HCL's Sustainability Podcast

Episode 1: Sustainable Product Design

Transcript

00:05 - 00:27 (Narrator)

Welcome to the HCL Technology's Sustainability Podcast series. Throughout this series, we will hear from our experts about the sustainability solutions that we are building with our customers' needs in mind. We will discuss the key technologies that we are leveraging to create solutions that help solve problems from reducing packaging to carbon emission measurements.

00:28 – 00:56 (Santhosh Jayaram)

Hello listeners. My name is Santhosh Jayaram, Global head, Sustainability at HCL Technologies. This podcast series, we are doing to introduce the impact of the convergence of digitalization and sustainability. This is the first one, and we will be covering sustainable product design. As you might have noticed, sustainability has become the top industry trend and has already started impacting business models in many ways.

00:56 – 01:25 (Santhosh Jayaram)

We are also seeing a growing preference towards sustainable products from the consumer side. Companies are looking at ways to make their products and services more sustainable and it is in that direction that they have started incorporating sustainability principles right at the product design stage. It is said that 80% of the impact of a product is decided at the design stage, and hence it is a significant stage to create a sustainable product.

00:25:18 – 01:54 (Santhosh Jayaram)

Sustainable design is the approach to creating products and services that have considered environmental, social and economic impacts from the initial phase through to the end of the life. This requires analysis of every element of the product and service through the lifecycle to see how we reduce or eliminate the negative impacts. At HCL, we have been helping companies to make their products more sustainable.

01:54- 02:21 (Santhosh Jayaram)

And we will hear from two of my colleagues, Amit Patkar and Prasanna, who are part of the HCL's Engineering and R&D Services (ERS). They have been doing this for a number of clients. They have been leading this service of sustainable product design.

Amit, maybe I can start with you. How do you see the future of this sustainable product design? And of course, I also want you to talk about the role of technology in that future.

02:21 – 02:47 (Amit Patkar)

Thank you, Santosh. Hi everyone. This is Amit Patkar. My responsibility primarily is on the Engineering and R&D Services pertaining to the manufacturing and energy segment of HCL. So, happy to provide my viewpoints from that perspective. So, Santosh, like you rightly said, sustainable product design is a very vital component when you look at the overall sustainability of a product or an offering made by a company.

02:48 – 03:15 (Amit Patkar)

What we have seen over the past few years is that while sustainability was an aspect, which was a nice-to-have aspect, slowly, but surely it has now taken center stage, which means that not just the product aspect, but even the corporate aspect, the company which offers the product, it is becoming necessarily a parameter on which the executives of the company are today looked at.

03:16 – 03:58 (Amit Patkar)

It has become something which is a mainstay like any other financial or qualitative parameter from a company's point of view. What we've seen from an engineering point of view is that if there is a well-adapted change right at the beginning of the lifecycle, which means if you consider things like retirement of a product or development of a product along its entire lifecycle - right from the prototype stage to the implementation or to the distribution or to the stage where the product is actually utilized by the customer, and at the end of it, finally retired or disposed by the customer. That's something which is very, very vital.

03:58 – 04:19 (Amit Patkar)

And technology plays, again, a very important role, crucial role in terms of determining how you can achieve this as a part of the overall offering. Today, there are tools which are there in place in the market which help customers evaluate the impact of sustainability on the overall lifecycle as a design process.

04:19 – 04:45:19 (Amit Patkar)

There are tools which can help you, let's say, intercept and set up an environment where right at the design stage you can determine what are the steps necessary in order to make my product more sustainable. I'm happy that HCL is playing a very crucial role in this segment. We have solutions, tools,

and also the services which can help some of our customers achieve these goals using the benefit of technology.

04:47:17 – 05:11:12 (Santhosh Jayaram)

Just on that point, on one side, when the companies are looking at upgrading their products or coming out with new products, which are more sustainable. Isn't there a role for technology in shaping the consumer behavior around sustainable products? Because you need to have a market, right? And, isn't there a role technology needs to provide?

05:12:13 – 06:29 (Amit Patkar)

Absolutely. I mean, there are no two ways about it. I think the whole perspective was, if you look at it, let's say three or four years ago, the common perception was that if you tend to have a product which is more sustainable from an end consumer perspective, we could mean multiple things. It could mean - is my product going to be available at a higher price? Is my product going to be available, not exactly at a timeframe I need it, but maybe slightly later on, maybe a few weeks, a few months later, because it needs to be a sustainable or a green product? Technology is something which is actually helping us influence those aspects as well, because there are a lot of things which are at the same time myths which customers carry. While some of the elements like price points and availability depend on scale, and also on implementation of these actions, technology can actually help us reach the end customer, get their opinions, get their let us say priorities interpreted and included in the design process earlier on. In fact, a lot of the customers in the market, which I primarily operate, which is the European market, today even look at having a sustainable product to be purchased.

06:29 -06:50 (Amit Patkar)

If you look at a product which consumes energy, look at a television, look at the pump, which is an industrial asset but also used in home automation. There will be customers who would prefer to have a sustainable product rather than having a quick-fix solution. So, technology definitely plays a strong role in terms of influencing the buyer behavior as well.

06:50 – 07:03 (Santhosh Jayaram)

Prasanna, coming to you. At HCL, what are the kinds of design principles you apply when you work on a sustainable product design?

07:04 – 07:45 (Prasanna O)

Thank you, Santosh. Hello listeners. I am Prasanna O and I head the delivery function for the industrial manufacturing customers. Currently, the entire industry is going through a huge digital transformation.

But, at the core of the digital transformation, it is very important that we focus on the Sustainability initiative. So, at HCL, we bring in comprehensive solutions to address the customer's sustainability initiatives. If you carefully observe, the philosophy of product sustainability needs to be embraced right from the inception of the product design during the manufacturing operations and end of life.

07:46 – 08:21 (Prasanna O)

So, HCL can help our clients by bringing sustainability practices upfront by employing HCL's Design for Sustainability (DFS) framework. HCL's DFS framework can be employed for new products - Design for Green, then product refreshment programs Design for Brown and any of the transformational initiatives. If you look at some of the key elements that we focus on during the design stage, we bring in a lot of focus on the energy-efficient products, Design for Circularity, focus on the material selection.

08:21 – 08:57 (Prasanna O)

For example, you may be using non-toxic, sustainably produced materials, recycled materials - it could be virgin versus recycled plastics and pick up materials with a low CO_2 footprint. We bring in a lot of digital design twin principles to optimize the product footprint, eliminate the waste, reduce the need for prototyping and some of the soft tooling. The other aspects like repairability, serviceability and human ergonomics are something that we bring in.

08:57:25 – 09:23 (Prasanna O)

There are some interesting solutions that HCL brings in. One of the tools, if I can talk about is DFM Pro, one of the design validation tools which we bring in upfront of the design stage, where we can validate any designs which are done by the customers as per their predefined design rules and also brings in the design constraints as well as the sustainability indicators.

09:23:10 – 00:09:47 (Prasanna O)

So, these are some of the very interesting tools which we bring in upfront. And, we also have a large practice which focuses on manufacturing and operations. If you look at what we bring in on the manufacturing and operations, we validate all the manufacturing processes through 6R transformation methodologies and suggest any improvements, which means the product innovations we can bring in.

09:48:00 – 10:18 (Prasanna O)

Then, the second is the manufacturing process innovations. We look at the critical aspects of manufacturing such as time studies, motion studies, plant layout, plant layout design, optimization and

all of those aspects, and some of the process improvements like bringing SCADA systems or MES systems to implement real-time insights where productivity improvements can be measured by implementing Industry 4.0 or a real-time monitoring system.

10:18 – 10:50 (Prasanna O)

Other aspect of sustainable product design is also packaging. Packaging plays a very vital role in product sustainability. Focusing on sustainable packaging helps us reduce the carbon emissions and also reduce the energy consumption. At HCL, we have got our own solution called Pack RITE ™, which is a sustainable packaging solution which addresses comprehensively the packaging solution needs across the industries.

10:50 – 11:20:04 (Prasanna O)

Our primary focus areas are on the packaging design. It could be a primary, secondary or tertiary. It could be standardization, the space optimization, the alternative materials, manufacturing processes which need to change, or maybe the sourcing of the packaging material itself is what we focus on. And the last is the supply chain. Circular supply chain is the new norm. HCL supports a lot of sustainability initiatives across the economic, environmental and social areas.

11:21 – 11:55 (Prasanna O)

In economic-wise, we bring in the practices of knowledge-based sourcing, then the category strategies, then identifying the sustainable alternatives. On the environmental side, we specifically take up the supplier audits for sustainability assessment, and we also look at their processes, some of the line balancing or batch sizing, plant optimization and finished goods rationalization. The other thing is on the hazardous material like ROSH, REACH, and WEEE and any of the other certification needs, we assess them.

11:55:17 – 12:16:10 (Prasanna O)

On the social side, we conduct a lot of employee surveys, learning and development initiatives, and ergonomics design. Those are the things that we bring in. And at the core of it, we ensure that we take all the customer needs, the usability and localization aspects also to service the product design and the entire sustainability initiatives.

12:17 - 12:50 (Santhosh Jayaram)

Well, thanks Prasanna for covering the packaging part of it as well. And it is one of the key sustainability challenges as we go forward. If you can be a little more specific to give some insights of the work you have done in the consumer products industry.

12: 52- 13:22:13 (Prasanna O)

Yeah, I think that's a very good question. If you look at consumer product industry, it is hyper-competitive with short-term product lifecycle, business environments, and there are a lot of changing consumer trends, faster technology adoption, product cost pressures and sustainability targets bringing many challenges to the OEMs. So, what we do in product development, supply chain, manufacturing and sustainability are some of the key aspects.

13:22:13 – 14:15:10 (Prasanna O)

One of the key KPIs for the product sustainability is to increase the life of the product and consumption once it is in the consumer's hands. At HCL, as I explained earlier, we bring in a lot of DFS practices, through which we are making sure that we meet the product sustainability goals by focusing on standardization, some of the simplifications, the repairability, localization and energy efficiency. For example, in consumer industry, star rating is very important. So, that is something that we achieved through energy efficiency design. Then product recyclability - with proper DFS practices and guidelines, we are able to increase the life of the products and that's how we reduce the material usage, zero wastage and energy consumption. That's what we are trying to do here.

14:17:01 – 14:53:04 (Santhosh Jayaram)

Thanks, Prasanna. Amit, coming back to you.

When you look at the companies in consumer products side of business, as Prasanna also mentioned that it's a very competitive industry. There is a run to be fast to the market and even for the sustainable product, you need to be fast in the market right now. So how can we as HCL help the clients to make their R&D process more efficient and effective to help them to go to the market fast?

14:54 – 15:47:21 (Amit Patkar)

Thanks. Yes, Santosh, I think that's a very good question. If you look at success in our industry segments - may it be consumer products, may it be Aerospace, may it be energy products or industrial products. I think one of the most important success factors is rapid go-to-market. It's a simple industry segment within consumer products like a television or a mobile phone. The companies which innovate and are able to bring their products out in the markets fast, they are the companies who are today in the leadership positions in these segments. So, technology itself is actually at the core backbone. While it was playing a role in terms of feature enhancement in the past, its role has now been enhanced multifold to play a very vital element in just bringing out the product in a very shorter timeframe.

15:48:20 – 16:06:19 (Amit Patkar)

What HCL does is, HCL works with a variety of cross-section of customers. So, on one side, it could be consumer products, on the other side it could be Automotive, on the third element, it could be companies which are in the fashion or the apparel segment where we support a lot of initiatives on product lifecycle.

16:07:05 - 16:36:09 (Amit Patkar)

We try to cross leverage industry knowledge from one sector to another to bring in a very strong efficiency using technology in the R&D process to help bring out products and solutions faster. Look at companies which make let's say apparel in the winter or the summer wear, their product lifecycle essentially, irrespective of the inefficiency of the R&D process, has to be seasonal, because their market exists for a period of 4 to 5 months. After that, the season changes, the product has to change.

16:36 – 17:08 (Amit Patkar)

This is one of the philosophies leveraging technology which we are trying to bring along in segments like consumer appliances, like automotive. The other perspective, which Prasanna mentioned, was about solutions which can help us minimize the changes when a product goes from an engineering sector to an actual physical product being manufactured. In engineering terms, we call it as ECN or engineering change notification. The lesser number of ECN you have on the product, the better.

17:08:09 - 17:31:20 (Amit Patkar)

There could be a variety of reasons why these ECNs are created. It could be because it's difficult to manufacture a product, it is because it's difficult to service a product, or test the product or maybe the product is not sustainable enough. So, technology like HCL's Design for Excellence or DFX is a framework which can leverage and create rules which can be implemented to minimize the number of ECNs in this sector.

17:32 – 18:06:26 (Amit Patkar)

Just one more example, which comes to my mind in terms of leveraging technology, is if you look at elements which are core industrial products, right? Look at a product like a lubricating solution, which is used in industrial machinery, it is used in automotive. The core function is to reduce friction between two parts. If you can, for example, after usage of, let's say, one month, two months, sometimes three months, the product has to be disposed of based on the frequency of usage of the machine or the automotive.

18:07:17 – 18:40

(Amit Patkar)

If you can somehow suppress the chemical elements which are generated in this product due to the high temperature or due to the high friction, you can extend the lifecycle of this particular product itself, which means that you don't have to create a new product. You reduce the impact on the environment to an extent from manufacturing a new product and even distributing a new product.

So, I see, I think there are multiple dimensions which we can incorporate. We can make sure that the R&D process is more efficient to include these and in turn deliver sustainability as a successful outcome.

18:42:03 – 19:14:29 (Santhosh Jayaram)

Thank you very much Amit and Prasanna for sharing the importance of sustainable design and how HCL is helping clients to reach their overall sustainability goals, and also the bigger purpose towards a sustainable planet. And as you mentioned Amit, the last example about the friction. At the end of the day, we are trying to reduce that friction between development and planet.

19:15:08 - 19:52 (Santhosh Jayaram)

Right. And it is one of those potential areas where we are helping our clients also to develop sustainable products in reducing that friction as well.

So, thank you. Thanks to both of you and to the listeners. As I mentioned at the start, this is the first of the series and we will be covering more convergence about digitalization and sustainability in our podcast series.

Once again, thanks Amit, thanks Pransanna. Thank you all!