

**Innovation by Design**  
**Dr. B. K. Chakravarthy**  
**Department of Engineering Design**  
**Indian Institute of Technology, Bombay**

**Module – 08**  
**Start of section - 6**  
**Lecture – 53**  
**The Innovation domains**  
**Product planning and development**

Today Innovation teams are kept separate from the teams which are within the company which are doing regular production activity. So, that is a very critical thing which happened over here.

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And these are the you know first prototypes which came up of both the pumps, the mono pump and the dual pump. Will it be easy to change the cards here?

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Of course will it be a bonnet type of design? Yes.

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This whole panel drops down like this there the petrol pump lifted like this here we are dropping down like this. So, you need to have all the features inside the pump without that maintenance features it does not work. So, maintenance is very easy.

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Look at this whole panel comes off. So, you are going to have very good access to all the hydraulics inside. So, assembly aspects taken care of. In 1998-2000 this is like you know that people in motorcycles used to add oil separately you are aware of that it is such a pain right the whole India was mucky and now people would slip and fall.

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So, we created this inside the same pump where the oil premix happens automatically. I have a small you know meter there which will register the oil and for example, a motorcycle guy said "meko paanch ml cahiye" [FL] (I want five ml) whereas, a car,

scooter person will say I want 4 ml. So, we would change the amount of oil mix and automatically mix the oil in the petrol inside the pump and dispense it was a big hit. So, that was the beauty of this and you know unfortunately z line could not do all these because z line was very compact design.

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It was great design what is compact to the point. So, look at the differentiations of how this new product because of new situations develop and then we got the first order for Bharat petroleum and the first order itself we installed in savory petrol pump over there and by this time the prototyping technologies were phenomenal. That is they were so good that the prototype could be installed in the field.

Whereas, when I did Z-line I installed it inside my own plant I was not very confident that can be in the field, but here the prototype was installed directly in the field and we got direct inputs of the product and it performed phenomenally well, we had the mono and the dual pump installed in the station. And this was installed in location which is Bharat petroleum's officers quarters like all the DGMs and all would stay there and every morning these people will come and fill petrol here. Now, the Bharat petroleum officers.

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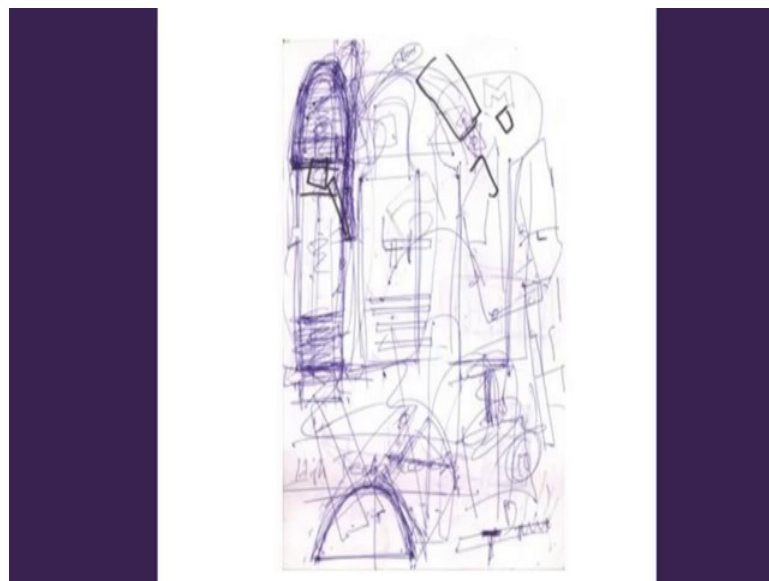
And instantly they gave a large order the first order pilot order itself was big there are 200 numbers and then you know this went into production.

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## INNOVATIVE DETAILS



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So, we rolled the sheet and fabricated it such a way that we can mimic the shape of a Nokia phone at the same time the cost of production was extremely low. So, that is the beauty of this you know design and we use special CNC fabrication look at all these points from where my hose came out, here we have a keypad design with an automatic dispensing you want 3 liters you can punch 3 liters you can get three liters petrol.

So, we had special solenoids. So, all those features were added into this and on this side we had a printer. So, everything could be integrated and these dimensions were intricate and they were all designed using cad. So, you are very very good system in place.

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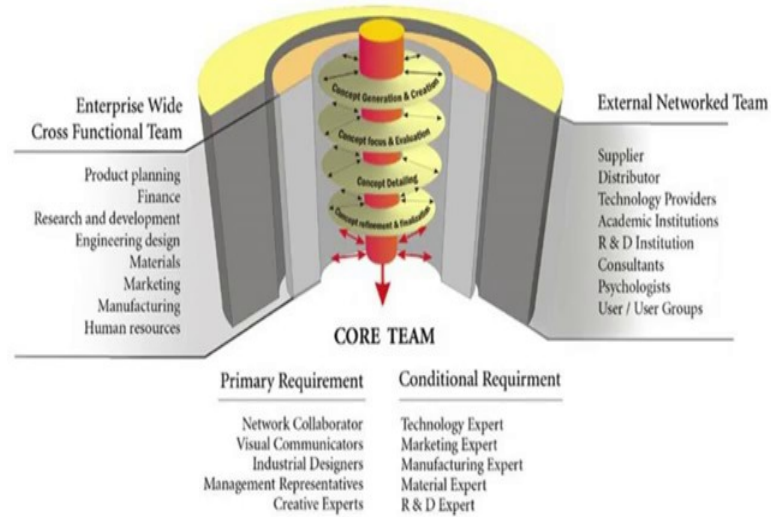
This is one part of the assembly line which is called the test rig and this one in the bottom we have a huge tank in the factory and what are we doing? Remember endurance (Refer Time: 32:32) testing i told (Refer Time: 32:33) for z line we are taking the fuel from the bottom of the tank pulling in back in the tank.

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Continuously for at least a day before these pumps are dispatched to the market in the production line. Endurance is separate, but this is in the production line you have a test rig where you sort of test.

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So, now here we are. So, we you know we talked about how you know we build these teams and the network external team was very critical, where all the vendors who supported us are phenomenal.

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Let it be the CNC aluminum pipe bending person or the CNC fabrication person or the person who gives all the components in the meters and the pumps. The pumps of manufacturing Coimbatore which is a largest sector in pump manufacturing. So, we got the best places for the best locations. So, you know though L and T was at the largest company each individual component of this product was much better than the last (Refer Time: 04:27)integral product. So, the suppliers, the distributors, the technology providers, academic institutions, me.

So, we argue with the external team. we have the R and D institutions which they were talking about a lot about you know with R and D institutions abroad to understand you know the flow of petrol. We had other consultants coming in, we had lot of interesting user groups which have we called psychologists and user groups and we had a huge production first order result was big very nice to see those multiple products know whenever it was like great pleasure to see you know large production happening because we could never produce, so many parts.

So, by this time it was already one and half years. Now, the first order 200 numbers we have already jumped and then there was a huge market penetration any new company which comes in what is a new pump they would not want a z line its already old. So, they you know they took up these new pumps. So, you know we developed a lot of new pumps. So, there was very very tough competition to Larsen and Toubro because our costs were low.

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Lower cost better product and better longevity more silent easy to use remember hose coming from the top. So, at every level; at every level in the sunflower model of innovation we were the new pump was better than the z line pump. So, within the year 2007 where did they reach? They reached 200 crores. So, you know we went forward and I think the company is still doing well after 10 years.