Innovation by Design
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Module - 02
Start of section 3
Lecture - 09
Trial and error

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Once a prototype is there you again go for user testing; and then we found out thousand more new problems. You worked so hard came out of the valley of death by climbing all those stairs by having consultants. And finally, you land up square, but then you say you did all those studies earlier with mock up models why did it not work? But that is not a working prototype.

So, here you can see how you are always taken back after you do the user studies. So important in an early design phase ok. So, here we did the testing we found out all the problems and now we need to launch our pilot.

And the whole design now has to go back to the drawing board go back to conception. Again make three concepts and come back to the production because you are not lost much, because you just made one prototype. How can this vein tracer be more easy to hold, how can it be smaller, multiple thermocol mockups, same process we will go out in the field, check out with care givers check out with nurses, check out in the hospitals. Which form will work, which is convenient to hold?

So, we have to marry the, you know, designs we you know we modified the PCB because now the design was ready. So PCB had to just reconfigured and then build the CAD models, thanks for the support of this small industry in Bangalore. Then we have new techniques of painting, which makes the product strong and then we came up with a very important aspect of what should be the battery life and what type of battery to use? We will use a battery which is you know, long lasting a battery which is available very openly and very easily and very low cost.

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So, we use this battery may be if you do not charge it works for around 2 to 3 days. And made this pilot production of 10 vein tracers. And then we again went for testing we still came up with some more problems. So, whenever you do user testing you will come up with problems. But now interestingly, we were digressing our whole focus, our cause was to you know design a vein tracer for.

Student: Blood bank.

Blood bank so, that people who come to donate blood do not get you know scared and things like that. And now when you doing a testing you instead know this product is good now it can go to multiple places; and when that happens you will find out that their requirements are different. Though, intensity requirement is different you need more intensity when you do the vein tracer for anesthesia.

So, we said no problem this product we have to mass produce. So, let us you know let us do those changes see I am not saying that we are always correct we do a we made a lot of mistakes in this process. And you need to identify our mistakes too and say you know what we should do or what we should not do.

So, we did all that and then finally, you know we went to various hospitals in Pune, lucky now we collaborated with a person who supplies chemicals to blood banks. Then when we went back to the PCB design, we change the intensities, we looked at the locations and then very interesting, infrared is what heat right?

So, the our first LED is who are actually if you keep for more than 30 seconds it would actually give a little pain; rather removing pain you are giving pain right ? So, we have to re look at the heat transfer in the PCB. So, then we need to look at you know transmissivity, then we put up some filters in the middle then we had to have heat sinks. See how complex the product become once you go forward. The students said simple, infrared, it can give you light, I would throw infrared from the top,I can see the vein. And finally, we reach a stage which is our, you know, third valley of death.

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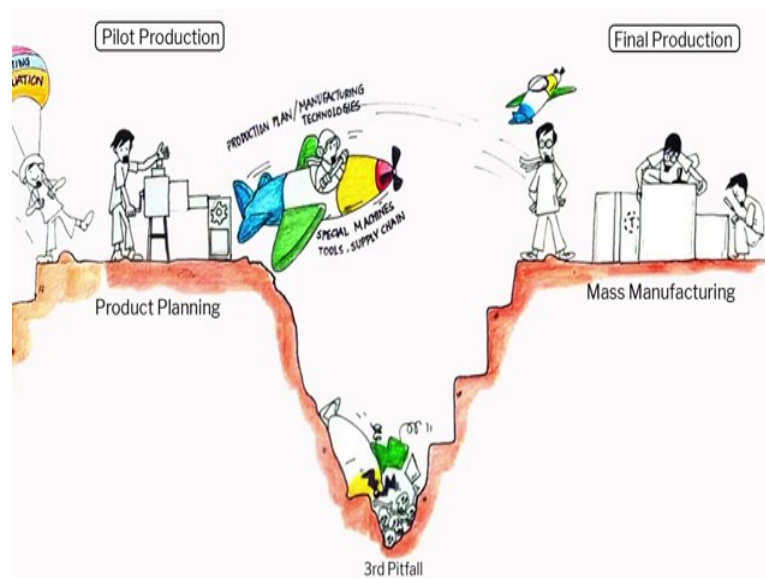
Where we finish the pilot and we now have to launch it and we are stuck with numerous issues which need to be solved.