The Operations 4.0 podcast: More technology, more human

Operations 4.0 builds on technology to deliver major productivity and performance improvement. But human beings are at least as important for sustained Ops 4.0 success.

Yogesh Malik and Rafael Westinner

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As the growth in computing power drives ever-faster change and innovation, there is no standing still. This is the truth of Ops 4.0.

Whether your organization chooses to lead the charge, or adopt innovation more cautiously, that choice has to be made with confidence. Either way, the goal is the same: to maximize the potential of digital and analytics to deliver new value and competitive advantage.

That means reinventing the way you work. Turning strategic understanding into practical execution. Whether you are focussing on one part of the Operations value chain or across all of it, the principles are the same. New advances must be scaled; and new capabilities must be embedded. No more isolated pilots. It only works when you transform the entire value chain.

None of that is easy. It demands detailed knowledge of operations—at both micro and macro levels. And an expert understanding of the latest innovations.

This transcript has been lightly edited.

Moderator: In our first Ops 4.0 podcast, we welcome McKinsey partners Yogesh Malik (from the Washington DC office) and Rafael Westinner (from the Madrid office). Yogesh and Rafa are co-leading the global Ops 4.0 initiative. Today we are talking about two related topics—the importance of holistic, end-to-end approach in implementing 4.0 technologies and the people side. Welcome Yogesh and Rafa.

Yogesh Malik: Super. Thanks for having me. It's a pleasure being here.

Rafael Westinner: Yes, thanks for having me, too.

Moderator: So how is Ops 4.0 different than Industry 4.0? We've heard a lot about digital analytics disrupting core manufacturing functions within a plant, but how does Ops 4.0 go beyond that to address the entire Ops value chain, including procurement, product development, supply chain, back-office support, field ops, and customer service?

Yogesh Malik: That's a great question, and we get this all the time. Ops 4.0, Manufacturing 4.0, Industry 4.0, next-gen manufacturing, Internet of Things (IoT)—a lot of different names—but one of the simplest ways to kind of think about this is: 1.0 was steam; 2.0 was the assembly line and mass-production techniques; 3.0 was when we started using a lot of robots in the assembly lines in manufacturing; and 4.0 is basically a cyberphysical world. That's where both physical technologies and then cybertechnologies, like digital and analytics, combine to give us the power to create another 20 percent jump in productivity. That's the big thing.

Now, this 20 percent productivity jump comes about not just because someone is doing this only within the four walls of a plant. When you look into a plant, you also look into how your materials are flowing into a plant, and sometimes how you are planning those materials also. So what we see in the best-in-class companies, they are looking at the value chain, and they are trying to solve the business challenges and business opportunities across the plant [and beyond, including] supply chain, sourcing.

And as an example, an equipment manufacturer identified $300 million worth of productivity improvement by using better data flows between design and manufacturing. They would not have gotten that opportunity if they focused only within four walls of manufacturing. But Rafa, you might have a couple of other exciting examples to share.

Rafael Westinner: Thanks, Yogesh. Actually, I think you are hitting the nail right on the head. I think what we see with Ops 4.0 is that it brings out the value when it breaks down the functional silos. It is about end-to-end integration, and the real productivity step-up actually comes when this is enabled. And just to give you an example that we've been working on, where the company really drove the impact by looking at the breakup of functional silos and enabling a collaboration across the value chain from manufacturing, supply chain, customer and service functions—I think this best illustrates it.

I'm talking here about a petrochemical company, and the angle that they were coming from was low satisfaction among their B2B customers. They also had the issues we always hear about with siloed organizations, where super-complex processes translated into being cash-constrained.

What we ended up doing together centered on creating a cross-functional team that was located in an agile studio. Starting from the point of view of the customer, they redesigned whole ordering system, automating it and simplifying it, and then they combined it with predictive algorithms that helped optimize the whole production-planning and scheduling process. They saw a 24-point lift in their key performance indicator (KPI), customer satisfaction. They also saw an improved margin of 2 to 3 percent.

This was all coming from the point of view of the customer, integrating and breaking down silos to enable the power of digital and analytics across the entire value chain, and then delivering impact not only in terms of customer satisfaction, but also bottom-line margin improvement.

Yogesh Malik: That's a great example, Rafa. You know, starting with the business challenge of low customer satisfaction, putting the cross-functional team together, empowering that team with a lot of 4.0 technologies—analytics, digital—and then coming out with a very new business model or business process, which not only achieved the customer-satisfaction boost but also the productivity improvement. That's a fantastic example.

Moderator: You both mentioned cross-functional teams. Would love to hear a little bit more about capability building and the people side of Ops 4.0. Yogesh and Rafa, how has capability building played a part in the Ops 4.0 success of your clients?

Rafael Westinner: Well for me, the people aspect is actually huge. We were just discussing in the previous question the temptation to be more technology-driven and systems-driven, matching technology to a problem rather than the other way around. Just as important as focusing on impact and value, I think, is focusing on people.

This touches how people work, their day-to-day work. Unless they are not only transformed [in how they work], but also motivated and engaged, [Operations 4.0] is never going to happen. [It's so important] to be able to reach scalability [...] and this is where people and the people aspect are just simply too large. It's not only about technology, it's about also making sure that people reinvent themselves, and for this, you need a lot of capability building; you need a lot of commitment from leadership [showing] that this is important. The willingness must be there [to demonstrate] that the company will work in a different way, in a much more agile way.

To your question, capability building just plays a massive role. It's huge. And it's something that has to be an integral part, or else you're never going to go from a few success cases to a really big transformation.

Yogesh Malik: Rafa, I think that's an important point. Let me share a couple of examples to frame two different paths of capability building. One path is around when you are really remodeling and defining a new business model or operations. The capabilities that you need and the people that you need are different, right? There's a wholesale shift. Second example [happens] where you are upgrading your current people and upgrading your current system. They are two very different challenges on capability.

To the first one, an example is a manufacturer that was designing a new plant. It's a greenfield operation; they have the flexibility to make it as automated and as end-to-end integrated as they want. Now, when they're designing the new greenfield operations and new greenfield lines in the plants, they're thinking of capability in a very different way, because they don't have 500 people currently deployed that they need to upgrade. They're thinking, "What different types of people do I need? What different organizational structure can I have?" Because one of the implications, as Rafa said before, when people integrate across the value chain, [they will need] new organizational structures. So [this company adopted] a capability perspective in a very greenfield way and were able to hire people, more data scientists, more analytics, more digitally enabled people, which then helped them get started in a very seamless way.

On the other side, an industrial company with huge plants, huge operations, is trying to upgrade. They are trying to deploy [Operations 4.0] where their workforce has been trained on the legacy Lean manufacturing tools. There's nothing wrong with those legacy Lean tools, and those should continue to be used, and in that case, the capability became very targeted. It was around: Okay, in the assembly line, in the quality area, we are going to deploy a lot of sensors, a lot of cameras, a lot of data analytics, and all those things. [Now] we have two choices. Either we can take the ten people [we have] right now and try to make them really great in analytics or digital, which is a big bar, versus the second choice, let's inject a new person in that group who is very expert in these capabilities.

They ended up doing a little bit of both. But just doing one or the other would not have helped. You can inject a super expert among the ten people, but if those ten people don't understand, you won't get the impact. You can try to take those ten people to become expert in digital and analytics; the probability of that working is also low. So the capability again in this particular case was bringing different talent, but also enabling your current talent to understand what data and analytics can do in their quality area, and then hence the existing talent by that understanding with the help of an expert were able to rewrite the processes in their assembly quality area.

The point I'm trying to make is: [capability building] has to be very practical and individual-based. [But] capability building is not equal to training. Training is an open-ended thing, right? Especially in digital and analytics in [Operations] 4.0. Training is just: let's bring them in the classroom, let's share with them the stuff, or stand on the shop floor and share with them how to do it. Capability building is [more]: once you do the education part, then [the working team] has to do the application part, and behind that should be a certification part.

Historically, there have been a lot of Lean certifications, kaizen certifications, Six Sigma certifications, and some of the companies nowadays are developing equivalents for their internal workforce. What will the equivalent be for being good in Operations 4.0? That's the closed-end loop. And this is a part which will make or break, because people can have great business cases, they can then

deploy a lot of investment in technology behind it, but if the relevant capability is not there, the full impact will not come.

So to the point which Rafa you were making, this is a super, super critical part, of thinking about capability building beforehand in the business-case step also, not as an afterthought after doing all the technology stuff.

Rafael Westinner: Exactly. For me, it has to be embedded from the beginning... It's not about a few trainings, it's actually about taking people through the journey. And for me, I see exactly the same situation in a lot of companies, [which need] to have the usual people who have done a phenomenal job up to now also taking up the new technologies, including new profiles and new capabilities that. [They need] to work together and also define how to work differently. And this is why it's so important to have thought it through up front, and making it an integral part of the Ops 4.0 transformation, because in the end it redefines ... the day-to-day work of most people.

Yogesh Malik: Very well said, Rafa. That makes a lot of sense.

Moderator: Thank you all so much for joining this segment of the Ops 4.0 podcast series. If you have ideas for future Ops 4.0 podcasts or questions that you'd like Yogesh and Rafa to tackle, please shoot them over to Christine Decker Miller. ■

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