The HCLTech Trends and Insights podcast

Nick Ismail
Hello everyone and welcome to the HCLTech Trends and Insights podcast. Today. I'm joined by Debraj Bhattacharya, Senior Industry Specialist, Retail and CPG and Lalit Kumar Singh, Senior Solutions Director. Both from HCL tech and we're going to be discussing the recent findings of HCLTech blueprint to AI led operating model research in the context of the retail industry and with the emergence of retail 5.0 with a specific look at powering smarter supply chains and AI enabled materials tracking. Before we get to the questions, Debraj and Lalit, please introduce yourself and your role to our audience. Debraj, let's go with you first.

Debraj Bhattacharya
Sure. So hi, Nicholas, good to be part of this conversation. It's pretty interesting topic and we're going to spend the next 30 minutes discussing that. So I'm basically a senior industry specialist, focusing on Retail and CPG industry group here in HCLTech. So my focus is more on the domain side of things. I would say industry consulting side of things and this topic, like, as I said, I mean, it's pretty much, I would say, top of the mind for many of our clients, stakeholders. So really looking forward to it.

Nick Ismail
That's great. And Lalit.

Lalit Kumar Singh
Hi Nicholas. Hi Debraj, thank you. So I'm Senior Solution Director in HCLTech and I am working as a like SME for track and trace for any industry and retail is like one of the industry where means the I designed this secondary solutions means which is based on the IoT and AIOT. So yeah, so this is my role to implement and deploy the secondary solution for industries. Thank you.

Nick Ismail
That's great. Well, let's dive into the questions. So firstly, the research indicates that product-aligned companies are four times more likely to maximize ROI on AI investments, which will see those companies that adopt these models have a significant competitive advantage. Debraj, how does this alignment specifically enhance smart materials tracking capabilities in the retail 5.0 era?

Debraj Bhattacharya
Sure. I mean, that's a great question. So basically, if we look at there would be two broad, two broad ways of dealing things. One would be the product-led operating model, which we

which we would know of. The second would be a typical services based approach. Now, some of the benefits of a PLOM which very much aligns with something as important as smart material tracking, will probably be three or four things. One is that PLM pretty much focuses around a specific product or suite of products, as against the services model, which would be more of project based approach. So naturally, if you get to have a product within our within our organization and that to a complex product as the one which we are discussing, it actually makes sense to hard focus on the product led model rather than the services approach and that ties in pretty much with the way metrics are measured in a product led operating model. So typically, we would have what we will call OKRs, which would be so basically, they would be the objectives and key results, which we all know of. Now, measuring each of the modules within the entire material tracking system is important because there would be a lot of sub modules if you win within the smart material tracking system. And measuring the efficacy of each of those would be important, rather than waiting for the entire step to get over. I mean, classically, what we will do in a waterfall model, so that probably wouldn't make the cut for a complex solution as a as a smart material tracking and the third one, which probably is the most important, is the inherent agility of a product led model. What we would say is that feel fast being forward. I mean, you keep on iterating. If there is something which you would learn in the process bring it back onto the next step, rather than again, waiting for the entire thing to get over. And I think that ties in very well with a complex solution as smart material tracking. Because if we, if you look up, I mean, if you look at this, this entire material tracking thing, it would be touching across multiple modules within the organizational framework, starting from the sourcing stage right onto the inbound logistics to warehousing. Within warehousing, you would have inbound outbound and then the outbound logistics, the entire stretch and also the last night piece of it, if we were to have a. Uh, some, some process which, for which we have to wait for the entire thing to get over. I think that kind of is a, I mean, it's a bit of a dampener in terms of efficiency. So rather fail fast, move forward and keep on iterating. I think that's a much better approach here. And that's where I think these, I mean, these reasons, probably they are the ones, while I would think the product led model is much more apt for a solution that we are talking about,

Nick Ismail
And just before we move on, could you explain for our audience your understanding or the definition of retail 5.0?

Debraj Bhattacharya
Yeah, surely, I mean, that's, we'll talk a bit about retail 5.0 I mean, earlier, if you were to look at retail 4.0 broadly speaking, it would align to the manufacturing side of things, which would be industry 4.0 but there would be things like the production lines and let's say

things like digitization of the entire production process and so on. But the way retail is evolving, I mean, that's something that's something which is pretty fast paced, I would say all the modules which we would typically know of in retail, let's say from the front end modules, the point of sales, store operations, merchandising, all on the back end side, supply chain, sourcing and all of that earlier, they used to be in silos and each of this function would have had their own kind of nuances. And all what is happening of late is that all of that is having an overarching theme now, which is customer experience. Everything that you do, right from sourcing the product onto the final selling piece, including digital marketing, digital commerce, or the entire channel management, is everything aligns with one ubiquitous goal, which is how better we can add experience to the customer. So this transition from the earlier way of looking at things in retail to a more, I would say, focused approach, where probably front and center there is one entity, which is customer, that is something which we would call as a transition from retail 4.0 to retail 5.2 so that's how we would define, I mean, everything, pretty much would center around the customer experience as the main key. And that's where we have taken the leg up, I would say, from region four pointer to five pointer.

Nick Ismail
Thank you. And before we come back to you about AI driven smart tracking. Lalit, I'd like to ask you about emerging technologies like IOT, edge AI or blockchain. What's their potential impact on smart materials tracking in this retail 5.0 environment?

Lalit Kumar Singh
Well, see, this is like so in this new generation, a retail 5.0 so IoT plays a very important role in terms of like, because IoT adds, like, a sensor stacks to their material pallets container and allow a continuous, like, a tracking of these materials or these pallets with their conditions. Okay, like, what is the temperature? What are the different parameters associated with that, pallets and all now, when once you will have the visibility of all these things, so retailers means, means make sure that the shrinkage will be less, they have the right decision which they can take and if they can optimize their inventory and improve the customer satisfaction. Because at the end of anything, customer satisfaction is very important. Now coming to the next what you ask that edge AI, so as people don't want to wait for anything, every customer or every retailer want that okay? Data should be processed locally. So as AI, enable this by processing data right at the source where these sensors, these devices are generating data, they don't have to wait for their decision making, okay? For example, like, if there is any material which are very temperature sensitive, okay? And if that is in the risk because of if refrigerators are like failing, okay, so edge AI can trigger the alert and the right action can be taken immediately and without any waiting for the data, she will go to the cloud and process and then come back. So then

Edge AI is plays a very important role. Third point you just mentioned about the blockchain. So this, this create like or this put like a trust or the transparency layer on the top of that. So it create like a chain of custody, means with all the transaction and in this ecosystem, if the retailers are like. Uh, have a different uh means suppliers ecosystem or supply chain ecosystem. So trust and is very important means that whether is whether the data is being compromised or not. So blockchain help in ensuring that data is never compromised from end to end of the supply chain. So all together, if you see so IoT, AGI and blockchain give like a more responsive and smarter tracking in the retail supply chain.

Nick Ismail
And to go back to the supply chain, Debraj, how can AI driven smart tracking solutions contribute to greater sustainability across it for retailers?

Debraj Bhattacharya
A system is material tracking that touches upon quite a few modules within supply chain, starting from the sourcing node right onto the inbound logistics to the middle layer, which would be warehousing distribution within warehousing, inbound, outbound, both of those. And then you move on to the outbound logistics, which would have things like first mile, middle mile, past mile and so on. Now, inherently, this entire value chain is amenable to a lot of emissions, because if you look at, I mean, typically the transportation piece, the trucking and all of that, there would be a huge component of determining how much efficient each of those leg of operation seems, which is precisely what a smart material tracking would do. Now some of the benefits which would come by, one would typically be better waste reduction, if we talk of then there would be things like improved energy efficiency, because that's very important. How do we reduce carbon emissions in this process? If the tracking mechanism is pretty robust, then you can have the right levers to be put in for that specific module within the material tracking piece to probably do some things around carbon emissions and then you have this entire regulatory compliance piece. Is there a way we can also have greater regulatory compliance? All of these are enabled a lot more if you have the tracking piece intact, because till the point you know what's going wrong, you can't really do that. The other piece also comes for one specific area of retail, which would be more around perishables and you say the food and beverage segment and all the entire leg of green supply chain, which we call which is like how much efficiency you are sourcing in terms of the freshness of ingredients and so on, that becomes very critical, because the Farm to Fork lack of supply chain, as we call it, that is very much dependent on the freshness of ingredients. So over there, also, if you were to have very robust tracking mechanism, you can actually figure out which portion of that entire balance sheet you would need to lay more focus on. So I mean, that's kind of a way in which we can have a better control on some of these, you know, emissions and other things, energy utilization

and other things. So I think, yeah, I mean that that kind of, I would say material tracking is probably the starting point before you would think of any conservation principle, because you need to know what's going wrong in the system, or what's going right in the system to even take the next necessary actions.

Nick Ismail
And Lalit, the research found that 66% of large organizations cited difficulties in scaling innovation due to fragmented systems. So what challenges or integration challenges should retailers anticipate when deploying AI and IoT based smart materials tracking solutions and how does a product aligned operating model help overcome these challenges?

Lalit Kumar Singh
Well, yeah, so means when, like, if like, retailers want to deploy any AI or IoT based smart material tracking solution, they often face challenges like data silos, okay means and they would have also touched that point. So these like means retailers are working with the multiple ecosystem and all these departments and all these have means their own independent systems and their datas are like means are residing at a different location, and these all are silos, working in a silos. So that's number one big challenge. Now second is inconsistent protocol. Like there are like the IoT devices, they are different means, or different tags, or. Ah, things which are sending data or communicating in a different protocol or interface, which are not like compliant or interoperable. So, so that is why these, these are the like some challenges. And third is the security and the compliance based on the different geography, based on the different policies. So these are the three big challenges which nowadays, like AI or IoT based smart material tracking deployments are facing. But when it comes to the product aligned operating model, which you touched upon, so that gives like of that shifted the whole focus for these functional silos to the end to end, means ownership of the outcome based on the outcomes. Means what is the end goal, what we want to achieve? Okay? So in that way, means we do a cost cross functional collaboration between multiple data, between multiple systems and then we try to build the integrated platform so that the all the data can come on the single platform by integration, by making sure that there is some like seamless data flow to all the models, AI models, or the IoT solutions, which are being built to provide the one means, or US unified segments business outcome based means result in that way means we try to overcome all these like challenges and this help in accelerating the deployment. Means any AI or IoT based smart material tracking deployment and which also help in scaling means on the single platform.

Nick Ismail
Thank you and now a big topic in this whole process of proving value. Debraj, what foundational metrics should retailers establish early on to evaluate their smart materials tracking effectiveness?

Debraj Bhattacharya
I mean, that's a very pertinent question, because even before clients would think of implementing a solution as this, they would want to ensure that the ROI and everything is intact. Broadly, what we have found is that three to four areas, which are pretty much critical for any of the any any any client to or any organization to be mindful of when they were to implement something like that, one would be the reduction of effort to locate assets, because if you look at smart material tracking, one of the benefits is that you can locate assets within the entire value chain a lot easily. And assets can be your finished goods. It can be a raw material. It can be work in progress, or, as a matter of fact, any other thing as well. What we have found is that, typically, based on our implementation experience, about 80 to 85 watt, percent of production in effort, as high as that can be seen if you were to have a smart material tracking solution implemented. And I'm talking more from our HCL experience, the solution that we have been building in house, the second would be reduction in inventory holding cost. Again, inventory holding cost is a big challenge for many of the retailers of late with tariffs and all there was also, I mean, this was a bit more aggravated, because many retailers, they preponed their buying for the fear that tariffs would come later on, which led to bloated inventory. Now, if you had to have bloated inventory, eventually to markdowns and all which eventually, again, hits on your margin. So this inventory manageability, how much can we reduce the overall inventory holding cost? That would be the second parameter, roughly, from our experience, about 10 to 15 odd percent is what we have seen in the figure to implement a solution, AI based solution as the one which we have within our organization. The third would be improvement in inventory accuracy. I mean, when you are tracking inventory, how much accurate your inventory tracking is by minimizing discrepancies, say in unaccounted inventory volumes and so on, that would be the third one, roughly about 60 to 75 odd percent benefit we have found, if you get to implement the AI led solution in that area, then we can go on. The fourth, can we say improvement in cycle content? Because that's very important for you know, any, any of these warehouse or retailers, store operations that can be the fourth, 1/5 would be reduction in wastage. Again, that's a very important thing, because material utilization that should be paramount. And we can talk of models like FIFO, which is first expiry, first out, or FIFA, which is first in, first out. If we talk of perishables as an example, the food and beverage segment, or where the shelf life is a lot less, then first expiry, first out, might be relevant. And over there again, how much reduction we are bringing about in

terms of maybe a percentage. Which, from our experience of 50 to 60 odd percent benefit we have found in this in this area. And the last which I would want to touch upon is improvement in production capacity by ensuring timely availability of the right materials. Because that's very important, at the right time, at the right place, at the right mode, within the entire supply chain. I think that's where also a smart material tracking solution comes to help. And I think so these five or six parameters. I mean, I probably overshot the number which you talked initially, three or four, but these would be important for any organization to be mindful of the benchmarks. And they can set, actually a benchmark that anything less than this. Probably be one go ahead with this solution, but based on our experience, the numbers that I quoted, I mean, they paint quite a promising picture for solution as this.

Nick Ismail
And Lalit, given the scenario where these solutions are effective and visibility has increased, how would this influence operational and leadership, decision making and efficiency in the product aligned operating model within a retailer?

Lalit Kumar Singh
Yeah, so see it means in if you have a smart material tracking solution in place, so you will have the visibility of all your assets, what, where? What is the location of that asset? What, where, how it is moving, okay, what are the means? Is, what are the parameter associated with that asset? So you all this data and the parameters help to take, like, a faster or data driven decision, you can, like, reroute your means if, if required, means, if you want to make sure that material reach to the destination as fast as possible. And based on these, you can reroute the complete material shipment. And also, if there is any data which is compromised, like if, based on if anything expired or or because these all things, you can track it. So you can take the decision very fast with this, with these visibility and when it comes to, like, the product alignment, operating model. So all this visibility help you in taking a decision, like, if product team want to make the last mile delivery and based on the location information, you can easily means reroute the that material so that customer will have a better experience. It will reach to the destination fast. Similarly, means you know that which material is located where and what are the space utilize? How you do you want to utilize the space? Okay? So the means the the product team, who are responsible for all that they can configure, they can make sure that the right space or right material will be placed at the right location, so that it will be missed, the whole space will be utilized in the right way, using the means the IoT sensors or the tags or different other technology and even all the data which are coming to the platform, our AI model can learn and give you the better insight for improvement which will help in means reducing the cost efficiency and also increase the productivity of the whole means solution, or the full means objective. So in that way, means it will give more like the ownership and also accountability and it turns

the means visibility into the action. What you want to perform, what means quickly you want to take an action based on these status okay?

Nick Ismail
And finally and I'll come to both of you for this, but let's start with you. Debraj, what organizational or cultural shifts are essential for retailers to fully embrace AI powered smart materials tracking?

Debraj Bhattacharya
That's probably the most important question and spot on. You are there, Nicholas. I mean, that reminds me of a famous quote by management guru Peter trucker, who had famously said that culture eats culture eats strategy for breakfast, which means that you can have a lovely strategy in place, but as long as it's not backed up by the right cultural alignment, things won't I mean things will behave one of the one of the things for a solution as material tracking is that it touches upon areas which are very much labor intensive in any organization. You can talk of the upstream sourcing side. You can talk of the middle layer of warehousing. Again, within warehousing, we know that the step of picking, which comes before packing picking, is probably the most labor intensive in terms of, I mean, the extent of labor involvement and the. Stretch to which they would have to walk around and so on and so forth. And then we have the outbound side as well, the transportation careers and all that involved. One very prominent fear which probably comes to your mind is that, if you were to implement something as an AI based material tracking, would there be an impact on our jobs or the labor intensive nature of the jobs that we are currently in. And that has been a fear, which has often been, you know, I mean, it has been espoused by a few of the organizations as well, with which, I mean, with whom we have dealt. The response to that would be, we are not really taking away jobs, we are enabling the person to perform a lot better in terms of what they are doing. So the classic fear of AI and alternative jobs that kind of plays out in ways, and I mean, it's understandable, because the labor intensive nature of operations, which I'm not doing like this, touches upon that was there. So I think that would be one of the cultural issues which needs to be tackled in a proper way that we just need to, we probably will just need to remind the organization that we are complementing the labor force who would be working at each of these legs through by providing them inputs around greater visibility and not anything more. And I think that's one cultural shift, probably, probably, which kind of is warranted. Yeah, that kind of comes top of my mind.

Lalit Kumar Singh
Yes, just to add means what Devra has mentioned. So one is that and second is like the because most of the organizations are using their legacy systems, though, so adoption of the new technology or the new system is also one of the things which are like, we have to

like, see how means the this technology can be adopted by these the the existing resources which they are working on the ground. So that is also like one thing.

Nick Ismail
Thank you both so much for your time and insights. I suppose it's also a case of once the AI solutions have been rolled out and people have more free time to focus on higher value added tasks. What exactly do they do? How does the organization support them in that venture? I'd like to conclude the podcast now and just thank you both so much for your time and insights. And if you're interested in taking a deeper dive into the research, you can click the link in the description below.