns in relationship to not using the sort of product vision aspect of product management?

Judy: Yes. Recently I attended a conference called [UXDX](#). It is about building better products through collaboration. It also spurred me on to writing this blog because in listening to the discussion on stage and some of the questions that people were asking, I saw that product teams, dev teams, UX teams, design teams...There was a nuance in the questions, and the discussions that made me feel like teams are confused about where teams can assist each other and when they are otherwise just splashing in the other team's pool. I wanted to go back to the roots of product management, which is my passion, which you could do for any of the teams quite frankly. But in my [blog](#), I talk about how product management came from the consumer product package goods industry, specifically at Procter & Gamble from their brand management team. Originally, they were just trying to grow their brand management team into a team of brand men who are responsible for the success of the product from beginning, initiation, ideation and initiation, all the way to launch, customer acceptance, and when they finally retire the product—essentially, the whole product lifecycle. That caused Procter & Gamble to become a brand-centric organization and also launch the first roles of product management in the business side, in marketing, initially.

Since then, companies like HP, which I talk about in my blog post, have adopted the product management ethos of bringing product decisions closer to the customer and having the product manager be the internal voice of the customer. As well as Toyota, which I mentioned in my blog, my roots, the concept of [kaizen](#), continuous improvements, and [genchi genbutsu](#), which is go look, go see. So, again, the concept of getting out from behind your desk to actually see what your customers are seeing and experiencing what they are experiencing firsthand.

Suzanne: That can be difficult in some of the settings that we are in. The people that are actually our end users are programmed 24 hours a day, in some cases, in terms of their activities. What are some of the strategies for sort of bringing that voice of the customer when you can't get to that customer directly into the milieu so that you can actually feel like you have got some confidence that you actually are providing what that customer wants even if you can't speak with them directly? What are some of the things you've seen successful in that regard?

Judy: Yes, that is a tough one. I have seen a lot of organizations go to a customer proxy. In some cases, that is your product manager, unfortunately, virtually getting to the head of the customer or a business analyst role doing that. I would encourage you though, even if you can't sit side by side and look at the screen with your end user, use the channels that you can. Follow the big brands. They get to you as they can with surveys or user sessions. I think that also winning the trust of your end user to motivate them to want to sit down with you and have that dialogue.

Suzanne: One of the things I have seen is where recent retirees from that role get brought in, at least for six months or a year, get interviewed constantly, as a way of they are the surrogate or proxy, as you said, but they have recent experience with the processes, procedures, the environment, the context that the users are in. That has been one of the things that I have seen that was actually pretty successful when you can do it. You can't always afford to have somebody that is in that role. Sometimes those people work into other roles in the organization as well. What about user conferences? Have you seen any use of user conferences as a way to sort of bring all the users from a community together? Because I have one experience with that that was actually pretty amazing, but I don't see it that often.

Judy: I don't see it that often either. User forum groups, in some instances, can spur dialogue that would be useful to product management.

Suzanne: Yes. The user conference I was at was way before COVID when it was a lot easier to get people in the same room together. If I am working in software development or managing it, and I am suspecting that we are not really doing the best job we could of incorporating product management principles. What initial steps would you recommend that I take? Where should I be trying to improve? What should I try to improve first?

Judy: You want to improve on your product management principles. Understand what they are, first and foremost, like at the foundation. I will point you to [my blog](#), which is the beginning of a could-be long-winded discussion on that. But I was always taught to understand the rules before you break them. And understand the intention behind product management honestly, will get you halfway there. Then you will tailor it to how your organization and culture works. That is why product management is so unique in different organizations.

Suzanne: If I am launching a satellite, I have a whole different product

management kind of cycle than if I am dealing with a website. You are absolutely going to have to have that customization into the context of the organization. I don't remember you talking about this in your blog, but have you seen systems engineering? Systems engineering is a pretty dominant role in a lot of the programs that we work in. Have you seen systems engineering taking on some of the product management principles and activities as a way of bringing the software development closer to the user?

Judy: Yes. What works really well is when product management works closely with systems engineering so that your high-level objectives map pretty directly to the business cases that drive what system engineering is looking at next.

Suzanne: OK. So that's an evolution of systems engineering.

Judy: Ironically, that is working really well with one customer that I know of because they were shorthanded and product management had to lean in, so yes.

Suzanne: OK. So that is a place if you are a systems engineer, this is something you may want to do to look at enhancing your own role with the organization is if there is a shortfall in product management, you may be able to bring some of that into the cognizance of the organization. OK. All right. Well, thank you.

You know that I like transition. We do emphasize transition of new ideas in our podcast. For the audience members who want to explore this more beyond your blog, what resources are available to them? I would point them to your [blog](#) first because I think you do a lovely job of laying out the principles in the way that reflects the kind of work that we do. But what else is available to them that you would recommend? Because there's a lot that says product management, but not all of it is exactly what we're talking about.

Judy: Yes, exactly. There I was looking for a definitive textbook or technical product management guide. There is not really the definitive, but there are some very well-regarded books on the subject. One that I hear come up often and again that I like is [Inspired: How to Create Tech Products Customers Love](#) by Marty Cagan. I think you know that book.

Suzanne: I do.

Judy: Also, [The Product Book \[The Product Book: How to Become a Great Product Manager\]](#) by Josh Anon and Carlos González de Villaumbrosia.

Suzanne: OK. I don't know that one so I have to look that one up.

Judy: Lastly, [The Lean Product Playbook: How to Innovate with Minimum Viable Products and Rapid Customer Feedback](#) by Dan Olsen. Within my blog, I also point to a couple of companies and use cases that were exemplary, which are [The HP Way](#) and [The Toyota Way](#), some classics there.

[Scaled Agile 6.0](#) has templates for portfolio vision and canvas, value stream mapping, goal setting guides. They use a different vocabulary than the traditional product management. But it is with the same intention and somebody who's familiar with product management can make the connections.

Suzanne: OK. Those are a good set of things to start with. And one thing that you and I both know about Scaled Agile Framework is they have lots of free articles related to a topic that anybody can access. They are accessible in ways that some of the other stuff may not be. What is next for you? You are working on not just product management. What else are you working on that you're going to want to come back and talk about in a little while? Software factories maybe?

Judy: Possibly. I do have a continual interest in thinking about how we build trust in applications that we use. It is around making them predictive and consistent, secure and robust. I know with all the AI, ML work that has been up and coming, this theme has come up again and again.

Interestingly, I was at a conference in May where I heard a talk by [Kent Eisenhuth](#). He's a co-founder of Google's Data Accessibility Working Group. His talk was actually called [Lessons Learned from our Accessibility-First Approach to Data and Visualization](#). What he did that was really interesting to me is that he showed on his slides examples of—I believe he took the COVID data plot that Google had worked on at some point, just the map of the world with COVID counts. He took that visual and showed us how folks with vision impairment or color sensitivity may be viewing that data and what messaging they would be getting or they would not be getting. It made me wonder, how many of the apps that I've helped design or designed primarily... Of those apps, how many people are experiencing them differently than I intended?

Suzanne: That would be interesting.

Judy: Yes. When I first got into app production, I took some foundational visual design classes where, again, we learned the foundations and then you learn to break the rules. But we didn't talk about accessibility. It was more of a fringe case. So, I think this is an opportunity to design more inclusively and optimize for a better experience. So, eager to learn more.

Suzanne: One of the things I found in that world, I have some friends and colleagues that have different visual issues is that in accommodating some of their issues, generally speaking, I build a better product. I am not just accommodating them, I am actually creating a better experience for everyone, not just for that particular group. So that was kind of interesting to me. Accessibility first probably has benefits for Google beyond the inclusivity aspect.

Judy: Exactly.

Suzanne: Well, I look forward to things like that in the future and more conversations with you coming back with us. I do want to thank you for talking with us today. As we always do, the links that you mentioned, that we mentioned, they will be in the transcript as resources for our viewers. I am so happy that you're, you know, I'm able to sort of connect with you again. So, thank you once again for talking with us today, Judy.

Judy: Thank you, Suze. It has been a pleasure.

Suzanne: Last thing, we always have to remind our audience that our podcasts are available anywhere you get your podcasts, Spotify, Apple, and of course my favorite, the SEI YouTube channel. So, if you like what you see in here today, feel free to give us a thumbs up because YouTube loves that. Thanks again for joining us, Judy. Thank you to our viewers for joining us also.

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