The HCLTech Trends and Insights Podcast

Nick Ismail
Ajay, welcome to the Trends and Insights podcast here at the World Economic Forum. How are you doing?

Ajay Bahl
A great meeting you, Nick. It's been a pleasure being here.

Nick Ismail
So today we're going to talk about the transformation of asset-heavy industries. What are the key trends shaping them?

Ajay Bahl
So Nick, asset-heavy industries tend to be very unique in the way that the very definition of an asset-heavy industry means that there is a lot of capital investment that goes into it. And if you really look at capital investment, there has to be a longer-term period of realization. You're investing money today, but you want to realize it over a period of time. So there has to be a long-term outlook that you have to be under. Now there's so much transformation in business opportunity that is emerging from the way technology is transforming everything. I think people's ability to plan out that asset investment has been called into question and they want to be more careful. And that's the unique element of the industry that we're playing. And that's led to some trends that are actually happening in the industry that are fairly unique. For example, the kind of innovation that we are seeing in the product. It's really a lot different, a lot of the ways the capabilities that we traditionally had, and I say traditionally, on an iPhone, are capabilities that now we want to have in every digital product that we are used to operating. And that obviously leads to a lot of challenges and transformation and business benefits that we have to create out of it. And then there is, how do you manufacture it? So there is this entire new way of trying to bring in technology and the manufacturing actually happens. I call it flexible manufacturing, but there's clearly a lot of things that go into it. The energy is getting consumed for the manufacturing to happen or for our homes. So there's a big element of energy transition and in the traditional way of, you know, generating at one place and then receiving at another is really changing in a lot of ways with the new technologies that are coming in. And then, if you really look at it, all of these, we want to do in a much more sustainable manner. We don't want to be wasting a lot of product and stuff, and for that, there is this entire concept of having a circular economy. And finally, really, the data and AI, which is ubiquitous, is playing into each one of these areas to make sure that the products, the capabilities, the companies, and the people running them are all innovating to basically try and build the product and create some sustainable differentiation for the companies.

Nick Ismail
And we're going to touch on all of those topics you just mentioned, but first, can you talk about what you're most excited about when it comes to products and product development in asset-heavy industries?

Ajay Bahl
It's interesting that you talk about the product side first. You know, the product's obviously changing and you can see it around you. You know, we see autonomous cars. Yes, they are still picking up, but they're definitely there. But then, it's not only the cars. We want our lawnmower to be running autonomously as well. We need our vacuum cleaner to be running autonomously as well. And there's a lot more sensitization that's happening in all of the products that are around us. Now, the direct impact of that sensitization is on health and safety as well, right? Because if you really look at it, that same product now, because it has miniaturized, because it has additional capabilities and sensors, we want to make the entire way of how humans are operating the products much, much safer. So, for example, if there were so many chainsaw accidents that we used to have, today we have blades that actually stop the moment you come into skin contact. It differentiates between a skin and a wood contact, and it would stop right away. That's the kind of sensor we have. We also have ways to basically make the entire experience, for example, warehouse robots. They exist to basically make it much easier for people to actually carry things from one place to another without really having to carry the burden themselves. And they're far more advanced and far more flexible today than they used to be. So they have technologies. Obviously, we've talked about drones and their ability to lift things and to transfer things from one place to another. So health and safety, a big thing, which is really helping the world from a product improvisation perspective. So if you really look at it, there is the products have also developed to self-optimize. So when they're getting used, there is a lot of capability that is being developed where they can actually self-heal. And, you know, whether you're looking at tires, for example, right? Tires, you know, we used to look at, for example, for a utility company, demand management, right? Literally, we are encouraging consumers to actually use electricity at a particular time of the day and not the whole day. So those are examples where a grid, where tires themselves are going to try and self-heal and self-operate so that it basically becomes part of the life cycle of that entire product. The products are changing today, not to really focus on autonomy alone, but wherever it requires making sure that there is a human element as well. So we don't want to obviously create accidents. So a car, while autonomous, still requires somebody to be looking at the road and to make sure that, you know, you're not doing something stupid on a time if the driver can take over. I think sooner these technologies will become autonomous over a period of time, but that is there. But it also ends up creating the potential market for newer companies to come in, look at the product landscape, see what is an opportunity for them to actually create a new product or a solution, and really bring the startup mentality to it and fill that gap. So that is what we are also seeing, that the original companies are trying to make sure that they keep it abreast with what is available and change their products accordingly. There are also the innovators who are coming in and saying, I completely have a different new product and a different way of working.And they are challenging the product ecosystem with those innovations and capabilities.

Nick Ismail
Thank you. And looking at manufacturing in particular, how is that sector evolving and what's driving that change? How can organizations keep up with it

Ajay Bahl
So if you see manufacturing, right, the manufacturing requires people to invest into factories, but they want the ability to manufacture anything at this point in time. They don't want to be the ones who are, you know, if there is an assembly line, then I would only manufacture a certain model of a certain car, because that car may become outdated very soon. So people are spending money that can make their entire assembly line more flexible, that can make 3D printing a great way of actually making things flexible. Like you can really quickly print anything. We know of customers who are already setting up entire assembly lines in a way that allows for a lot more flexible manufacturing. We know of companies which are setting up 3D printers in their distribution centers so that they're not actually setting up and sending products from one place to the other. Instead, when the right order comes in, they'll manufacture the part and actually send it to the consumer or the business, B2B business to actually use that product. So flexible manufacturing is definitely here to stay. But when you look at that, one of the biggest things enabling that is the smart factory setup, right? Where you're really looking at better technologies that come in from traditional manufacturing to look at a lot of sensitization from a predictive perspective. So can I, for example, predict which equipment, which part, which part of the assembly line, which part of the manufacturing, printer, et cetera, et cetera, is going to feel well? And that can be based on heuristics, that can be based on the analogy, et cetera. But we will be able to do that maintenance proactively. And can we build that into the ecosystem so that our assembly line runs far, far better? Another place where this has a direct impact is quality checks. So in factories, you typically have a lot of people trying to do visual inspection. Today, you know, imaging, advanced imaging can do that inspection much, much better than doing scans. And we bring that ability to actually improve the quality of the entire product and the failure rate, et cetera, that we have for the products that are coming out of that factory. Another area that I think gets totally impacted with this is the digital twin, where wherever there was complex manufacturing involved, we could replicate what was, what is a set up, what we would do as a proof of concept in the factory into how the factory would run in terms of a technology equivalent and do all the testing, all the variability, all the experimentation that you want to do from a digital twin perspective. A great example for this is for a transportation company that we've been working for. This transportation company basically runs a set of locomotive train systems all across the United States. For that, they have to build a heuristic logic of basically sending out the locomotives only when a certain percentage of the locomotive has been pulled out. So they're routing, they don't want to send the locomotive too early, otherwise it will be running at half the capacity. But they also have to look at the utilization of the tracks. And the tracks utilization requires trains from coming at all sites. So how do you make sure that you have the right kind of, you know, train levels, or what we call in the business, well time, do you want to minimize that one time to be able to send the goods from one place to another in a way to optimize all the resources that are required to do it. Great example to actually execute through digital drivers.

Nick Ismail
So when it comes to the energy transition, what are the key drivers of this? And how are organizations adapting to it?

Ajay Bahl
So if you really look at energy transition, it all started with the back of carbon dioxide reduction. We wanted people to reduce the amount of organic fuels, etc. that they were using, so that the carbon dioxide footprint actually reduces in the end. While everybody set goals for themselves, I don't think we have progressed fast enough, or far enough for those to actually have the result that we were all hoping for. So I think there'll be a technology in creating other ways of offsetting what carbon dioxide is doing to the environment and to the ecosystem are going to be developed by technology to be able to influence that considerably. And I think that's one direction of what we influence. But if you really look at the direction in which everybody went around trying to reduce the carbon dioxide, there's still a lot of activity that is happening around there, where alternate sources of production and generation of electricity have come into the picture, which is really helpful in reducing the carbon footprint that all of us are using. You know, whether it's talking about hydrogen fuel, whether it is talking about solar and others generating an alternate form of electricity that will fill up the grid, whether you look at the ability of the grid to generate electricity from power plants, but also to absorb electricity from individual houses and to distribute it across. Those are all capabilities that are getting developed at this point of time and be put to use in a production setup that is actually leading to more of the gain that is happening. At the same time, the batteries are becoming more and more efficient. Their ability to store power and to generate it at the time that they survive is increasing every day. And I think that's been very helpful as well. So I think that's that trend of basically looking at carbon sequestration, of trying to make sure that companies find other ways of taking carbon out of the atmosphere and finding it a technological solution to it, of reducing carbon footprint for the people that are using it, of generating electricity in different forms. All of that is one of the key components of our energy transition that's being looked at.

Nick Ismail
You mentioned sustainability before, which is a really important trend in asset-heavy industries. How can organizations effectively embed sustainable practices into their core business models? Yeah, it's what we all have to do. Sustainability is really about trying to make sure that we reduce and eliminate waste, that we try and reuse every piece of product, etc., that we're using and recycle it, reuse it, refactor it, remanufacture it, whatever we need to do to make sure that the wastage is eliminated. We call it the circular economy. Sustainability is really about trying to make sure that the product that we have actually created, in its all forms, doesn't make its way to the dumps. That's really the attempt there, so we want to eliminate that. In doing that, I think the first and foremost is we need more regulation. I think the regulation and compliance to that regulation becomes key to basically the innovation that we're really looking for to make it happen. I think there's a lot of technology that's available, whether it's from a packaging perspective, we call it packaging, recyclable, and others, and I think there are steps that are being taken to make that happen, but there is a long way to go there. Another big aspect of all that is that while companies tend to report the data that they are using, and the various carbon, etc., footprints that they're creating, I think there isn't enough data that is there to the actual amount of wastage that gets created. So I think a big

aspect around that, where I think we are also working a lot on, is to try and figure out how to first capture and create the data that actually we can then help produce and eliminate. So how much waste did you actually create? How much waste actually went in your water systems, into the air, into others, into the dump, and how can we go about in a systematic manner to reduce it? I think making the data available and then going after it is, I think, one of the big focus areas for all of us in the coming years.

Nick Ismail
And looking at now a topic that's on everyone's minds here at Davos and externally, how important is AI and data to the transformation of the asset-heavy industries?

Ajay Bahl
Extremely critical. For one, you know, data is something that people have realized, that they have more data, companies have realized that they have more data than what meets the eye. For example, a logistics company would typically have data about, you know, which package was sent from which location to where. But actually, they have realized that they have much more data than that. They actually literally have been sending multiple packages to multiple people on one street. They now have a much better understanding of the buying patterns of everyone in that street. So the question then becomes, how does this logistics company monetize that data in a way that actually makes more sense to them? And I think that's the business from a data perspective that everything, everybody is going to try and manifest. And data is essential for any kind of AI algorithm to work in the first place. So AI is linked to data to make it successful. And really, from an overall perspective, we see the multiple use cases of data all around. You know, we think of an oil and gas company. They have multiple, multiple wells that they are running at the same time, trying to get the, you know, some well fails, they have a crew that goes in to fix it. Now let's say they have 15,000 wells in Netflix, and three of them have failed at the same time. Where is it that they should send it to is something that can be, is something that takes a lot of logic and capability to discover, however, can also be best intuitively answered through AI and logic, right? Another place where AI in the same industry is very useful is when we call it what we call picking of pipelines. This is really understanding the corrosion of the pipelines as they're carrying one kind of, you know, fluid from one place to another, and to be able to fix that, remove that, change that at the right point of time. That's again, something that AI can help fit a lot better than what we could have done conventionally. And it's obviously much safer to do it in that fashion. The examples why I'm not, I mean, look at simple use case, like people calling into a desk. When you have some failure, you call in. Can that company know what you're calling in for without actually you saying, I'm calling in for a reason, you know, they simply, AI can help you get there much, much faster. Sometimes it may look funny, but over a period of time, there'll be a much higher level of accuracy about people realizing what you're calling from, where you need help without even requesting for it. Can that, can we take that entire logic to get you the help even faster? Absolutely. Without even asking for it, but that is how this will actually work. So there are a lot of examples. I think that if we talk about it, we can spend the entire day, but really the focus is that as an asset heavy industry, AI and use of AI is going to be central to the transformation that the industry is in and definitely will benefit most by making the transition faster and quicker.

Nick Ismail
Sure, Ajay, thank you so much for your insights

Ajay Bahl
Thank you.