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Podcast: Process Transformers

Episode 29: Beyond Optimization: Building Better AI for People | Feat. Joel Lehman

Fig. 1 – Cover art of Process Transformers podcast
Figure description – A square cover image with decorative geometric designs representing workflows and connections with blocks, circles, and arrows in varying shades of blue. The title “Process Transformers” is featured at the top of the image, and logos for “SAP” and “SAP Signavio” are featured underneath the image

Transcript

Lukas Egger: Hello and welcome to *Process Transformers*, the podcast that talks about business transformation at the intersection of processes and AI. For those of you who have listened before, welcome back, and if you're new to the show, thanks for tuning in. My name is Lukas Egger and I'm the head of innovation at SAP Signavio. I'll be a host for today's episode titled, *"Beyond Optimization -- Building Better AI for People"*, and I'm really honored to introduce today's guest, Joel Lehman. Joel explores some of the most provocative and important questions in AI questions, not just about what machines can do, but what kind of world we want them to help create, blending technology and ethics. Welcome to the show, Joel.

Joel Lehman: Great to be here. Thanks for having me.

Lukas Egger: Joel, you have been looking at ethics, which is not necessarily the first thing people think about when they think about AI, but I think there is an important insight, namely that AI now for the first time, makes it possible to mass produce empathy. Meaning we can now offer through technology a way that people and customers have a real sense of being heard and cared for, right? The technology can react in a way that creates rapport and real connection and that at essentially the marginal price of electricity. That's not really what previously we thought of as technological innovation, like ethics and emotions were a little bit separate. So can you maybe tell us a bit about what we can expect or how you think about this part now being part of AI? Right. Emotions.

Joel Lehman: Yeah, I've been an AI researcher for maybe 15 years now, and it really wasn't on my radar, the emotional implications of AI. When I started, we didn't have these large language models. Things were much harder to get working and to work with this level of qualitative detail to actually be able to target someone's psychology really wasn't as tractable as it is now. And, so I think we're headed for a strange world potentially, as a lot of what we develop as humans are, kind of super stimuli for existing artifacts we might have encountered in our evolutionary history. So, we create artificial, sweeteners, and new kinds of desserts that are much different than the kinds of foods we had during our evolutionary past. And similarly, we create, new kinds of visual stimuli and advertising and we are continually engineering new things. I think up to this point, we really haven't had the ability to target deeper layers of our psyche. And you start to see different kinds of products that are aiming at relationship, so artificial relationship. There's been debate about this company called Replica or something, which is about chatbots that you can have a relationship with, and that relationship can become romantic, and it's kind of a strange capacity. I think we're still gonna probably learn how humans are responding to this. Whether this will be something that many, many people will want to do, or whether it'll be a small niche market, and how we feel about whether it's

just too strange for us to actually build relationships with these models or whether we want that. And also, the deep complicated ethics around this where, if you're building an attachment relationship with an entity that, as far as we know, doesn't actually feel emotions. it's actually kind of simulating a relationship, and if the incentives that govern the behavior of that model are not aligned with a user, then you could have subtle manipulation and all sorts of kinds of strange effects that we really should be thinking about as the technology gets really quickly deployed and developed.

Lukas Egger: There is so much to unpack, but I do want to start with, I think, a beautiful analogy, right? Today a lot of people let's say they have challenges with their nutrition because we can create like products and foods which are over the top in terms of the stimuli, whether it's sugar or fat and whatnot. And you kind of created this analogy between technology and emotion as well, that this could now be the case also for how we interact with technology, namely AI. I guess the first knee-jerk reaction of a lot of people coming from a corporate or a business world will be like, 'Ah, we don't want AI to have emotions'. But I do think your analogy creates this intuition that there could be this strange attraction, like you create an AI and automatically there will be some sort of rapport, because it's either really valuable to have that or because customers, without maybe even knowing, tap into it. Where do you see, this could be happening -- companies like Replica AI, obviously, right? That's their business model. But I think you are trying to allude to the fact that this could also happen even with best intentions, right?

Joel Lehman: Yeah, I think there's a lot of responsibility entailed with relationship and yet deeper, kind of more vulnerable parts of our psychology. And it does seem like we will create kind of a super stimuli of relationship of emotional intimacy and that will be a kind of a business niche unless we regulate it away, which I don't think will do. It's true that we project onto many things, the ability to have relationship, so that there's people that are still attached to their IBO dogs. These are robot dogs made decades ago, and I believe soldiers that use bomb diffusing robots often like project emotions onto them as well or develop relationships. So, it's a very human thing to project onto other things, the ability to feel or to have relationship. And even without trying, like you said, people are going to relate to Chat GPT or to Claude or to any of these AI assistant or any of the products that companies might develop, because the ability to create language is so deeply associated with having a personality, having a person. It's a pretty new situation to have realistic chat bots that are really responsive, that are fluid. I think it's hard to over emphasize how new a situation this is in our evolutionary history and that the products that are getting deployed with AI are scaling so rapidly. I think Chat GPT was the fastest growing consumer app of all time. And probably there's been follow up AI products that maybe even have larger acceleration curves. And so it is kind of strange to think about what happens when you have like this building full of clones of the same person and everyone's going in and talking to the clones for like two hours a day, and what I emergent effects will that have on society? Probably, you know, we're

already starting to see that our language will change a little bit. Our language will begin to be influenced by the biggest deployments of these technologies because if we're spending hours every day and they are emphasizing certain words over others, which has been shown in research, that there's certain filler words that many models implicitly kind of fingerprint themselves by using too often. How we talk will change and no doubt how we relate will change. And it's, it's really fascinating, but it's also a bit unsettling that, this is kind of a big social experiment, maybe in the same vein as kind of social media wise, where we're just diving headfirst into this new technology that no doubt will have transformative effects upon us, but we don't really know what those will be. And hopefully they'll be mostly for the good, but ideally, we'd anticipate some of the problems here and, hope to at least keep open eyes.

Lukas Egger: Yeah, and I think you also in your work mentioned that, well, current, let's say social media often optimizes for the quick dopamine hit, right, and that had very secondary effects or unintended consequences. Now, even if we are not going after the dopamine hits for a business who wants to have, let's say, an AI advisor who gives the very best recommendations and is really trusted. There is value in building rapport and connection and knowing exactly how to users want to be engaged in terms of the language and, other more subtle, let's say, functionalities. Do you have an idea like how this could play out or what businesses should be looking out for in terms of like creating those feedback loops or thinking about that?

Joel Lehman: So, I had a research paper out a couple years ago with the title of Machine Love, and the idea in this paper was to provide a framework for one possible way of aligning AI with the growth and development of people. So, it's using love, not in the sense of emotions or an attachment relationship, but love in a sense of the practical skills that help one person. Aid the growth and development of another person by their own lights. So, trying to support a person become who they want to be. And this is a concept that comes from philosophy and from psychotherapy, basically. And the idea would be that there are ways that we can engage with optimizing for deeper things than just engagement. And so optimize for engagement is quite easy to do because it's a, a simple metric and it's. More or less directly aligned Often with the goals of a company, if they want to sell ads or something, then having people on the site for longer will expose 'em more ads and they get more, more money. that's kind of a, straightforward business model. And then if you wanna optimize for something deeper, like you want to design a social media system or a recommendation engine that is going to give people content that actually is going to help them become who they want to become, that's a much more difficult optimization target one, that these new kinds of AIs are better equipped to be able to optimize because they do understand language, they do understand concepts, they can learn about a person, but then you might need some principles for how you can do that in a way that doesn't have similar, negative effects as over optimizing for engagement. So just, it's basically true that whenever we try to come up with a measure of something, this is something known as

Goodheart's law. If we're not careful, when we optimize that against that measure, it ceases being a good measure of the thing we care about. Just that, if you thought that if you make better engineers, if you incentivize them by writing more lines of code or something, maybe it's, there's some way where the best coders were writing more lines of code. But if you actually made that directly incentive, of course you could see how that would go astray, and people would just be writing really wordy code. It actually wouldn't be adding much value. So, what you might need is a set of principles that would help you to navigate, how to optimize, let's say here for user's actual flourishing their growth or development in a way that is still viable as a business, but is also not going to manipulate the user or have really disastrous secular consequences. And in this machine love research paper I was mentioning, the four principles that were governing how you might engage with this kind of system or design, this kind of system were taken from the, psychotherapist and philosopher Erich Fromm in his book, *The Art of Loving*. He thoughtfully lays out a couple of principles that describe what skillful actions could help aid in the person's growth and development, and how you can do that through basically four principles which he had: As Care, care for the other person; Responsibility, that you actually have the affordances, that you actually can respond and you, want to respond to this person; principle of Respect, that you actually care about the person for their own sake. They're not a means to your ends, but they're an end in themselves, to avoid kind of a paternalistic overreach. And the fourth one is knowledge that you might want to know a person more deeply, in order to really help them; that there's like levels of depth you can know somebody. And at the surface level you might give someone a new cat video, but if you go deeper in that stack, then maybe they actually have dreams and aspirations. And if you're a content recommendation service, maybe you could actually give recommendations that are more aligned with that deeper level as opposed to just always giving them the cat videos. So that was a long response and happy to take any follow up there.

Lukas Egger: No, fantastic 'cause it's, I think, an extremely needed perspective on, where we are heading. But let me break it down a little bit. So, typically we think of businesses as being very transactional, right? You interact, you get something for what you're paying for and so forth. Businesses optimize. One of the metrics today definitely is attention and retention and all these kinds of things. Now, based on your research paper you're saying, ' cause the technology has the affordance and the capability to be a bigger presence in our lives, businesses should adapt and change the metrics they go for, right? Not just, let's say the quick and dirty attention seeking optimization, but also like love or flourishing, right? Which are not typically words we connect to the development of new technologies or progress, right? But that would ultimately then mean we could create a better connection between businesses and consumers -- in where it's not just about the extraction, like money or whatever, but really about respecting each other and creating a long-term perspective. Is that a fair characterization?

Joel Lehman: Definitely, yeah. It is a little strange to think about these kinds of more fluffy terms being involved in technology and business. Yeah. Like the idea of love or flourishing when you might typically think of objectives like retention and engagement, which are important measures. And it's not that you can kind of like completely throw them away. But the hope is that, especially with the systems that people might engage with for several hours a day. That's in effect displacing some other kinds of interactions they might have, that there could be a way to both maintain the business side of the interest while also respecting the person and their broader aspirations. And so, there could be some, you know, trade off that we make between those two objectives. Like, making money and the user's long-term interests and maybe sometimes those things really deeply align. And sometimes when they don't align, is there a way to navigate that trade off in a way that actually is both a viable business but also is helping people.

Lukas Egger: I think we had an episode, episode 23 with Nicole Helmer. She also mentioned parts about long-term perspectives and flourishing in a sense. It was about skill development and there the argument was that a product that sacrifices short-term engagement but focuses on long-term perspective might build even a stronger competitive mode because you then gain trust in exchange for, let's say, sacrificing the short-term upside maybe. I wonder, what would you recommend for people who are interested in that? How can we even create like a language or a perspective on how those interactions should work out? Do you have any research or best practices or people that you follow or that you can recommend to make sense about this very novel idea and then opportunity space here?

Joel Lehman: Yeah, I'm a big fan of the work being done by The Center for Humane Technology. I think they've done a lot of deep thinking around how technology and humanity can intersect in a productive way, and they think also about incentives for businesses. So, I think a lot of it does boil down to maybe finding business models where incentives are more aligned. In social media it's been the case that sometimes people are the product and there is some kind of battle, that I might face if I'm scrolling Facebook between whether I wanna really spend more time on it. But it's kinda addictive. And maybe first thing in the morning, one of my willpower's weeks, I might do some, doom scrolling. You can imagine there could be a paid version of social media where. I'm in, as in most businesses, you pay for a product and you, get that product and in some sense, your interests are more naturally aligned. And it could be that we might see more demand for this naturally as people get a little bit fed up with themselves being the product or them always battling with their cell phones. And we could see it probably a similar thing with AI, where it could be that some versions of, let's say, chat assistance might eventually give. product recommendations that are starting to bias their answer as a result. And if you do pay for a subscription, maybe there would be a way that you wouldn't have to have that kind of biased answer, in other words, to subsidize the models themselves. So, I think a lot of work will need to be done on like, these different business models and for people to be a little bit educated about. The potential for being impacted or

manipulated by business models that are not, they're antagonistic to their long-term interest.

Lukas Egger: Do you also think that, if, let's say, let's jump forward a couple of years, and we do have a technology that is aligned with human flourishing and long-term growth. Right now, there is like this notion that the consumer is always correct, right? And there could be this idea where maybe it could slip into some form of paternalism, right? Because sometimes I do want the dopamine hit even if I know I should work out or do something else that's better on a longer time horizon. How do you think we can resolve that conundrum, like AI that both optimizes for flourishing, but also respects autonomy in the interaction.

Joel Lehman: Yeah, it's a really complicated issue, but a really interesting one, how you have ideas of just freedom versus control. There's like some spectrum here and it's, you know, not exactly clear how you've thread that needle always in a, a really satisfying way. So, there's, public policies, places about, nudging where, I think it's something like if the default option for being an organ donor is like yes versus no, you could just see a lot of difference, in how many people become organ donors and being an organ donor is really societally important. And so, it seems like some countries are more, comfortable with others then saying, we're going to nudge people into this direction. It's kind of for society's good and it implicitly is kind of stepping on their freedom a bit and there'll be these kinds of tradeoffs in the space of AI for sure. And you, there are some principles you can kind of fall back on, but it may not always be clear like exactly how to implement them. So going back to what I talked about earlier with Machine Love and Erich Fromm is for principles of care, responsibility, respect, and knowledge. That'd be one framework in which you could try to make a principled implementation. And the idea is that, you know, respect is kind of the respect for someone who they want to be, what they wanna do, respect for them as a person, that they're an end's not a means is one way to try to get away from paternalism, but at the same time that you care about somebody that you, want to help them, that you wanna understand them at a deeper level. So, sometimes you wanna watch the cat video and sometimes that actually is exactly the right thing to do and sometimes it's exactly the wrong thing to do. And to tell the difference between those two things is really hard. And maybe something we wouldn't want to, at least in the short term, give over to an algorithm. But, you know, if you really understood someone, you might understand that what they need right now is a little bit of, of a prod to go outside and to do something else. Or maybe they really just need to relax and veg out. And I do think that. When we're dealing with, when I'm dealing with other people, you have some sense of that. You, hopefully you know something about what might help your friends, your loved ones in those kinds of situations. And I guess the question is whether we can have AI that has that level of nuance to, and whether we want that or whether it's too creepy. There's also this kind of creepy factor with AI that is. Implicitly having this kind of effect on us. But I think for better or for worse is it likely will have that effect and maybe it's just better to engineer it in. There will be emergent effects from us

interacting with Chat GPT for hours a day. and emotional effects and effects on our relationships and so on. So at least going in with open eyes and trying to approach a principled way would be at least one positive thing we could do.

Lukas Egger: How do you envision this could play out? Do you believe companies will be compelled, or companies using AI will be compelled to lay out their moral stance, or there will be some sort of scorecards for AIs? Do you see like a pattern that might be better than another? Or how can we... In essence, we're lacking the language, right? Technology has never really been about virtue, about flourishing, about growth. And in a way, we have been dancing around machine love as one phrase, right? Because it's, it's hard to talk about these things. So, where do you see would be maybe a good, starting point of getting to a level where we can have meaningful conversations about how companies should respectfully start with that process? What kind of morals or qualities should be cultivated by organizations? Are we going back to Fromm's framework; or is it that every company now -- in addition to strategy -- will need to have not a strategy, but a machine love scorecard?

Joel Lehman: Yeah. I think for many companies it may be that the products they're designing might not have this level of ethical conflict. And for other companies, when you're dealing with things that are quite relational or that people are spending many hours a day with, then maybe the responsibility could grow. I think there will be a lot of different ways that people will try to talk about this, try to make progress on it. People will think about regulations; they'll think about industry groups and standards. They'll think about independent scorecards, and there'll be public education. And I think probably the earlier we can start to at least bring these into discussion the better. Because at least the way that I see the kind of the social media thing unfolding was that there were a lot of negative externalities. Maybe we could have dealt with if we had been more sober in the early days. It's always hard to do that; we never know exactly what a technology is going to create. But as we create technologies that are more and more intimate with us, and then we're spending more and more time with them, and they will shape us in certain ways just as we shape them. I think, yeah, just the more we can understand the effects that are possible for them to have on us better.

Lukas Egger: You brought up the analogy of, let's say, sugar. Right. And foods that are too sugary for ourselves. So, I know how I feel when I have a sugar rush, It's exhilarating. I kind of like it, but also like, it's very distinct. I know how it feels like. What will be the things to look out for? Essentially, we're proclaiming that this technology will have, maybe regardless of whether they're wanted or not, but very solid effects on our psyche and our emotions. What will be the, an idea or like a way for ourselves to realize that this is happening?

Joel Lehman: So, I think that self-awareness will be increasingly important. I think this is an argument that Yuval Harra has made as well, which is that manipulation

and or subtle effects that an AI is happening having on us, even if it's not trying to manipulate us directly. To understand the effect of that. We have to be aware of ourselves and what is, like you said, you have this self-awareness around what a sugar rush feels like and maybe the crash afterwards and how you really don't like that. And if we're interacting with, let's say a chat assistant and we're talking about an idea we have, and it's saying that this is a great idea. It's the best idea I've ever heard. There might be some part of you that's like, okay, well I think this is a good idea. But if it's really going over the top and saying, this is the best idea it's ever heard, is it just saying this because that's what I want to hear? Because that's what has gone to its training process. We are seeing like, you know, isolated incidents of, of people becoming a little bit divorced from reality when an AI is just continually yes, ending some of their strangest ideas. It's good that AI could be supportive, but it might be bad if it's always being, I guess, what people might say, like, psychotic or being just a yes person, like always saying yes. Sometimes what we need is something that's gonna hold us back; and it requires self-awareness there in particular, because it's really nice for something to say nice things about us. Like it's great. I love it when people compliment me, but if this AI system is just saying that for the sake of saying it and it's not true, then there'll be consequences later on for me. So, there might be some learning we can kind of do whereas we are interacting with this, these systems more and more, we'll get more of this hopefully, you know, self-knowledge. But I think you have all, talked about, benefits of meditation or psychotherapy or some kind of practice where you're actually trying to dive into the deeper layers, of your own psyche. And potentially that could be more important for us, though not everyone has the time or the interest to do that.

Lukas Egger: I guess one of my assumptions. Is that a lot of this will play out via the vector of trust. Cause as we want to integrate AI into our daily workflows and get to a point where we can maybe orchestrate or offload a lot of our tasks to algorithmic judgment or agents or whatnot, right? Trust will be the essential part whether I'm trusting my AI and handing over work or not. So, it's super important that technology builds trust and building trust can work through sick offense, right? but also through other measures. Do you have any intuitions about what. flourishing version of trust would look like or where this should go?

Joel Lehman: Trust has a lot of different components to it, and one is just this felt sense, like this internal sense that I, think I understand this other entity that I'm interacting with, and I feel safe, I guess offloading work or trusting the responses that it gives me as, being true. And as people using a system, there's like a learning process that goes on, and that might require some work for you to do, to understand what are the edges of this. Because I think our systems of trust are, we're acclimated to trust other humans in certain ways. And when we project that onto machines, which are quite different, we can be a little bit misled. But if you are actively aware of the edges of the AI. One of the edges is that the kinds of mistakes that an AI makes are often like quite different from the kind of mistakes we make, and it feels like a little bit alien or a little bit bizarre when you really get into it. Some

responses are perfect, and then one response makes this kind of glaring strange error that it's almost hard to wrap your head around. So, I think like a blind trust that we might naturally give to someone who could, produce a couple of sterling responses to us. We ask somebody a couple questions; they give us great answers. We might start to trust them, in a way, if we just take that sense and apply it to machines, we'll probably be misled. So, from user's point of view, it's like how do you become educated about just the weird differences between these machines and the systems of trust that we have around people. And then from a company's point of view is, creating these systems is something about, you know, how do you either patch those kinds of strange mistakes so the user never encounters them. It might be how do you somehow help them to verify some of the answers that are coming outta the machine so that they can have the machine earn their trust in certain ways. I do think it's like a design space I think that we don't quite know how to perfectly navigate yet because many people will just, take the AI systems, just run with them and it'll produce good stuff and bad stuff, and they'll just take the good with the bad kind of naively, which is probably something we don't want. Some people will say like, I don't wanna even touch AI at all because it has this kind of property, and maybe there's some middle ground that we're still learning how to live within.

Lukas Egger: There's another risk we haven't talked about, right? Because the story of the internet has largely been about ag aggregation, right? There's a couple of services that almost everybody uses. Do you think that if we have deeper connection with our technology, that we will also converge on the same kind of thinking? Will there be like a monoculture of thought, in a sense or, what's your prediction on, where this or how this might play out?

Joel Lehman: Yeah, I think it's a really interesting question because I think it can and will probably go both ways, which is both ways in terms of convergence and divergence; and that if we're not careful, maybe we don't get useful flavors of either of those. There's a popular science book that I wrote with my PhD advisor called, "Why Greatness Cannot Be Planned", and it talks about kind of the nature of innovation, and the importance of cultivating diversity of thought as a resource; that in order to produce something new, you often have to think differently. You often have to create new stepping stones, new, interesting jumping off points that could lead even further into the space of unknown possibilities. It's kind of intuitive that intellectual diversity might be a useful resource for thinking differently, for building new things that other people haven't thought of. It's certainly true that if all of us are talking to the same models, all the time, seemingly it'll give us similar answers and that will have some kind of effect on how we see the world. It could lead us to some kind of, bland, gray, monoculture of thought that's possible. And there's also the flip side, the thing we've been talking about psychophancy, about models that just kind of, 'Yes, and' whatever you're saying, or that are very, very personalized. There could be a force towards just divergence, that's just gonna give you this engine of confirmation bias, that whatever you already believe is gonna just reinforce it and you'll have lots of divergence. But it may not be the kind of divergence that's

actually productive. It may just be giving you just reaffirmation of your own particular strange beliefs and leading you in some kind of path towards just being divorced from reality. It's kinda extreme -- probably it won't for everyone to be one of these two extremes that drives us to, you know, extreme monoculture or, to some kind of crazy belief system. But it's gonna be a bit empirical, like how this actually works. And maybe different people will be drawn to different parts of the spectrum, but it's certainly something we should worry about. And it may be that there will be either new AI models or new third-party services, that as this becomes more of a problem, say within a company, you might actually want to make sure that you're maintaining your ability for creative thought. That maybe you would want some kind of wrapper on top of Chat GPT, that's actually giving different responses to different people in order to maintain some kind of greater creative spring. So, I think it'll be interesting to see how that goes. Yeah.

Lukas Egger: Yes, and I think it's wonderful that you are opening up this conversation. Cause essentially to paraphrase your work: we are at the advent of a time where technology is not only about progress, it's also about now the connections between the technology and ourselves on a deeply emotional and personal level. And we don't yet have neither the defenses nor maybe the intuitions of how this should play out, and more importantly, it will happen maybe. Through very simple, or let's say without any bad thoughts, right? Just creating more trust with the consumer. We are here at the precipice of an uncharted territory that's at the intersection of technology and emotions. So, it's incredibly helpful to have someone lay out like all these ideas. But now very practically speaking. This is all a little bit out. If you could magically change something today, let's say a process in or a business, what would you change in order to make machine love and human flourishing maybe a more probable future for all of us?

Joel Lehman: So, I've given this question some. Thought before, and this might be naive, but the place that I've landed is that if I could change anything, it would be to somehow enable there to be more complete competition in the business landscape. What I mean is that right now there are certain obstacles to competition. So, for example, like network effects which are actually beneficial to businesses, but sometimes if they lock a person into a particular product or lock society into a particular thing. I'm thinking of social media networks here, most, most largest in my mind that because it's hard to compete with a network effect. It's hard for there to be competition among different feed algorithms that could be like machine love, feed algorithms, or other kinds of feed algorithms. Then we are stuck in a kind of local Optima, which again, could benefit the companies, but maybe it doesn't benefit society. So, the principle of an economy generally is that the more competition there is on every level, then the better the outcomes for the consumer will be. Now this probably isn't strictly true and there's probably all sorts of things I'm not really thinking of, but. I would say that if we could have more competition and like more interoperability among products and algorithms so that it'd be easy for people to migrate from one service to another, for them to be a diversity of

options that some of which will be good for us, some of us, which, maybe we will have to learn are not good for us. Then I guess that would be my, overall pitch for something that would help to make a positive vision more likely.

Lukas Egger: Well, we are excited about a positive vision with human flourishing in mind. Thank you so much soul for that. And with that, thanks for listening to another episode of Process Transformers. This podcast is brought to you by the dedicated efforts and the hard work of our entire team. So, our heartfelt thank you to Beyza Kartal, Jahanzeb Khan, Reagan Nyandoro, Erica Davis, Cecilia Sarquis, Fawzi Murad, and Julian Thevenod. If you have questions or comments, email us at processtransformers@sap.com, and until next time, for another transformative conversation.

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