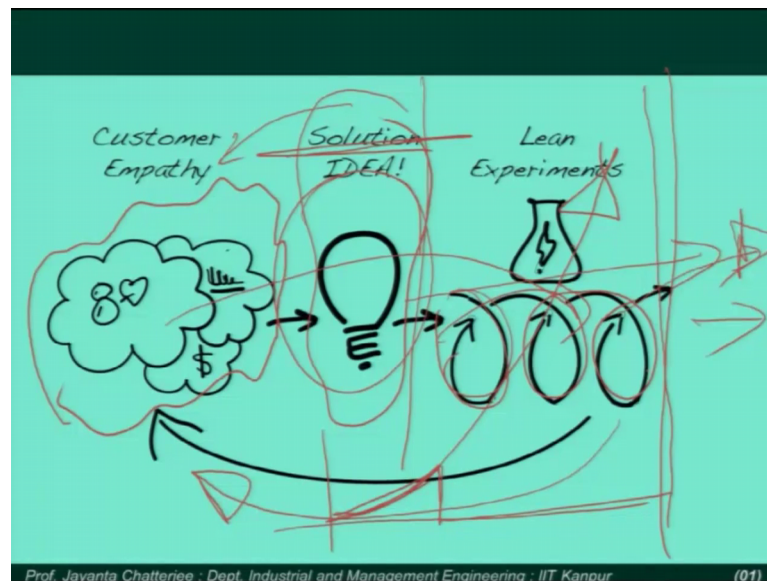


**Management of New Products and Services (MNSP)**  
**Prof. Jayanta Chatterjee**  
**Department of Industrial and Management Engineering**  
**Indian Institute of Technology, Kanpur**

**Lecture – 19**  
**NPNSM - What is a Lean Startup**

Hello, I am Jayanta Chatterjee from IIT Kanpur. We are discussing management of new products, new services. And today, we are returning to the domain where we started in our initial lectures, the domain of startups, high velocity high technology startups, consumer product startups, industrial product startups and the new product development challenges in a start up in a small organization and I am going to introduce to you the interesting 2 concepts the art of pivoting as we call it and what it takes to be a lean startup.

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So, fundamentally, this graphics borrowed from the lectures and of Eric Ries, who actually wrote that book called the lean startup. This actually shows that, fundamentally, what we are looking at is deep understanding of customer deep understanding of customer. So, you start with customer empathy or customer understanding, customer's needs, customer pains. We have discussed this actually in great detail, in several earlier sessions that, you do not start with this eureka fantastic idea. So, actually and then, go in

search of customers in the lean startup, we say know, start with customers understand customers pains.

See what games can you offer in resolving that pain with respect to your competitors. And from there, you develop your whole idea the idea the solution. And what solution is also highlighted, because, if you remember, when we discussed the chasm, and the product life cycle and the gaps that occur. The understanding that you must have the whole solution thought of as a part of your overall roadmap, so that, you may introduce a product, but at the end, you must understand that the customer does not buy a product or service. The customer is looking for a solution to a pain. Therefore, that solution approach is extremely important.

So, from the customer to the solution and not lab developed solution and then search of the customer. This is a key point and then this process of taking it to the customer understanding product development to make it finally happen, we go through this loops, this is why, it is shown it is not a linear path it is actually loops and here you see, we have also drawn that you actually go back and you will actually go forward.

So, between the idea launch and we have the series of lean experiments as we call them which finally, goes to the this is the up commercial launch. So, you see this is slightly or in some ways quite different from the stage gate method that we discussed that is suitable for incremental innovations and quite important for large organizations to manage some bit of system in nurturing large number of innovative ideas.

But here, within a small company, within a startup and as we discussed, even large companies often behave as a cluster of small companies to make this process happen. So, this iterative going backward and forward, creating number of loops feedback loops from the customer to the solution to the lean experiment then again going to the customer, again going forward this process is driven by design thinking and many other new methodologies. Fundamentally, it means deeply involving the customer deeply understanding the customer and creating ideas based on that and testing the validity of your developments continuously with the customers back and forth back and forth and so, the more time you spend it may appear to be you know kind of tedious sometimes.

But remember, I showed in a previous diagram that, if you actually spend at this stage some more time, your actual money invested cost incurred is nothing compared to the

cost that you will incur almost exponentially going up in stage four and stage five, when you are actually gone into the market launch phase. So, better it is that, you do several iterations at these 3 stages rather than actually re coming back from the market and doing a major rework after the commercial launch has happened.

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**WHAT IS LEAN STARTUP?**

➤ ***"A startup is an temporary organization formed to search for a repeatable and scalable business model."***

**Steve Blank**

➤ ***"A Lean Start up is designed to create new products and services under conditions of extreme uncertainty."***

**Eric Ries**

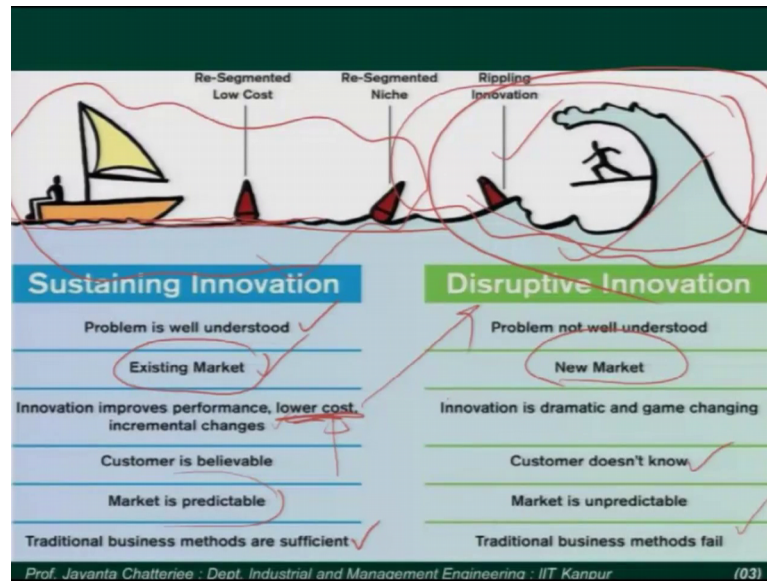
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So, what are the 2 concepts here? A lean startup; it startup it is a startup means, it is a temporary organization formed in such of a repeatable and scalable business model right. And by the way Eric Ries who wrote that lean startup book a lean startup is designed to create new products and services under conditions of extreme uncertainty. This extreme uncertainty is the key word which is the state in which we are today. In 21st century even at this stage we are seeing high velocity in almost all fields in terms of new product introduction.

So, there are many people competing at breakneck speed to get to the market place with the more concrete worked out better solutions, better roadmaps. So, therefore, this lean methodology becomes very important because, it is aimed at responding to this extreme uncertainty.

So, the difference between kind of that stage gate method or what we call incremental innovation and sustaining innovation and disruptive innovation where this lean startup method works better this iterative going back and forth approach works better.

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Because, in case of incremental, you know, the problems are usually well understood because we said it is incremental innovation. So, which means it is you are already doing some augmentation of something that you are currently doing. Even if it is actually a new model, it is based on what you have been doing or in the business that you have been in.

So, it is actually this is a very key word because you are therefore, looking at new revenues or new customers coming in from the existing market. So, these are innovations which are looking at improving performances, lower cost often a big driver here and incremental changes customer the market here is much more predictable because, we have more ideas about this particular market. And traditional business methods are sufficient as opposed to this the market that the other market is not sailing on calm waters, but actually surfing on waves. So, that is the world of disruptive innovation where the problem is not very well understood.

The market is quite new and the innovation is dramatic and can completely dramatically change and customer does not really know the market is unpredictable and traditional business methods will feel a very important point is that, a market which is now looking like this right you can make it to behave like this.

Look at the mobile telephony service market in India where, in the last 12 months or 18 months, we have seen a dramatic change happening major challenges being offered by



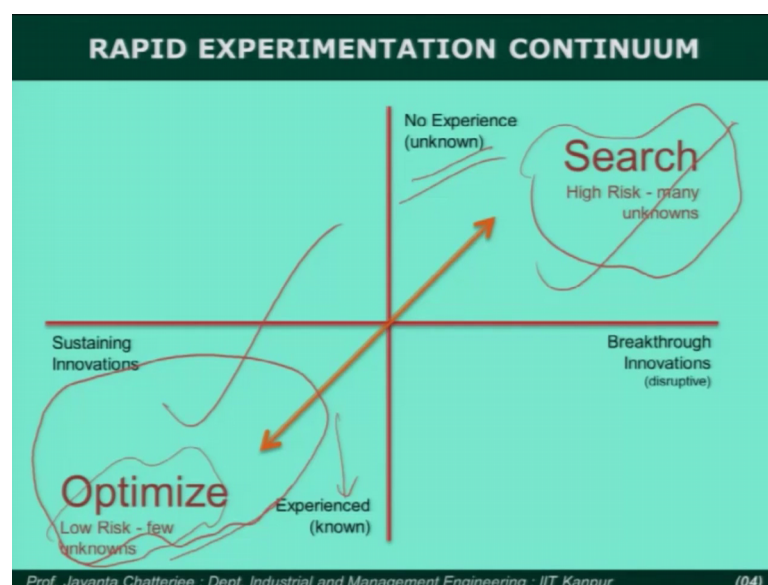
introducing new technologies and new business models, new way of pricing and new priorities set between voice and data.

So, just about 18 months back, most of the mobile companies were making most of their money from voice billing. And today, voice is being offered unlimited calls are being offered free and the focus is how to persuade the customer to consume more and more of data by downloading songs, movies, listening to music or news on the go, you know, watching films on the phone or on the laptop. So, data consumption is and this is something people talked about you know , around 2000, that in future, someday, the data will be the king and voice can be offered free.

But, it did not happen till 2016. And in 2016-17 it happened and changed the entire market complexion. So, even in a calm market by certain strategic actions, you can create this situation of waves; you can create this situation of disruption. So, disruption can be sometimes created deliberately, if you are well prepared for it then, you will actually be the gainer.

And of course, you are as we are seeing in the market that while you know, one operator created the disruption the other people are also capable, they are responding to it. And let see where it goes , but ultimately one thing is good that it is the customer who is gaining, customer who is becoming now you know, more powerful in demanding facilities.

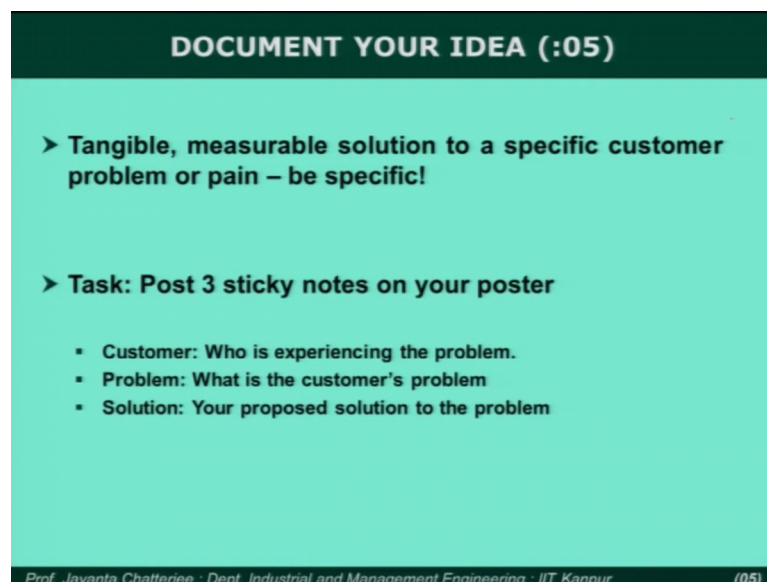
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This is another way of presenting that same set of issues that in one case , in one kind of new products , new introductions, we are trying to optimize. So, therefore, the focus here is unknown market and therefore, there are this is few unknowns and low risk. And at the other end, we have a high risk, but high gain type of situation where, actually there are lots of unknowns.

So, the stage gate methodology is valid for this type of new product development situation and this pivoting lean startup methodology is valid for this kind of situation so, different strokes for different folks or as they say horses for courses. So, depending on the game you are in you have to decide what kind of new product development new service development strategy you need to promote ok.

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**DOCUMENT YOUR IDEA (:05)**

- **Tangible, measurable solution to a specific customer problem or pain – be specific!**
- **Task: Post 3 sticky notes on your poster**
  - **Customer:** Who is experiencing the problem.
  - **Problem:** What is the customer's problem
  - **Solution:** Your proposed solution to the problem

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Let us put some structure to this lean startup methodology that and I will I will give some major steps that you can follow; take an idea that you have right something brilliant that you have observed. Now, you remember this is not an idea that you suddenly got one day while waking up in the morning. This is some idea that has come to you by observing pain of customers maybe even your own pain in availing a particular solution be it a making a phone call or being you know downloading some data or creating some or even going to the market for your daily needs.

Whatever or trying to book a you know, restaurant for your family to go out or booking a ticket or whatever, you know, you it must come from some problem sensing by the customer it come must come from pain.

So, identify some valid and sustaining pain and remember, I had discussed in an earlier stage that, if you can find if you can sense a latent pain; that means, pain which has not been very strongly articulated, which will be known to all competitors, but some pain which is people accept, but they really would like something to liberate them from that pain. If you can sense that, then that is fantastic. That idea you document that idea. Take 5 minutes which means, if you have sensed it well , if you have thought about it , you won't take more time and post 3 sticky notes on a on a poster paper and this is your idea.

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**DOCUMENT YOUR IDEA (:05)**

- **Tangible, measurable solution to a specific customer problem or pain – be specific!**
- **Task: Post 3 sticky notes on your poster**
  - **Customer:** Who is experiencing the problem?
  - **Problem:** What is the customer's problem?
  - **Solution:** Your proposed solution to the problem

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So, document your idea and highlight in these 3 sticky notes. Customer who is experiencing the problem or I would say, the pain who is experiencing the pain.

Then problem; What is that problem? What is that problem? And as I as I have mentioned, that it is only when you have a gain that you are offering in response to a problem, you will have a winning new product and that is your solution, what is your solution and how it is offering a set of gains over and above the current range of solution. So, these 3 things down do not take more than 5 minutes to do that.

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**BRAINSTORM ASSUMPTIONS (:10)**

- What customer behaviors must take place for your solution to be adopted?
- What assumptions are you taking for granted as fact?

**Task: Write down as many assumptions as possible as a team, one assumption per sticky note.**

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In the next 10 minutes, you discuss with your teammates what customer behaviors must take place for you for your solution to be adopted. What are the preconditions for the customer to shift to your way of solving the problem? What assumptions are you making or you are taking it as fact, you know, taking it for granted? And write down as many assumptions as possible as a team one assumption per sticky note ok. So, as you see write down your idea, who are the customers, what problems you are trying to address, and how is your solution going to address it better.

Next, you try to say that, in the customers behavior, behavior means, it could be in the user interface it can be in the way user uses the product it can be the users attitude towards the product. Try to capture both tangible issues as well as intangible issues. Both may be speed weight and that kind of tangible issue as well as, feeling and thinking and all that kind of intangible issues. What customer behavior must take place for your new approach to be adopted? And in that process , in that change that you want the customer to make you would like to take certain assumptions that the customer already is very much pain due to this, and like that all the assumptions you must therefore, list down.

Then you would narrow your assumptions you have earlier I have written write down as many as possible assumptions.

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**NARROW ASSUMPTIONS (:10)**

- What is the biggest assumption that if false, will cause you product to fail?
- What is most unknown, where do gaps exist?
- Focus on customer behavior related assumptions

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Now you want to filter and concentrate next spend 10 minutes on that that what is the biggest assumption that if falls will cause your product new product to fail. What is the most unknown where do gaps exist and focus on customer behavior related assumptions ok?

So, you are now taking you are generated in the earlier stage, as many assumptions as possible. And now, you are trying to focus on that what is the single biggest assumption that if fails, will your product will fail. What assumptions you are taking that what is the most unknown in all of this where is the maximum gap and focus on the customer behavior related assumptions.

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**POST YOUR FAITH-RISK (:05)**

➤ This is the riskiest assumption for your business idea.

*"If this is not true, we're out of business"*

**Task: Place a single sticky note of your riskiest assumption on your poster.**

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Then is the come that if this is not true, we are out of business. This is the riskiest assumption. So, this is this can be a refined statement coming from this biggest assumption that if false will cause your product to fail, now, you might try to crisply state that and that if this is not true we are out of business. And place a single sticky note of your riskiest assumption on your poster. So, this is; that means, that is your core new product new service development challenge.

And remember again I will emphasize, that you must whenever you are thinking do not think only of the product. You know, think about the platform, think about the portfolio, think about going from product to the whole solution. So, that thinking of the whole solution, the portfolio, the platform must respond to this central challenge ok. So, you have identified this central challenge.

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**WHY PROTOCEPT?**

- Reduce the risk associated with resource investment, move faster with more certainty.
- Change opinions into facts
- Inform our decisions with data and customer insights
- Separate customer words from behavior – say vs. do!

**Output = Insights + Data**  
(what did I learn from the customer + what behavior did I measure)

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Then, you try to see ok. What can I do to reduce that risk what are the different other things where actually I can create a little bit more certainty right. Now, the interesting point here is as I am saying telling you this that, do this do this, you will never actually truly appreciate. It is like you know learning to cycle or swim until unless you get into the water, you will never learn to swim.

So, what I will highly encourage is, you actually take up an idea some business idea that you have. And you try to do these steps and get back to us, right in the forum that what you tried and what failed give a snapshot of these sticky notes that you have created and ask us questions, then this process will become much more interesting ok.

So, at this stage what we say this is we call protocept something like prototype, but this is a conceptual prototype. So, that single biggest problem that you have identified with the; if that is not true your business will fail. Now, you see, how to reduce the risk associated with that particular challenge by reducing the investment needed, what kind of certainty you can create, what kind of technologies from outside you can try to bring, what modules you can use which are already existing in the and that becomes a subsystem in your overall system and so on.

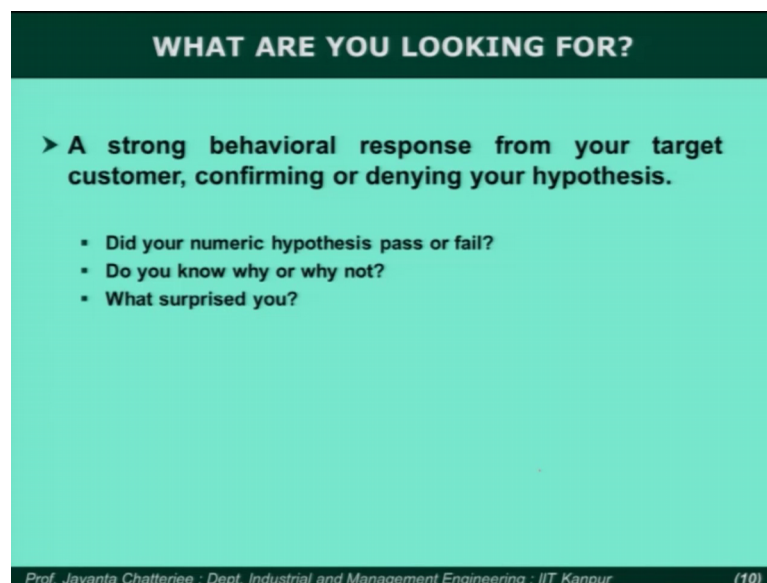
So, also here, you should try to certain things you might have made a conjecture or you have made some assumption, try to find facts in proving or disproving your assumptions.



Main point here is that, you might have had earlier some insight, but now try to get as much data as possible, so that your insight and data together becomes your output.

So, what did I learn from the customer and what behavior did I measure and then, try to develop some insight from that interaction between your sketch or your early idea and discussion with the customer, try to interpret it.

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**WHAT ARE YOU LOOKING FOR?**

➤ **A strong behavioral response from your target customer, confirming or denying your hypothesis.**

- Did your numeric hypothesis pass or fail?
- Do you know why or why not?
- What surprised you?

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What we say here is that, some hypothesis or some sketch, it could not be you know, as there is a very powerful book or back of the napkin; that means, it can be just you know, on a single page some drawing some idea and some description of what is your product going to do and then you test it with some actual customers, target customer. And see what their responses are and that will give you some idea that you know, what will be surprised the way they reacted did they give some very important insight.

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**OUTPUT = LEARNING**

- What insights did you encounter which change the way you think about your customer..?
- How painful is the problem? Does it exist at all?
  - Indoor Clothes Dryer
- Are they trying to solve it today?
  - What process, if any, are they taking to solve their problem
- What were your biggest surprises?

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How painful is the problem? Does it exist at all? You know, like for example, I have given to you one example it is a very simple example indoor clothes dryer. You know, you have this racks folding racks which you put out in the sun on which you hang all these clothes to dry very popular in most of the tropical countries. Now, imagine in countries like Scandinavia or Nordic countries where, there is most of the time there is no sun right and you still need to dry.

Even if you are using a washing machine and their dryer, which is the mechanical dryer, even after that, you know the clothes are usually a little moist. So, you need to put them for drying and there is no sun. So, usually, you use some kind of clothes rack where, you hang them and often actually small items you may not actually you know, every day run the washing machine. So, some small items like innerwear and other small items are particularly in places where there are babies so, in clothes dryer. Now good concept sounds that it will be appealing.

But or even in a place like India, there are many parts of India, where it rains for the long number of days you know the long stretch of time. So, at that stage you can't put out the clothes outside. And, so you need to do it inside. Now, if you put it you know, under the fan inside your house and everyday use it, then you know there will be fungal growth on your in your room. So, you need to solve this problem that how can I dry clothes on a rack during the rainy season indoor what needs to be done? What are the items that

should; obviously, if you think through this, then you will come up with some solution. I am sure you will come up with some solution.

But then, the point here what we are making is, that test it with a customer. Number of customers and see, that the solution that you are thinking of you know, some very high-tech solution you can think of; But see, whether your target customers who are housewives and household workers you know young couples people with young babies how comfortable they are with kind of solution you are proposing. And also, test that ok. Your solution may be fantastic, you know, using some fantastic gadgets and new technologies and but will the customer pay for that sort of solution for that advantage. All these you need to check it out ok.

And I will see that, what kind of surprises you get and what are the different you may get some good suggestions from the customer at this stage. And this is what we call the art of the pivot that a significant change in direction based on new customer insights where the vision remains the same.

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**THE ART OF THE PIVOT**

- A significant change in direction based on new customer insights, where the vision remains the same.
- Idea: App to help diabetics maintain healthy eating habits.
- Insight: "Family members often care more than patients about maintaining healthy habits"
- Pivot to: App for family members instead of diabetics

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Like for example, there is a fantastic example; that somebody was trying to develop a phone-based app to help the diabetics to maintain healthy eating habit right. But in talking to the customers and a understanding the circumstances, they realized that family members; often care more than patients about maintaining healthy habits in case of

diabetics. In fact, the diabetics actually have a strong inner compulsion to cheat and the household I mean the family members have to keep a watch.

So, then this app developer actually pivoted, this is what we call pivoting. Pivoting means, your main value proposition remains the same this is your but then instead of here you slightly tilt. So, this is pivot right. So, you are pivoting around this point this approach is; that means, you are not losing your focus. It is just that, you are repositioning your value proposition and usually in terms of the core customer that being addressed.

And if you see, if you if you search on the net, you will find that, there are many products which are today brilliantly successful. Originally was conceived for something else altogether. Somebody was trying to develop a just a simple photo sharing app and from that, developed Facebook, which is today a major social media platform, which is not only doing photo sharing, but it is doing so many things.

Now, if they have been able to achieve this because, as they launched initially the photo sharing, they saw customer would also like to do this, customer will very much appreciate if this is there and they kept on adding those items and therefore, the central focus has shifted from photo sharing to life experience sharing, creating a community of friends and relatives near and dear ones.

And today, by including in that, that you can directly see something interesting happening in your friend's life and from there itself you can make a call. And all these are actually examples, that staying focused on your customer. You are actually moving the focus of your business in terms of products and services tilting in directions and maybe even creating a whole profile of tilts and that is what we call this just as in this case, we pivot to app for family members instead of diabetics.