Innovation by Design
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Module - 04
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At the 2nd Valley of Death: Towards pilot production

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And then comes the very important aspects of building the prototype. So, we got the polycarbonate sheets to the right thickness, we started building this sort of prototype by hand. Most of the prototypes (Refer Time: 00:19) are build by hand that is why they are very expensive and very very difficult to build and takes more time and you know look at the shape, look at the big slope at the back why is that slope so, big.

Student: (Refer Time: 00:28) they are strip standing.

Dust can slide off, dew will clear away the dust if there is a dew in the morning some multiple aspects.

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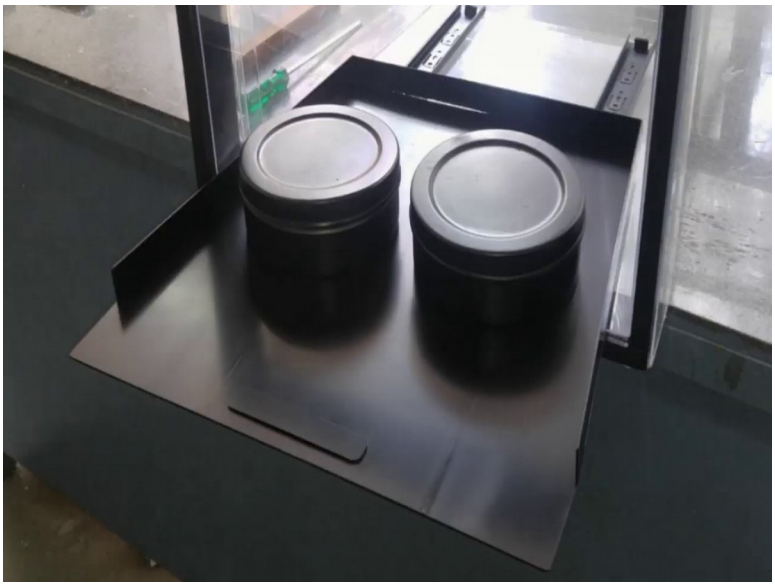

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And then we made the slider user convenience. If it is on the window I want to slide my tray I want to take my food and put my food on it and slide the everything inside what is the black bottom base doing what do you think that is?

Student: Heat absorption.

Heat absorption that is an aluminum plate why aluminum? It takes heat fast gives back heat fast right. What about thickness? 3 to 5 mm is good enough. So, what happens is I

keep it there during that time it becomes very hot and then when you as soon as you put off you know vessel all the heat gets into the vessel.

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Then we went to a festival of innovation in Delhi, we exhibited our product people were there from all technology universities and we were discussing and we were showing how you could make a solar oven user friendly finally, the whole hallmark was its user friendly. Now, comes a very important issue of pilot production.

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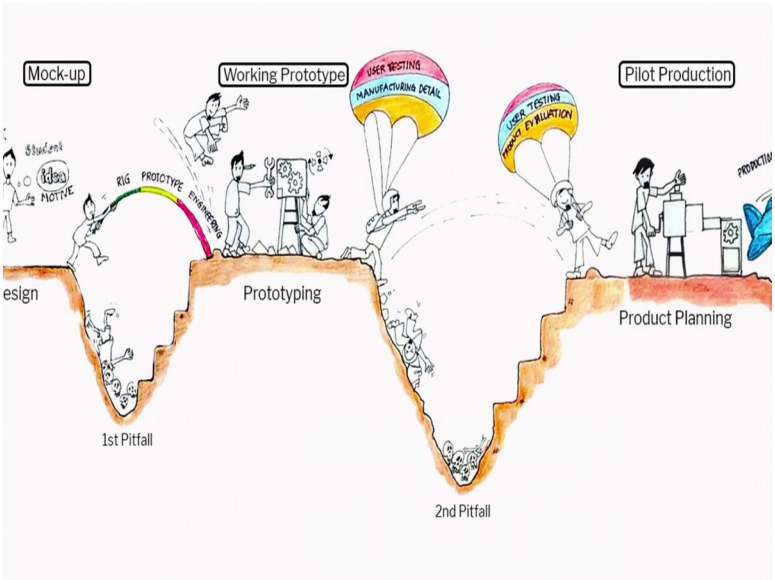

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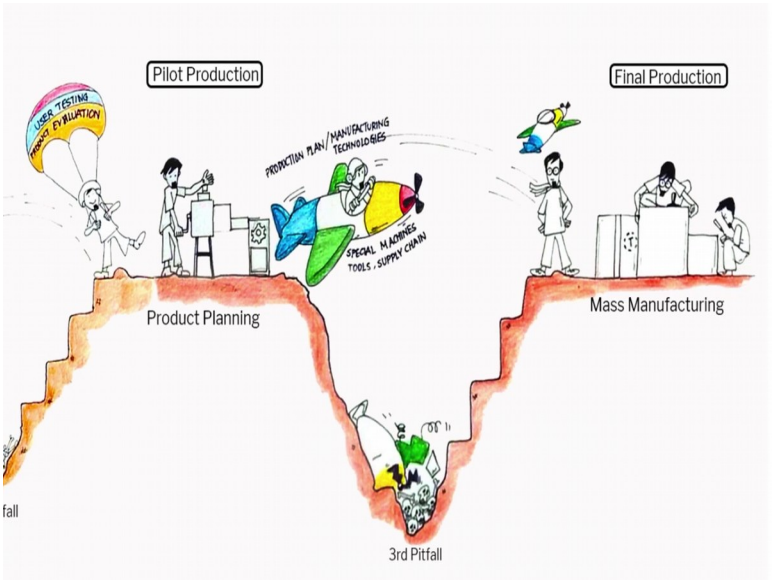

(Refer Time: 01:33)Remember our valleys. So, we now cross the second valley. Now we have to go to the third valley there to cross the third valley is very tough, pilot production needs tooling needs small scale development needs to be put up all over the country and checked.

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I had a student who started a company in Bombay and he is an excellent sort of prototype (Refer Time: 01:59) manufacturer and pilot production manufacturer called Monoj Dubey. So, we invited him to partner with us to take this product to the market, he was

quite excited he came down we explained to him how the product works he gave a lot of interesting insights on how the prototype will happen, what will happen to the you know like manufacturing, what type of cost the tools will cost the large tooling right the cost will be very large.

So, here now we have to worry about cost too. When you go from one stage (Refer Time: 02:24) to another remember (Refer Time: 02:25) at the pilot level your cost has going to skyrocket (Refer Time: 00:00) because of each prototype is going to cost you if your product (Refer Time: 02:30) is going to be 4000 my prototype is going to cost me 40,000, 10 times the cost of your actual product.

So, luckily we have this you know fund for the design innovation center which we have set up by MHRD. So, using that fund you to develop the next level. So, then we had this discussion and suddenly look at the shapes changing. So, then we started going back to the drawing board looking at what type of forms you make it easy to manufacture, what type of forms you make it easy to the dust to go away.

So, multiple presentations in the studio, multiple discussions and then you know that is again Monoj Dubey and his team and we have the other designers and engineers sitting and we are discussing how to take this forward and then we went to the you know vendors who make tools this is a tool manufacture, who does bath tubs he does plastic bath tubs what type of vendors do you go to you go to the vendors who already good in those manufacturing. So, you see this large plastic bath tubs in today's you know hotels and all.

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So, these bath tubs are manufactured by him then went to them and now we started the process of manufacturing.