Enabling an Operational Excellence Strategy with RTS's Doug Holtke

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Richard: I'm Richard Howells and this is The Future of Supply Chain, a podcast where we discuss hot topics, best practices, and the latest innovations in today's global business. In today's episode, I'm joined by RTSs, Doug Holtke to discuss how to create and execute an operational manufacturing excellence strategy. Hi Doug. Welcome to the podcast.

Doug: Thank you very much, Richard. Glad to be here.

Richard: Looking forward to it. Let's kick it off with a quick [00:01:00] introduction from yourself about yourself and your company.

Doug: Sure. Absolutely. I'm director of digital manufacturing for RTS Automation. I've been in this digital driven manufacturing business for nearly 25 years. I started out as an engineer. We're making jet engines and kind of move towards what I thought was the future back in the 1990s as things were becoming more digitized and more automated that I really wanted to be a part of that.

I maneuvered my career working in automation and then moving more towards what I really considered digital supply chain MES systems, and really driving that shop floor and top four glue. So RTS we specialize in MES solutions, operational excellence, asset management, automation and utilities.

We've been in business for 35 years with over 500 clients and over 3000 projects worldwide. We really have a, a unique position of, because of our automation that we really able to drive shop floor and MES connectivity together. And now we [00:02:00] also have our operational excellence. So we really provide that global view of what your vision can be as far as manufacturing and an MES combined.

Richard: So let's start with operational excellence. What does operational excellence mean and what does it look like on a manufacturer's shop floor?

Doug: So really operational excellence, it's not a project it's a continuous methodology that you're adopting for, as an organization, as it applies to the shop floor. You look at things like continuous improvement, your kaizen, right? Those incremental changes lean manufacturing, right? We're wanting to be able to really reduce waste, reduce the defects, try to be as efficient as possible on, on the shop floor, standardizing those work so that we're having standardized, production methods, production methodologies, tooling and processes to really try to reduce unique silos in our shop floor.

We also do, things like visual management. So we're looking at [00:03:00] KPIs, total productive maintenance real time integration with our shop floor systems. So all these systems really comes down to people, processes, and the technology that enables those systems to, for those first two portions. Of the people and processes, because that's where you're really gonna get your gains. Technology is simply a tool to obtain, those improved processes and really to empower the people on the shop floor.

Richard: Let's talk a little bit about MES systems, manufacturing execution systems. How do they improve efficiency, product quality, and decision making on the shop floor?

Doug: The MES is really the glue between, your ERP system and your shop floor operations. And it's really where businesses are and manufacturers are unique. A lot of people have, standardized ERP systems even across, companies that may have very disparate products and processes. They're all creating bombs or, they're all, [00:04:00] doing things like, billing and order taking and, they're creating sales orders into production orders and those sort of things. And on the base level you really look at automation. So we have PLCs or maybe manual processes that are, driving the actual process automation. Everyone does something slightly different is really in that MES space. So whether I'm producing plastics or I'm producing electronics, that's where the processes really are different. And so what an MES really does to improve those areas of efficiency is. Making your, so your order execution. So we generate an order, whereas in the past we would have to go to a scheduler. They have to create a bill of material, that bill materials on the shop floor with paper, right. Now we're digitizing that. Now we have that efficiency is the fact that flows through and we have automated checks.

Do we have stock? Do we have the manpower to do this? Are the machines scheduled for downtime? MES allows us to have [00:05:00] efficiency of operations from a global scale, but also when we look at like shop floor automation. Now I'm getting real values from the machines that are actually doing the work or the people that are actually doing the work.

So instead of saying, if I have a downtime, and then you know, you have to notify somebody, call 'em up on the phone or write an email or a teams message. That trigger is automatically generated through MES. That can be an actionable item that maintenance can go into, or we can look at if it's a supplier defect or whichever. So that's where we really get that efficiency. We can automate workflows to trigger things that can occur condition based on the shop floor through, and then have. We wanna keep that human element in there too. So we notify operators so that they can make that decision quickly instead of again, having to wait for a paper process or another person to look at it and interpret it and then make those actions. And that leads into [00:06:00] quality, right?

So quality. One of the great things about MES is the fact that we can enforce process checks, right? So if we are moving, say a battery pack from one segment to the next, have all the tests been done on that battery and have we collected that data? So now we have of course, traceability. With that, but you're also looking to say, Hey, we're enforcing that check.

We validated that was occurring. It's signed off. It has an individual user that we can trace back to say that this person, performed this check. So that's for definitely for compliance. There's another part, this is that we can enforce component material restrictions. Does this component material belong to this work order, right? So I have this SKU, so if I'm in a food processing plant and I'm really worried about allergens, if my person delivers the wrong material and I scan. automatically says that ingredient does [00:07:00] not belong with this product, so that's gonna be a safety issue. That's definitely going to help with your quality and enforce that. So you're creating systems, again, to empower those people, and improve that, process. And the last part is that decision making. So the first few things I talk about really lead into that decision making.

Where we go in and we say, Hey, you know what we're having real time feedback so we can make decisions based on that real data. So if we are getting something, if we have a quality issue we can make that decision based upon feedback and data collection That's coming from the MES, from automation or from people directly. So both those kind of all lead into that, decision making, which ultimately is going to be decision making from a micro level. What am I

doing with this particular batch or work order to a macro level of how am I improving my processes based upon [00:08:00] the information that I'm getting.

Richard: That improved visibility, wherever you are in the supply chain is important. But on the manufacturing floor, when you're talking about real time visibility. It's critical. When you've got all of that in place, how does that transform a modern manufacturing operation?

Doug: Oh, definitely. In my experience, I've gone in many plants where, they have these Kanban boards that are up on the shop floor. And as things occur, people are writing things up there, or it's word of mouth pieces of paper tribal knowledge. These are all delayed. These often are not truly data-driven e events and actions. So what we really do is, what that real time does is that allows for instantaneous response based upon a condition on the plant. I like to use the, an example of a downtime, right? So instantaneously I have a downtime. I can go in and look, what was the cost because the machine should be able to give me some sort [00:09:00] of causation for that downtime. And now suddenly I can go and act upon that immediately. But in addition, I can start looking instead of having to wait for the end of the shift and everyone's doing their confirmations and we're looking at all the scrap and whichever and someone's entering it into their ERP system, we're now doing that immediately. So now one of the great things is that in long runs, now I'm seeing my material consumption and my confirmations in near real time in my ERP. So that really helps your lean. So now I can start looking at how am I going to overconsume a component and it may be not available for another product that I'm making, so that may affect my scheduling.

These are true decisions that can come from real time information instead of the day after or the shift after where we were in the past. And that leads into that exception handling too. So if we have to do a material restriction, we found [00:10:00] that there's a defect, right? And we know that there's items in the warehouse that may also have the same issue. We can immediately flag because we have that traceability, real-time traceability to be able to say this work order, these SKUs are affected in the warehouse and you need to do restrictive stock. And that way QC can take a look at what the issue is and make that determination.

Richard: You mentioned traceability. We've talked about agility. We've talked about enabling the workers and the workforce with real-time information, real-time insights. Would you say these are now considered the baseline requirements in manufacturing and what happens if you don't have some of those things?

Doug: Oh, absolutely. Traceability if many many regulated industries absolutely require it by, either pharma or food, or you may have, emissions and so forth that you're having to worry about. So beyond that though the number [00:11:00] one thing is, how are you going to be able to truly assure that what is in your product is what you promised to be in your product?

And also, not only from a quality standpoint, but also from a regulatory standpoint as well, so that if you're going through there and if forbid you have a recall, you can contain that recall in a very short amount in a very defined method. For example, if you accidentally, I go back to using food, if I accidentally put an allergen , we detect that there's an allergen in that lot and we know where that came from.

We can instantly, restrict that. The other thing it really does and this is a little bit more of a next generation, is I start looking at my suppliers that traceability can go back to, say, if I'm running say a bottling line, as are the caps that are coming from supplier A, giving me more trouble in my capper then supplier B, [00:12:00] and then we start making monetary decisions. Say this one is so much sense cheaper than this, although it is creating a bit more of a downtime. But is that actually causing me, is that costing me more money due to the supplier change? And before you had MES, that was a really difficult decision to make because you didn't really have the data. You could say, okay, I'm down because of this, and I knew I was down for this many hours. But these are 20% cheaper. So we start making those data-driven decisions that are maybe not necessarily obvious. These are baseline things that companies really have to start, really have to do. And if you're not doing that, you definitely put yourself at risk of being in a lag instead of anticipating and a lead and being proactive. You're always in a reactive if you're not doing this traceability and you're not enabling your workforce to make these decisions based upon real data.[00:13:00]

Richard: You, you triggered something in my mind around the use of AI in manufacturing as well. I use that example where you can identify the bottle tops and make that trade off, make that decision. There's so much data in a manufacturing system and that transactional data second by second, how are you seeing companies leverage AI to leverage that data?

Doug: The first examples and have been around for years, right? Are machine learning. When we're looking at condition based, mostly around total productive maintenance to being able to predict when is a machine going to fail based upon vibration and, heat and current on a motor bearing and such. That was really the first generation of this. Now it's a matter of just like you said, you're gathering

so much information. It is difficult for people to make those non-obvious relationships in a process to [00:14:00] say I have supplier X and I'm using this ingredient, and now how can I predict how this is going to affect my process later on? And I see it in two ways. One is in, from a process engineer standpoint where they're able to look at large volumes of data, create data models, and say, okay, now I'm looking at how is it affecting my quality? How is it affecting field recalls?

Or how is it, affecting possibly design changes, how can I optimize my process? Maybe we are able to change some parameters in our process create the same quality in our product but yet speed up the production, right? Or maybe take a step out of a production. That's where AI really can start giving you those insights , on those non-obvious. So that's more for, like I said, the process engineers. When I also look at it from a logistics standpoint, right? You look at advanced scheduling and how that can tie into maybe particularly [00:15:00] processed parameters that you may not think about.

So let's take a look at some, baking and other baking is probably the number one I could think of, but I used to work in magnet wire and this was, temperature was a huge factor for us. So if we were gonna have a hot, humid day. We knew our plant was gonna run well, but I know if I'm a baker, that humidity in the air can really mess with my baking process.

So do I engineer my component mixes for the future based upon environmental factors? That's something that AI can really help us with because it has a vast quantity of data to draw from, not a finite area. And so it's really good at licking things up and drawing those relationships. So that's where I see the future. And we're finding new applications for AI in manufacturing every day. And if you talk to me in six months, I'm sure I'll have a whole slew of new applications that I've found out for.

Richard: That's right. We're limited by our imagination

Doug: exactly.

Richard: I wanna go back to operational [00:16:00] excellence. What are the most common obstacles companies face when they start pursuing operational excellence, and what advice would you give them on overcoming these obstacles?

Doug: Of companies that are starting this journey. I think the first one they look at is siloing, right? Because everyone has blinders typically on their area of

focus and they're well intentioned, right? Operations guys they wanna get stuff on the dock, they wanna ship things out. IT, they wanna make sure that their systems are running smoothly, and so forth.

Quality makes, wants to make sure that everything you know is at the utmost quality. So often you have competing objectives. And so I think alignment of that overall, where do we want to focus our area? And really broaden the scope of what you're looking at and look at the person sitting next to you and how do we obtain those objectives? So that's why you're constantly having to [00:17:00] look and look at those challenges of, say, standardizing work, right? Standardizing work sounds very simple, but really comes to it. I have two different plants that make two different products. How am I going to possibly standardize this? There's baseline things that we can do and find those commonalities, and that's a challenge sometimes getting the people in the room to be able to make those challenges, that culture shift.

Another part is just simply understanding you may have to adjust your processes to obtain a goal. And I think that's difficult for some people to do, especially when they're adopting technology they want to sometimes form the technology to their process without really looking at is that process, is that best practice in your industry? Are we doing things as we should? And so we do get stuck in that. And I would also say another one is workforce engagement. There is, a perception. We want to hire good people. We wanna hire skilled workers, and they're valuable [00:18:00] assets to, our organization. And trusting, empowering and listening to the people that are actually on the shop floor. And getting that feedback, I think is immeasurable. In the early parts of these, of this journey of operational excellence is listening more than

Richard: I worked a lot on implementations in manufacturing sites in my early days and getting that buy-in from the shop floor people was a key to success or failure.

Doug: Oh yeah.

Richard: if they're not bought into it's not gonna work.

Doug: Outside of this, but it's also somewhat included. But when we talk about that organizational change management, a lot of people just simply consider it to be training. Okay here's a new system and here's the work instructions that you have to, do this or do that.

I think that's far too late. It really needs to be part of that initial process of how are we going to get people on the shop floor to adopt these new practices and understand and be sympathetic to their knowledge. Because a lot of times you're gonna have, operators have been [00:19:00] doing this for years,

Richard: they're included in the process, they feel a sense of ownership.

Doug: It's that buy-in. Because if you don't have buy-in to these, then it's very difficult. It's very difficult to truly make a, change.

Richard: Yeah. We have. Lots of tools around for operational excellence around LeanIX Sigma, the kaizen that you mentioned earlier. And we have lots of metrics that we always track in a manufacturing plant. So how can metrics like OEE and WIP and scrap rates and cycle times be turned into actionable data for these tools rather than just used in static reports?

Doug: That's a very excellent question. And I sometimes get in trouble, with software vendors sometimes. 'cause I say, the software itself is not going to you fix your problems. It's the methodologies and what you do with that information that is truly going to change, make the difference.

So when I look at OEE right, we'll just, we'll start out with that because, initially, people just look at downtime and then you [00:20:00] know, Hey, here's what, here's my reasons, but are you really capturing it from the whole perspective? Are you really looking at your change over time? Are you staging your changeovers in the best way?

You may have a product change. That may have, you go from this to this and it's a much shorter period of time. Are you looking at that from a data-driven standpoint to lower that OEE? And a good example right, is, was my discussion about downtime based upon a supplier, right? Are you making a value driven decision, not necessarily because of the process engineer. Trust me, I started out as one. I'm gonna look at how am I gonna make that machine run as efficiently as possible. And if I have an accountant come down and says, hey, you know what, actually we can live with a little bit of this because we actually are doing okay, because you know that supplier is cheaper. Then I also go back and that's part of the operational ex excess is, okay, where can we work with that supplier also to say, we need to improve this, [00:21:00] but those, that's the kind of information you can really glean from an OEE, right? Is to make those global decisions not just tactical decisions of saying, here's an OEE number, we were down yesterday, what did we do? And just chasing yourself that day. When, the other thing that we can do right, is with this real-time data is when we're looking

at equality, how does that knowledge, doing quality checks is great, we have to do it to ensure our product is correct, but are we also making sure that our operators are looking at their work instructions?

There's features and we'll talk about SAP DM is one of 'em that, I'm most familiar with. It will tell you if that operator opened that work instruction and that's traceability right there. So that's taking that tool, empowering the people with that tool it's not just there.

Now I'm able to make actionable items to say, Hey, you know what, when [00:22:00] we have our operators open and look at those work instructions, now I can go back and I can say, how did that affect. Our nonconformance, how did I affect our scrap overall and so we can start making those true relationships based on that data.

Richard: You mentioned SAP Digital Manufacturing, so maybe we can delve into that a little bit. How does SAP Digital Manufacturing empower people on the shop floor rather than focusing solely on automation?

Doug: The thing I really like about, and I've worked with m several MES systems, the one that I really like about digital manufacturing cloud-based, right? So when we talk about that standardization it's gonna be inherent in the product so that you're gonna have a similar look and feel no matter, what plant you go in, go into, with and I can create standard top level. Templatized, solutions. But yet I still allow [00:23:00] for local configuration and extensions to meet, a plant's needs. So one of the great things that I like is that, they have their production operator dashboard, right? It's the operator's view to the process, and it gives, that's what they're gonna work against. And so we're able to configure that for their job tasks, for that operation. So we can do, your order execution so your confirmation and your goods receipt, your goods issues and your scrap. We have your work constructions. We have the nonconformance. All those are right there. And the great thing about it is the fact that I can apply that everywhere. And it's not an island at this plant and this plant or from this operator. This operator and it's, it gives you a great, platform to be able to do that. The other thing I really like about is that it's unique capability. If you are, especially if you're an SAP ERP user, [00:24:00] is that seamless integration. Quality, right? When we talk about quality and efficiency, when that order is released, it's available on the shop floor.

We have, throughout the resource orchestration, we could do tactical planning. So we know a machine's gonna be down. We can schedule that to another machine to be able to go through their seamlessly. So someone on the shop

floor, the supervisor in shop floor, can make that tactical decision to make it more efficient. Even just from pure shop floor standpoint is something I really like beyond the aspect of the IT people and the advantages that you get from IT from as far as maintainability, usability, upgrades, and all that.

Richard: The whole concept we started talking about was how to achieve operational excellence and a strategy for operational excellence. So when it comes to operational excellence, how can RTS help?

Doug: Sure. The number one thing is we have an operational excellence practice, which we come in and we do consulting for [00:25:00] various businesses, not just manufacturing, but mining and other industries, to create that philosophy and that practice of the aspects of applying operational excellence to your organization.

In the manufacturing world, we look at our experience with shop floor systems, all the way from automation, from our automation and background, PLC programming, panel building, and so forth. That connection to the manufacturing execution systems and applying the operational excellence strategies as a holistic solution.

We don't just come in and for people that say, Hey, we just need an MES. It's okay, what are the whys? What are the problems you're trying to solve? Because you're asking for a tool, but I don't know if you're wanting to build a house or a bicycles and the, trust me, the tools are gonna be different.

So that's where we really come in our experience within various industries and being able to apply that [00:26:00] knowledge from all the way down there, from connecting to LPLC, all the way up to your, how are you gonna approach total productive maintenance, right? So that's where we really thrive in that area.

Richard: So we're coming to the end of the podcast and I ask the and my guests the same question. Everyone that gets asked the same question, but I want this your answer from an operational excellence perspective in a sentence or two, what's the future of supply chain?

Doug: What I see in the future is hyperconnected resilient, sustainable ecosystems that are assisted by AI to really help humans who are the key to this whole system to make decisions based upon true data and actionable information, and that's what excites me the most about the future of this because we've been doing this for about 30 years, but I still believe that we are still in the infancy of what's the next [00:27:00] level of manufacturing information

systems. And I'm gonna go past execution systems, but truly manufacturing information systems as a whole ecosystem.

Richard: That's a great summary, Doug. Thanks for a great conversation. It's been really interesting.

Doug: Thank you very much, Richard.

Richard: And thank you all for listening. Please mark us as a favorite. You can get regular updates and information about future episodes, but until next time, from Doug and I, thanks for discussing the future of Supply Chain.