Innovation by Design
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Module – 8
Start of section 7
Lecture – 54
The Innovation templates

Good morning all of you.

Student: Good morning sir.

Today is our last class in the semester where we looking at the collaborative innovation.

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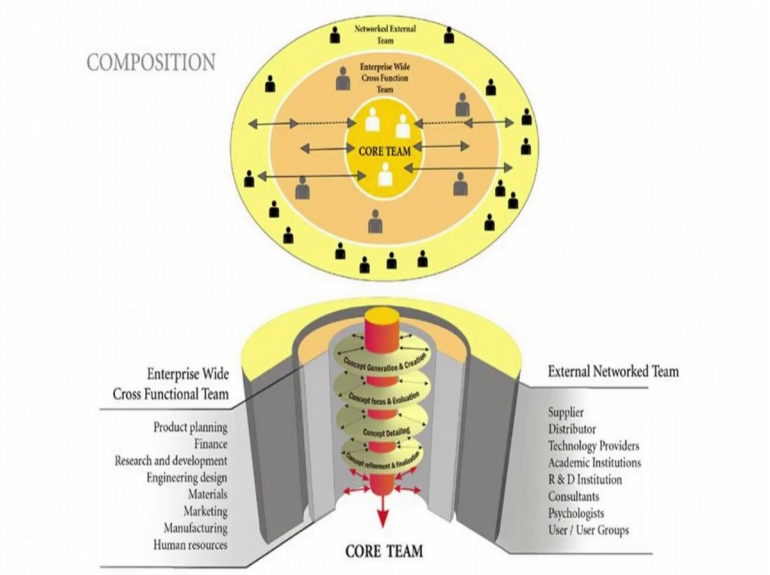

So, you know this is the third part of the series where we looked at the Z-line pump. which was the first study where we said how innovation happened and you know given runaway success.

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For 7 years, every petrol station in the cities was supporting the Z line pump. And then came our you know second case study where we talked about the bullet dispenser which again you know completely got popular and it came out all over the country again and replaced the Z line as the modern pump. So, we now had one more you know project coming our way.

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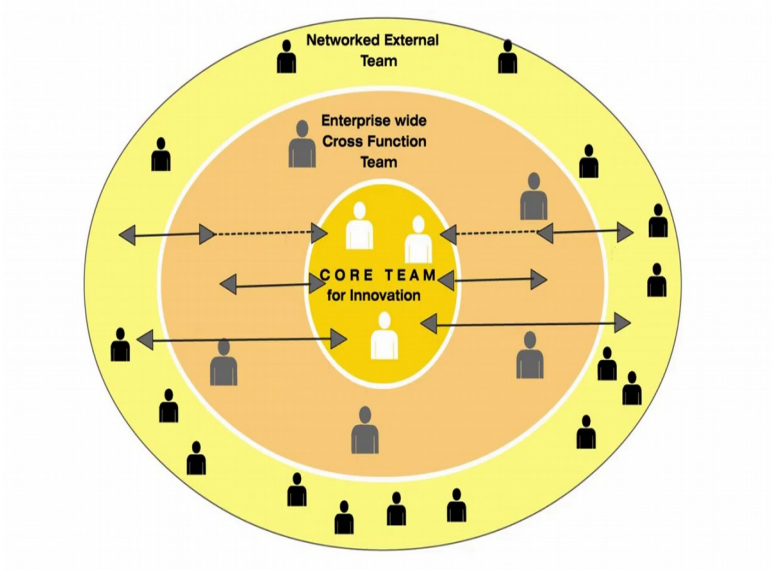

And by this time I had completed the whole study of how collaborative innovation can happen. Innovation happens when the product reaches the end user, very clear we cannot just call it innovative if has not reached the end user.

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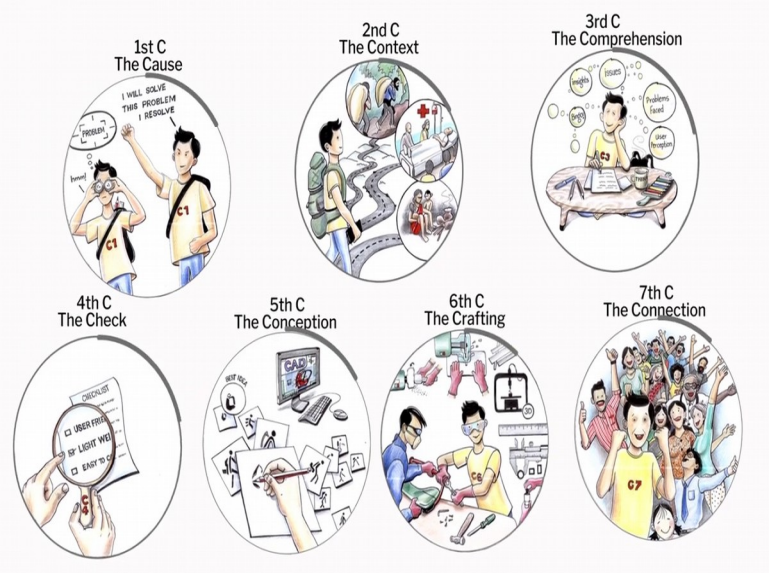

So, the focus of today's class would be to sort of assimilate all our learnings from our 7 you know Cs this and we I think had some 5 case studies in the 7 Cs, in depth case studies highlighting each aspect of innovation; each aspect which became the pinnacle for each of those innovation journeys. And collaborative innovation you know of course, was the key where we looked at core teams were like you know do or die they were fully on the job.

We have the enterprise wide teams which will give you the creative and the critical check of where to go and then we had the external team which is also you know we calling the teams with their support structures which give you tremendous amount of inputs.

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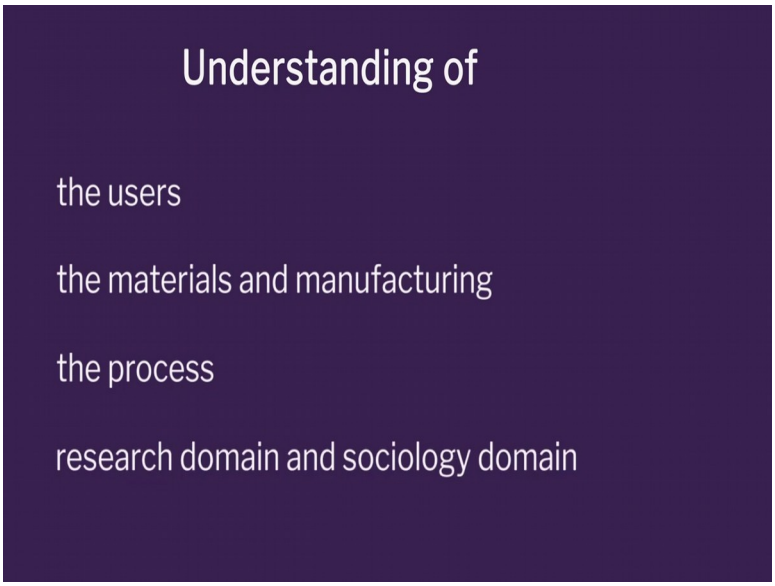

And understanding of the users understanding of the materials, and manufacturing understanding of the processes research domain, sociology domain, multiple things which come from the external team. So, these things happened constantly in all the things and this was the outcome of the you know PhD research I did at IIT Delhi and now we have a project in hand, how do we handle the project which has come to us from NID.

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So, NID you know is well known design school in the country and ONGC approached National Institute of Design and Pradumna Vyas who is the director of NID also an alumnus from IIT, Bombay; approached me, because I was working in petrol pumps for you know last two decades and we built a you know wonderful team. And then we collaborated with Midco again which is a manufacturing company they won in the project which is unheard of.

So, these are the images which are like computer renderings which are not very detailed they are like mock renderings from the computer where the student quickly picks up or some designers quickly did some sketches and they said these are the, you know possible options.

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Because ONGC had a large branding exercise, they went to brand managers across the country got to the best brand company and they decided they will call them brand the oval dispenser or the oval will be their brand.

So, then you know we had Manoj Dubey who was the master of design from IIT, Delhi who joined Midco at that time when we came up with the bullet dispenser which was earlier a success story.

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So, he immediately conceived the total product with all the parts and organization of the projects. So, I was the consultant for Midco as well as working with NID; so, we had this you know collaborative team. So, we quickly worked out what type of product organization which will happen.

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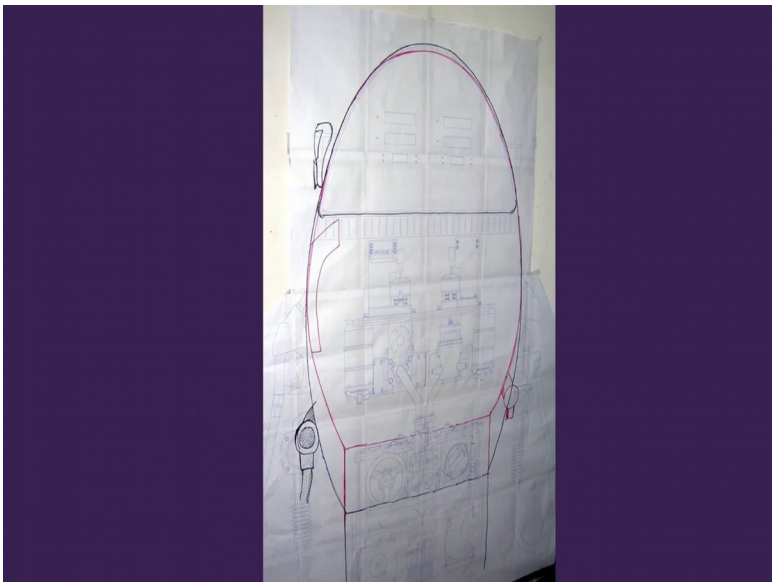

Product organization is very important where will each part go in the product. How will the parts be organized? So, where will the electronics be how will the hydraulics work, you see that large scale drawing where we talked about every part of the product.

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Now, we are making foam 3D mock-ups using digital printing and the product looks like real. What is this? This is a working rig of the mock-up. Does it look anything it has a little bit similarities to the mock-up, but all the parts are just put together. This is a very very important component in innovation and creativity where you just make the product when you in electronics you know you put a breadboard and get your circuit running.

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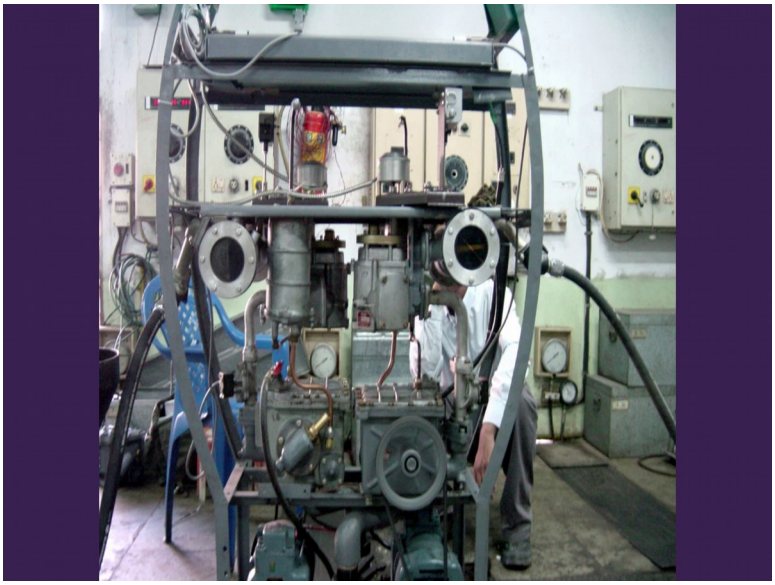

It is like that is a rig, you put things together in whichever fashion and you make the pump run look at that guy; he is actually feel you know filling petrol he is checking up accuracies look at the panel we just picked up the Midco panel the old one just to put the panel over there it does not use all the right components. So, you just rig things together and make a working rig very quickly. So, we still not cross the prototyping stage we still half in the prototyping stage by making the working rig.

So, even prototyping became very very high tech; earlier on in the Z line I prototyped using hand tools. Now, we are prototyping using CNC tools and this can be done you know very effectively, then we built all the structures inside with very very high accuracy to fit the pumps and the motors, so it is like monocoque. See within those fifteen years from Z line to the bullet to the, you know oval the technology had gone leaps and bounds electronics technology and microchip technology.

So, this particular LCD panels what you see over you know very very high end when compared to the Z line or the bullet. Remember our formula was very clear, use creative

ideation, use contemporary technology and materials and then you will be having in order to product in your hand.

So, all that was you know that the formula was same what we did for all the projects and then you know we came up with a very good organization, improved the pumps and the meters and like you know, then took it forward.

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And then we reached the final prototype look at the painted model, I was showing you the unpainted model.

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So, here we are like you know created a pump which is tremendous user convenience. Now, tell me why is the hose again coming down in the bullet we had the hose from the top? Because there is a lot of innovation in the hose technology by then the hoses became light weight, they were easy to take around and the oval dispenser said that we do not want hoses to come from the top because of a branding issue. So, we had to you know innovate on the hose material itself and the hose material is made of PU and that is very very light.

So, the convenience to the user is not lost, then we have this you know the display reaches the person in front of the car. The display comes in front the use of contemporary technology for user delight, we use the best displays, light signages, modular assembly lot of components inside our modular in nature, we had the oval shape coming up very well which was very well appreciated and the fuel dispensing was visible from those flow ports which is again was a very novel feature in the pump.

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So, you know this also makes the pump look very inviting and new; so, because of the light on the side and then we reached very quickly the pilot production stage. So, we had a large collaborative team to work in, a lot of people put their hands together to come to you know this particular very very different you know pump. And the whole world stood up to see the pump you know from you know Europe to there were pretty shocked that

you know we could come up with a pump, which is like so different at the same time using all the new technologies in the petrol pump business.

And you can now see the range the mock up, the rig and the final product, you can imagine that it is pretty close. We have to create seven pumps and put them up or at Mangalore they have a large refinery in Mangalore and they said, we will first put our first station petrol station in Mangalore, the station was taken very quickly. And we were like you know both at IIT Bombay, Midco and NID we worked relentlessly for you know a year to make these products you know come to the market and then these were launched in Mangalore. So, these are all these seven you know pilot production pumps on the display.

In the station and then all the other peripheral around this air the you know like the printers and the you know oil dispensers they all the little bit of you know similar branding and product organization for that. And look at this display being stuck to the windscreen of cars and people are extremely thrilled on its working. You know now, it is very easy to put a display you know because we have you know today you will have an app and I can see what is happening on my pump in my mobile.

If I can, you know get it app you know I can start an app and I can actually see my dispensing happening on my mobile tomorrow, it is that cool today, but this was in 2004 and we did this work. And then you know this is our sort of first day's business lot of people poured in because the petrol was cheaper than the indian oil station next door; so, that was another serious problems. So, lot of people came in to fill petrol this is the signage's outside we call it the totem pole the symbol outside as well as the like sort of display to say that this is where the petrol pump is.

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So, you can see how we know over a decade to 2005. So, from 1999 to 2005 we have you know these products which are all the same segment, same product technologies changed, materials changed you know features changed because of the way the users changed, right.

So, that is the whole journey I want to share with you of how we did serial innovation because this did not reach innovation because this was a mass, but you know still it had all the components and because of political reasons this did not go out go to the market.

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So, it is very interesting innovation can be stifled because of various reasons, it could be political, it could be you know lack of funds, it could be you know lack of sort of will of the management because, so many things coming. So, what is challenging is all innovation journeys are very very complex and you need to understand all the parts very carefully and then be very attentive from the beginning to take these you know things forward.