

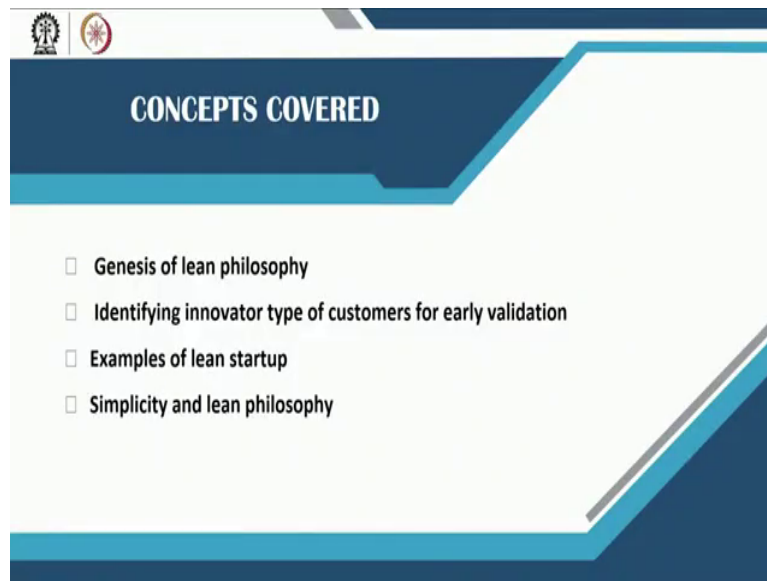
**Entrepreneurship Essentials**  
**Prof. Manoj Kumar Mandal**  
**Rajendra Mishra School of Engineering Entrepreneurship**  
**Indian Institute of Technology, Kharagpur**

**Module - 05**  
**Lecture – 25**  
**Lean Startup – III**

Hello and welcome. We are on the third session on Lean Startup. Today we are going to discuss about primarily the genesis of lean. Lean philosophy has been there, since time antiquity, but then most of us think that we all know about lean; and there is no need for us to even learn about it.

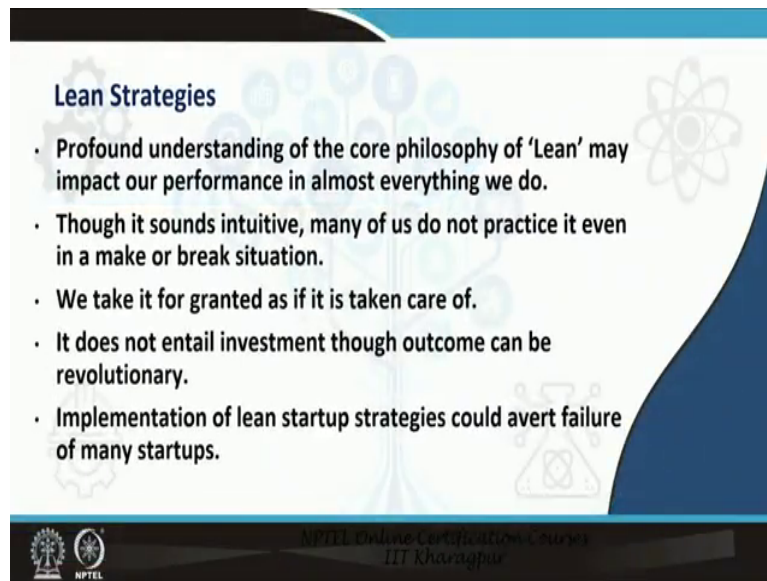
Unless we know the genesis as to how lean was evolved and under what circumstances. And what kind of industrial transformation lean has led to its difficult really to appreciate its impact on making industry profitable making venture profitable and successful.

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So, let us move forward. Today we are going to cover these items like genesis then identifying how to identify you know better type of customer. We will be talking about some examples of lean startup. Then we will conclude by saying simplicity and lean philosophy.

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**Lean Strategies**

- Profound understanding of the core philosophy of 'Lean' may impact our performance in almost everything we do.
- Though it sounds intuitive, many of us do not practice it even in a make or break situation.
- We take it for granted as if it is taken care of.
- It does not entail investment though outcome can be revolutionary.
- Implementation of lean startup strategies could avert failure of many startups.

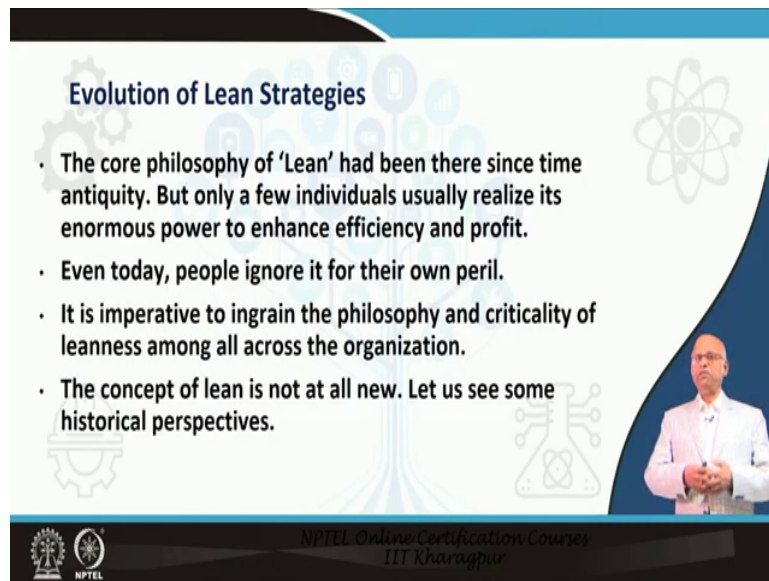
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Now, the profound understanding of the core philosophy of lean may actually impact performance of any venture. It can impact even our daily life, in our daily transaction unless we have a lean philosophy there is a possibility that many of us will find a time, when we do not have sufficient money sufficient fund to maintain ourselves.

So, it should be actually ingrained in our in our gene in our mentality. Though it sounds intuitive that yeah we all know what lean is, but many of us do not practice even in a make or break situation. Lean actually can make or break businesses even somebody's financial life, financial status. We take it for granted that we all know it and nothing to be learnt, but we actually need guidance has to how to inculcate that in ourselves that in our business that in the mindset of our employees, it should be absolute integral part of the mentality of the entire community in the business.

Implementation of lean startup strategies could avert failure of many startup. Most of the startup that run out of money and fail; perhaps they would have a very different story if they would have adopted lean philosophy from beginning itself.

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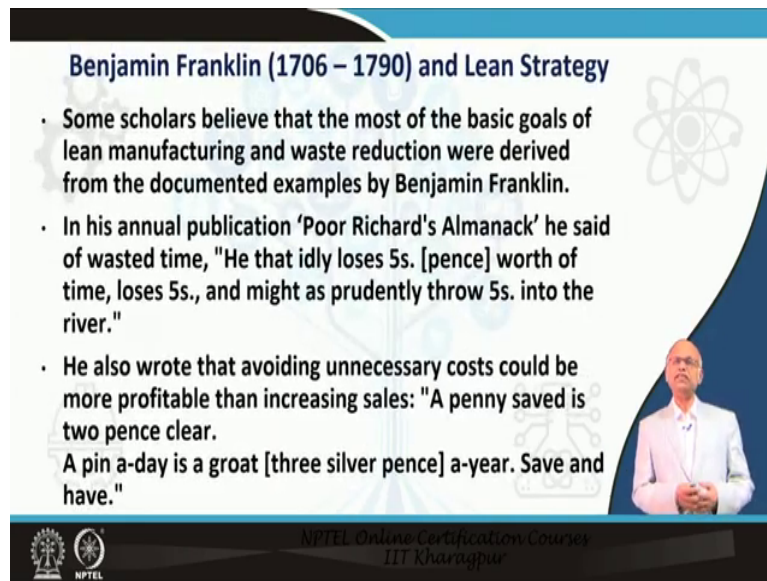
**Evolution of Lean Strategies**

- The core philosophy of 'Lean' had been there since time antiquity. But only a few individuals usually realize its enormous power to enhance efficiency and profit.
- Even today, people ignore it for their own peril.
- It is imperative to ingrain the philosophy and criticality of leanness among all across the organization.
- The concept of lean is not at all new. Let us see some historical perspectives.

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The core philosophy of lean had been there since time antiquity. But only a few individuals usually realize its enormous power to enhance efficiency and profit. Even today people ignore it for their own peril. It is imperative to ignore to ingrain the philosophy and criticality of leanness among all across the organization. In fact, we should teach the same philosophy to our children during the childhood. The concept of lean is not at all new and let us see its historical perspective.

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**Benjamin Franklin (1706 – 1790) and Lean Strategy**

- Some scholars believe that the most of the basic goals of lean manufacturing and waste reduction were derived from the documented examples by Benjamin Franklin.
- In his annual publication 'Poor Richard's Almanack' he said of wasted time, "He that idly loses 5s. [pence] worth of time, loses 5s., and might as prudently throw 5s. into the river."
- He also wrote that avoiding unnecessary costs could be more profitable than increasing sales: "A penny saved is two pence clear.  
A pin a-day is a groat [three silver pence] a-year. Save and have."

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Benjamin Franklin in the 18th century he told many many things about lean. But most importantly he published an article in a magazine that used to edit called Almanack; he said if you are just about time just not about other resources time also is a significant resources. Suppose you are just lazing around and spending 5 cents worth of time, it is as good as just bringing out 5 cents from your pocket and throwing in the river.

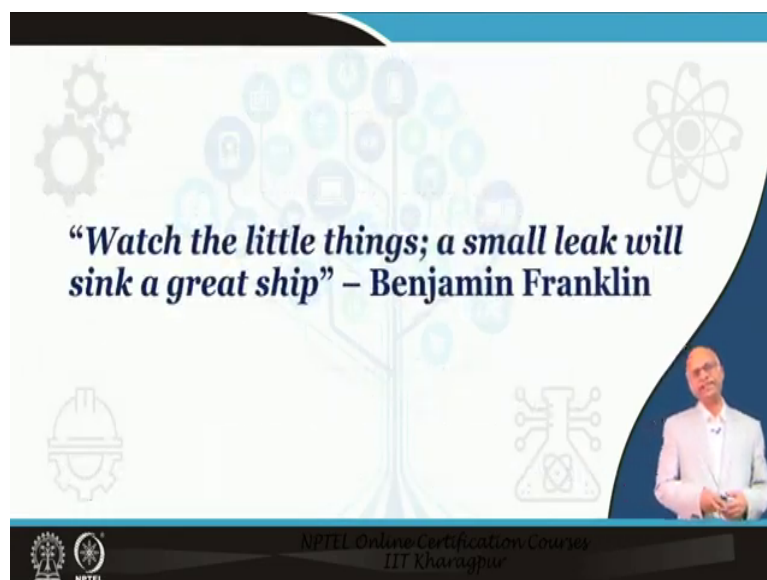
So, food on earth bring out 5 cents from his pocket and throw in the river. If you are not doing that then for everything that you do, whether you are killing time just lazing around or gossiping or anything that is not productive. You should think that you were actually bringing out money from your pocket and throwing.

He also wrote that avoiding unnecessary cost could be more profitable than increasing sales. Like you just avoid some unnecessary expense, that is suppose you save 1 rupee of

unnecessary expense this is as good as saving 2 rupees. Because, if you misuse that 1 rupee in the form of cost that was that you are able to control. It is, it would remain in your pocket rather than going down the drain. So, once you make a loss of 1 rupee whereas, the on the other hand you have a 1 rupee extra in your pocket.

So, it is you just add the 2 and it is 2 rupees of benefit if you can save 1 rupee of extra expenses. He says a pin a day is a groat a year save and save and have groat means almost like a silver coin, a pin means just a al pin. So, you just save an al pin every day and then put them together the end of the year you will get a silver coin kind of.

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And he believes nicely says “watch the little things; a small leak in the ship can sink the ship” if you are not taking care of it. So, do not ignore small small losses. In Bengali there is a saying that take care of your changes that is small coins and the lakhs will take care of itself;

that does not mean that you ignore the lakhs. But, if you really take care of the coins that is the changes then your money will multiply into lakhs that is the message.

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**Frederick Winslow Taylor and Lean Strategy**

Frederick Winslow Taylor, regarded as the father of scientific management, wrote in *Principles of Scientific Management*, (1911), "And whenever a **workman proposes an improvement**, it should be the policy of the management to make a **careful analysis** of the new method, and if necessary conduct a **series of experiments** to determine accurately the relative merit of the new suggestion and of the old standard. And whenever the new method is found to be markedly superior to the old, it should be adopted as the standard for the whole establishment."

Example of capability of employees at all levels

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The slide features a blue header with the title. The main text is in black with key terms in blue. To the right, there is a small image of a stack of white egg cartons and a small inset photo of a man in a white shirt. The bottom of the slide has a dark blue footer with the NPTEL logo and course information.

Frederick lean can be of from many point of view its not necessary that you save money reduce waste it can be in many many form you. Just increase the efficiency of your process and make more money, you process things in quick quicker in a shorter time. Frederick Winslow Taylor Winslow Taylor regarded as the father of the scientific management wrote in *Principles of Scientific Management*.

Wherever workman proposes an improvement, you should immediately listen to them and implement that completely and see whether it really works or it does not work. Do not think that an ordinary man is saying something we should not care about it. Only when some

engineers or somebody big shot some consultant is coming and telling us to do something we should do that should not be the case.

So, this is another philosophy of lean whenever somebody say peon saying something, you should pay attention behead and then try to implement and see. I am just a small example here I visited a small small scale industry at nearby and they were manufacturing is called pluri tubular, this is some tubular thing made of polyester cloths. And then this is used in batteries battery has electrodes positive negative. So, they will be pouring some oxides and then that will work as an electrode this is.

So, this they this they have been selling for a long time and these tubes are of different sizes. So, they when they cut it, they cut it at random by a cutter then they have to separate it its a hugely labor intensive work. They wanted some consultant to give them a solution and the consultant said ok. You pay us 25 lakh rupees we will develop a image processing system that will identify the size correctly and then they will sort it accordingly. And then you will put all the hardware that might cost another 25 lakh included the camera etcetera 50 lakh rupees.

One fine morning their [FL] brooms man, he was he by mistake he forgot to put the fan off before starting to broom, then he found some of these tubes were lying on the table, he noticed when the fan he put the fan puts the fan on mistakenly. So, initially only smaller tubes are flying away, then as the fan took speed larger ones started falling, that gave him eureka moment. He thought a fan be used with different speed to blow different sizes of this tubes at different times.

And, he pitched that idea before the founders and founders. Thought this can actually solve and eventually they implemented that and this is working wonderfully well. Of course, they had to do some experiment etcetera etcetera, but then they got a solution they could save 50 lakh rupees and got a solution from the lowest ranked person.

So, that clearly validates Frederick Winslow Taylor statement. And, you can this is also a part of lean; because you say a 50 lakh rupees and you make somebody happy and wow. So,



means you can encourage other people also to think out of the box by implementing whatever somebody has said.

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Charles Buxton Going, an American engineer, author, and editor wrote in 1915 about lean manufacturing in Ford:

"It exhibits in higher degree than most persons would have thought possible the seemingly contradictory requirements of true efficiency, which are: constant increase of quality, great increase of pay to the workers, repeated reduction in cost to the consumer. And with these appears, as at once cause and effect, an absolutely incredible enlargement of output reaching something like one hundredfold in less than ten years, and an enormous profit to the manufacturer."

The diagram on the right shows a flow from four cost components (Salary, Materials cost, Overhead, Other operating cost) to a single profit component. The components are represented by hexagons: Salary, Materials cost, Overhead, and Other operating cost are blue, while profit is green. A speaker is visible in the bottom right corner of the slide.

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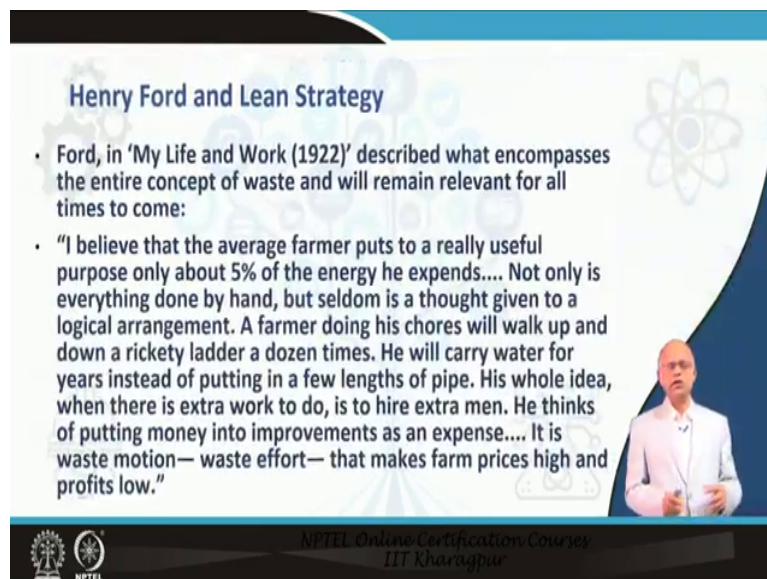
So, most of the people will think that is [FL] could do it. So, I why not me. So, they will start doing it. Buxton Going an American engineer, author, editor he wrote about Ford. This is very important actually, suppose you think of making more profit what can you do? You have to cut cost.

So, you reduce the salary or you increase the price or something, but most of these are untenable. You will reduce the salary people will not work, you reduce raw material cost raw material quality will degrade. So, how can we do it? Whereas, what Ford did they increase the salary, they reduce the price, they made more profit simultaneously by one stroke.

So, everything looks so, counterintuitive; because if you if you increase the salary your profit is going to go down, if you increase if you decrease the price your profit is going to go down. So, overall you are going to actually was not supposed to make profit, if you are taking care of interest of others there is the there is the conventional wisdom.

But what Ford did actually by implementing this assembly line they have they have improved the productivity so, much and they implemented all lean philosophy that they could raise the raise the salary they doubled the salary. And, they reduced the price of the car and whole of America could afford to buy a car at that time. And, they made hefty profit, they increase the profit tenfold or something or a hundredfold reaching something like one hundredfold in less than ten years.

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**Henry Ford and Lean Strategy**

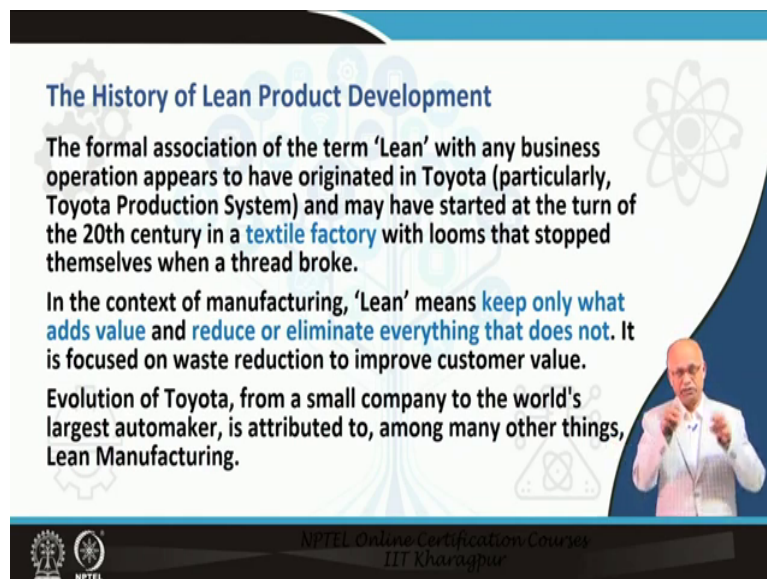
- Ford, in 'My Life and Work (1922)' described what encompasses the entire concept of waste and will remain relevant for all times to come:
- "I believe that the average farmer puts to a really useful purpose only about 5% of the energy he expends.... Not only is everything done by hand, but seldom is a thought given to a logical arrangement. A farmer doing his chores will walk up and down a rickety ladder a dozen times. He will carry water for years instead of putting in a few lengths of pipe. His whole idea, when there is extra work to do, is to hire extra men. He thinks of putting money into improvements as an expense.... It is waste motion— waste effort— that makes farm prices high and profits low."

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So, look at that these are all data and these are not a stories. They all data and all we all are part of that story. Ford himself exposed lean philosophy with an example; he talked about farmers. Farmers do so, many things without really knowing that they are actually wasting time. Something like suppose somebody is sowing some plant or say planting some saplings. So, he will take a bundle of that then he will continue to plant and then, at the end he will come back to pick up another lot.

So, he will not estimate how much time he is actually wasting in between this two walking around and doing some labor fruitless labor etcetera etcetera. And Ford suggested that or he just guesstimates guesstimated that about 5 percent of the time is actively utilized, remaining time goes unutilized or maybe doing unnecessary things wasting energy wasting time.

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**The History of Lean Product Development**

The formal association of the term 'Lean' with any business operation appears to have originated in Toyota (particularly, Toyota Production System) and may have started at the turn of the 20th century in a **textile factory** with looms that stopped themselves when a thread broke.

In the context of manufacturing, 'Lean' means **keep only what adds value** and **reduce or eliminate everything that does not**. It is focused on waste reduction to improve customer value.

Evolution of Toyota, from a small company to the world's largest automaker, is attributed to, among many other things, Lean Manufacturing.

The slide features a background with faint icons of gears and a stylized atom. On the right side, there is a small inset image of a man in a white shirt speaking. At the bottom left, there are logos for NPTEL and IIT Kharagpur. At the bottom center, the text reads 'NPTEL Online Certification Courses IIT Kharagpur'.

So, their output actually is low. If farmers really estimate how much of this idle time, that they are spending their productivity may go up, their income may go up, their lot will be much better. Lean actually even though it started long back, but formerly lean system is in a very formal way lean started in Japan in Toyota textile factory. In in textile factory they whenever a thread would break, the machine has to be stopped and then thread should be repaired and then machine will start. And nobody will know when the thread actually is broken some one is broken nobody will know.

So, after some time somebody will know then they will repair. So, there will be some kind of a defect on the canvas on the on the cloth. So, they thought this is not this is not improving quality. So, they wanted to improve quality and reduce downtime. So, they built something by which, whenever an eon will be broken immediately the machine will stop immediately somebody will come and repair. So, they started thinking about lean long time back when they for actually Toyota was a textile company at the beginning and then they moved into automobile that was much later. So, Toyotas means from Toyotas example what kind of a slogan or what kind of message that they started sending is like keep only what adds value to the customer.

Suppose, you add something and customer things that good, this is actually valuable compared to competitors all buy this. Or reduce or eliminate anything and everything that does not add value to the customer. Meaning that if you can reduce something just tear it apart and throw away and customer will say that is fine, I do not mind because I do not use it. So, as long as customers do not perceive that as value depletion just remove keep removing whatever is whatever you can.

So, that is how you can you can add value to the customer; because now your cost of production is low or cost of the whole thing is becoming low. So, you can sell it at lower price. So, paying low paying less customer gets the same value that the perceiving previous product as well. So, eventually, it becomes a win-win for company for customer.

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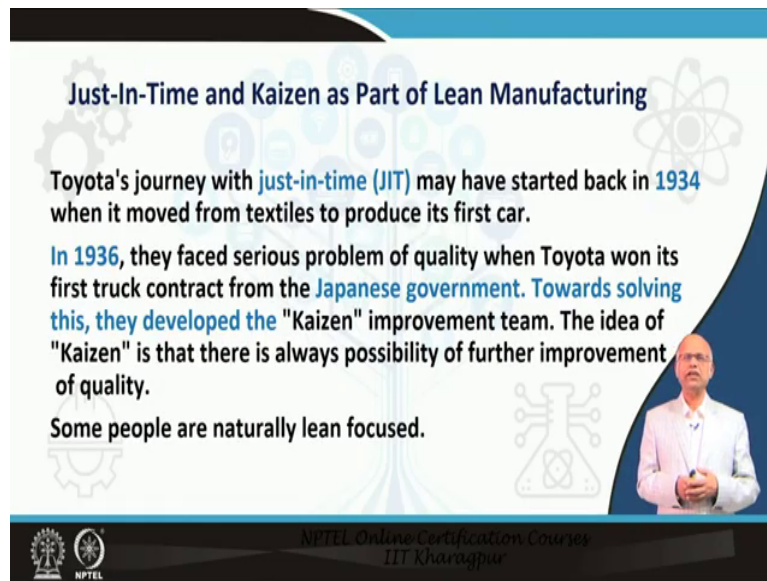
The History of Lean Product Development

After World War II, Eiji Toyoda and Taiichi Ohno at the Toyota Motor Company in Japan pioneered the concept of lean production. The rise of Japan to its current economic pre-eminence quickly followed, as other Japanese companies and industries copied this remarkable system.

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After World War II, particularly this was very important Eiji Toyoda and Taiichi Ohno at the Toyota motor company in Japan; they pioneered the concept of lean production. The rise of Japan after World War II to its current economic preeminence quickly followed; because majority of the companies followed this lean philosophy from Toyota.

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**Just-In-Time and Kaizen as Part of Lean Manufacturing**

Toyota's journey with **just-in-time (JIT)** may have started back in **1934** when it moved from textiles to produce its first car.

In **1936**, they faced serious problem of quality when Toyota won its first truck contract from the **Japanese government**. Towards solving this, they developed the "Kaizen" improvement team. The idea of "Kaizen" is that there is always possibility of further improvement of quality.

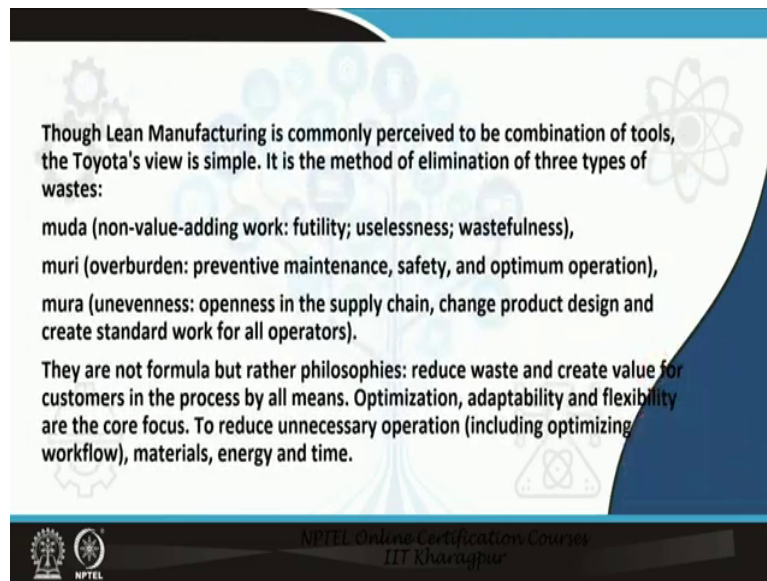
Some people are naturally lean focused.

The slide features a presenter in a white shirt on the right side. The background includes decorative icons of gears and a molecular structure. The footer contains the NPTEL logo and the text 'NPTEL Online Certification Courses IIT Kharagpur'.

Just in time; as you all know I also explained earlier when we talked about inventory management, I give an example about saving interest. So, just in time means whenever you need just then material should arrive. And then there was another philosophy called Kaizen. Kaizen means there is Kaizen is the belief that there is always a possibility to improve quality. So, even if you think that our quality is best in class in the in the marketplace, but still there is a possibility that you can improve further.

So, continue to improve continue to improve as long as you can improve. So, that customer remain loyal to you and they never go to somebody someone else; otherwise you will find suddenly some your competitors have come up with a better quality and then you lose to them and then it becomes very difficult to fight back.

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Though Lean Manufacturing is commonly perceived to be combination of tools, the Toyota's view is simple. It is the method of elimination of three types of wastes:

- muda (non-value-adding work: futility; uselessness; wastefulness),
- muri (overburden: preventive maintenance, safety, and optimum operation),
- mura (unevenness: openness in the supply chain, change product design and create standard work for all operators).

They are not formula but rather philosophies: reduce waste and create value for customers in the process by all means. Optimization, adaptability and flexibility are the core focus. To reduce unnecessary operation (including optimizing workflow), materials, energy and time.

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So, particularly after Second World War, it was kind of difficult. So, these three words actually summarize summarize the lean philosophy that Toyota wanted to implement. One is muda, muri and mura. Muda means if anything can be reduced that does not add value to the product just remove it; non value adding work futility usefulness uselessness or wastefulness just remove. These are all negative words meaning Muda means all whatever you can actually eliminate you just eliminate.

Muri means overburden; if your system is overburdened reduce that and make the system more agile. Like if you do preventive maintenance your system will not suddenly break down unplanned and then the whole thing goes for a toss and you have to really fight over night or do fire fighting to put it and then your whole supply chain disrupts. So, things become

unmanageable. So, preventive maintenance take care of the safety so, that nobody is harm. And then things get disrupted again and optimum operation.

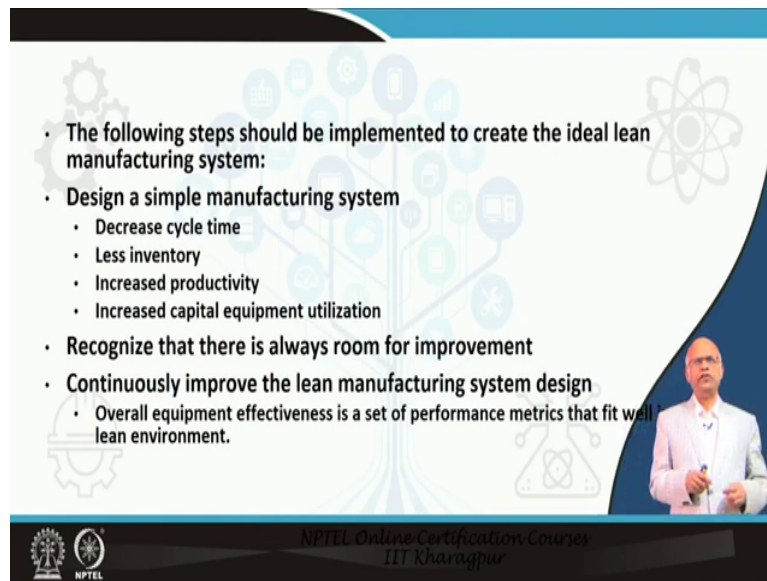
Mura, mura means unevenness. If system has unevenness at any place like the supply chain there is somebody supplies then other you wait for another to come or something like that everything should be systemic. So, that everything appear at same time and you can you have continuous supply of things. Very recently there is a video by Elon Musk; some day he was just arriving at I think at Khan Academy to deliver a lecture, he said I was fighting because a USB cable was out of stock and that has to come from China. So, we have to wait for maybe 2 weeks for it to arrive at or maybe 1 week. So, look at this meaning that such a wonderful feature featuristic company even they had they did not plan this way that they have to wait for a USB cable.

So, do not think that these are all jargon or these are all something like management fad or something these are reality and that is how this kind of like Toyota became the largest automobile maker. So, mura unevenness change the product design create standard work for all operators; like you standardize wherever possible. So, if you are making a nut. So, let this nut be applicable to majority of the places, wherever similar kind of strain and stress is involved same nut should be used rather than you know just build another design another nut.

So, if you have this uniformity standardization, you end up reducing lot of a stress on your company.



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The following steps should be implemented to create the ideal lean manufacturing system:

- Design a simple manufacturing system
  - Decrease cycle time
  - Less inventory
  - Increased productivity
  - Increased capital equipment utilization
- Recognize that there is always room for improvement
- Continuously improve the lean manufacturing system design
  - Overall equipment effectiveness is a set of performance metrics that fit well lean environment.

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The following step should be implemented to create the ideal lean manufacturing system. Design a simple manufacturing system it should be simplified. Decrease cycle time, less inventory, increase productivity, increase capital equipment utilization. Meaning if you have machines try to see that it is always under utilization, not under utilize always being utilized.

Recognize that there is always room for improvement. Kaizen philosophy there is always room for improvement, continuously improve the lean manufacturing system design. So, try to see if you can do more with less more with less; overall equipment effectiveness is set performance metrics that fit with the lean environment.

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**DoorDash**

- DoorDash arranges logistics services to offer food delivery from restaurants on-demand. Founded in 2013.
- Has raised more than \$700 million.
- DoorDash was valued at \$1.4 billion in 2018.

Source: Screenshot from <http://startupclass.samaltman.com/courses/lec08/>

MVP of DoorDash

Your favorite Palo Alto restaurants delivered to you

Just \$8 per delivery

How it Works

Pick Your Restaurant

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DoorDash was a DoorDash was a student venture. They just they were living means they interacted with the coffee shop owner in a Stanford University; and she said if they wanted something to buy she said I am out of stock. Then they said can you not telephone and it will come right away then she said normally we do not do. But then this idea that through telephone something may come give them some idea that the company actually is possible.

So, anybody needing something they will just telephone and restaurant will supply. So, they just went to their hostel and immediately within half an hour time they just made a website. Some kind of a landing page with just a telephone number and some icons this icons also were not so, meaningful just to show something that is why they put some icon.

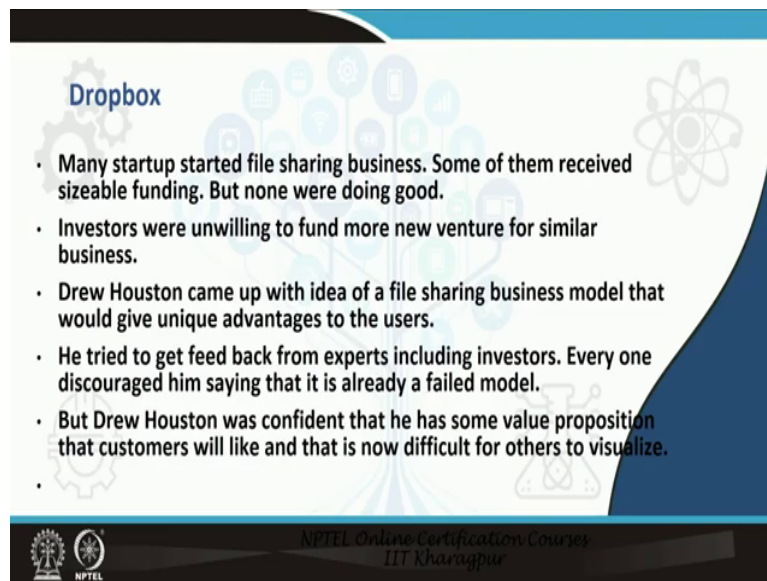
And, then when ever they put it within the same day they got a telephone call. And, then eventually they delivered food through telephone call means right, food was ordered through

telephone they bought that food from a restaurant and they met the guy eventually that guy transpired to be an investor. So, he also invested in the business.

Whatever that is, see look at the lean startup philosophy, they did not think that we need lot of money to start a business. Let us build a portal that has approached to an investor all that nothing was there. Just the same night they decided that will start a business they just build a website within half an hour and the first order was received and it was a wonderful company.

Dodash was DoorDash was valued at four point 1.4 billion dollar in 2018; its DoorDash sorry its not do dash DoorDash.

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**Dropbox**

- Many startup started file sharing business. Some of them received sizeable funding. But none were doing good.
- Investors were unwilling to fund more new venture for similar business.
- Drew Houston came up with idea of a file sharing business model that would give unique advantages to the users.
- He tried to get feed back from experts including investors. Every one discouraged him saying that it is already a failed model.
- But Drew Houston was confident that he has some value proposition that customers will like and that is now difficult for others to visualize.

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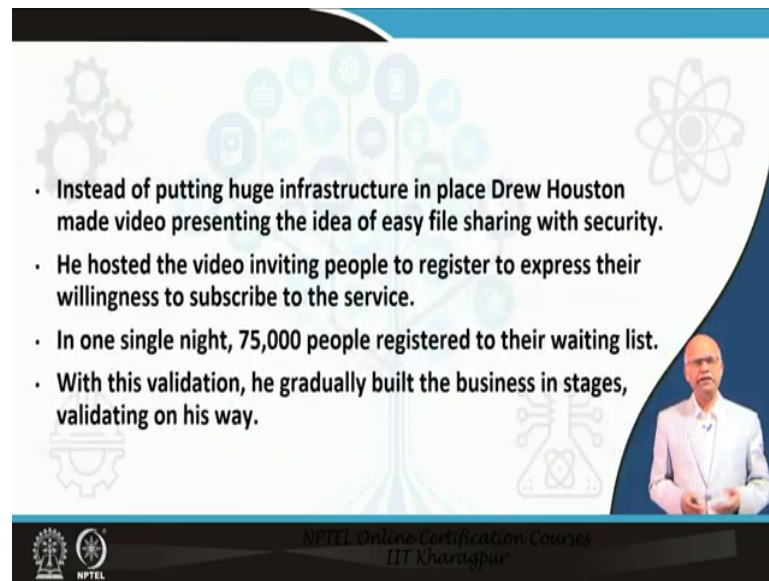
Like Dropbox; Drew Houston is the co-founder main founder of Dropbox. And, when he pitched his idea about a file sharing business, investors told him that we have already invested

in hundred more than hundred such companies and none of them is doing good. So, what is the reason that we will invest and lose our money all over again. Then Drew said, I have a very different kind of a business this is much better and they this is much better than existing ones and there is every reason that you should fund.

Then they said we are sorry; we heard this same story from every entrepreneur everybody says that my thing is better. So, finding no alternative what Drew did is, he made a small video and demonstrated that this is the file, I am uploading through one click is uploaded and he noted the times look. This many seconds took to upload the file then he down from another computer he downloaded the file within few seconds file was downloaded. And whatever the content was there, he showed that the same content was downloaded, there was no loss of data and it came so quickly.

Earlier people mistrusted file sharing startup or file sharing websites; because the speed was very slow and then there was a lot of data loss. You download your file to find that there is no data, you put an excel file with data you filed a blank excel file. But Drew Houston showed that whatever you uploaded the same thing was downloaded.

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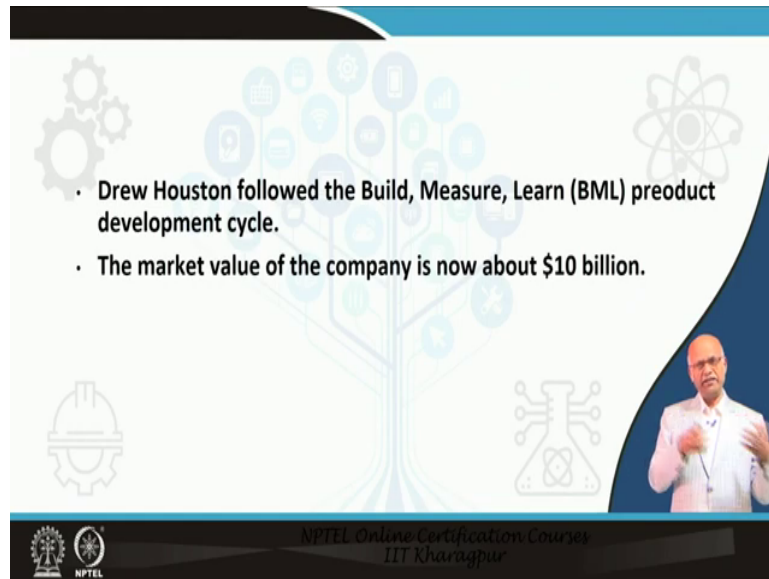


- Instead of putting huge infrastructure in place Drew Houston made video presenting the idea of easy file sharing with security.
- He hosted the video inviting people to register to express their willingness to subscribe to the service.
- In one single night, 75,000 people registered to their waiting list.
- With this validation, he gradually built the business in stages, validating on his way.

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And people saw from their own eyes that it is actually happening immediately. There were so many registrations something like 75000 or so, in one single night 75000 people registered to their waiting list they just wanted this service. And, Drew Houston is yet to was yet to that business. So, they express that yes we are game for it and we are going to register and avail your service with this validation. He gradually built the business in stages, validating on his way every time he did and validated.

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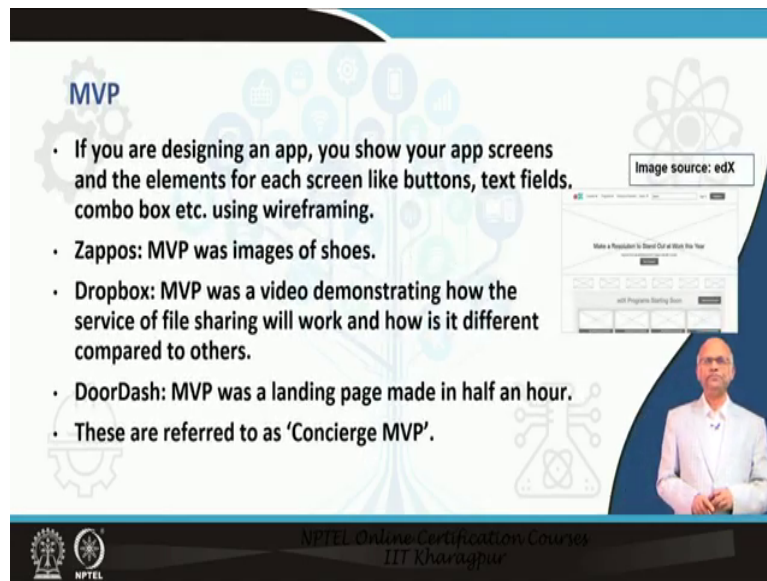
The slide features a central tree diagram where the trunk and branches are composed of various icons representing technology and industry, such as gears, a smartphone, a Wi-Fi symbol, a lightbulb, and a circuit board. The background is a gradient of light blue and white, with a dark blue curved shape on the right side. In the bottom right corner, there is a small inset video of a man in a white shirt speaking.

- Drew Houston followed the Build, Measure, Learn (BML) product development cycle.
- The market value of the company is now about \$10 billion.

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The market value of the company is now more than 10 billion dollar this data is slightly old.

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**MVP**

- If you are designing an app, you show your app screens and the elements for each screen like buttons, text fields, combo box etc. using wireframing.
- Zappos: MVP was images of shoes.
- Dropbox: MVP was a video demonstrating how the service of file sharing will work and how is it different compared to others.
- DoorDash: MVP was a landing page made in half an hour.
- These are referred to as 'Concierge MVP'.

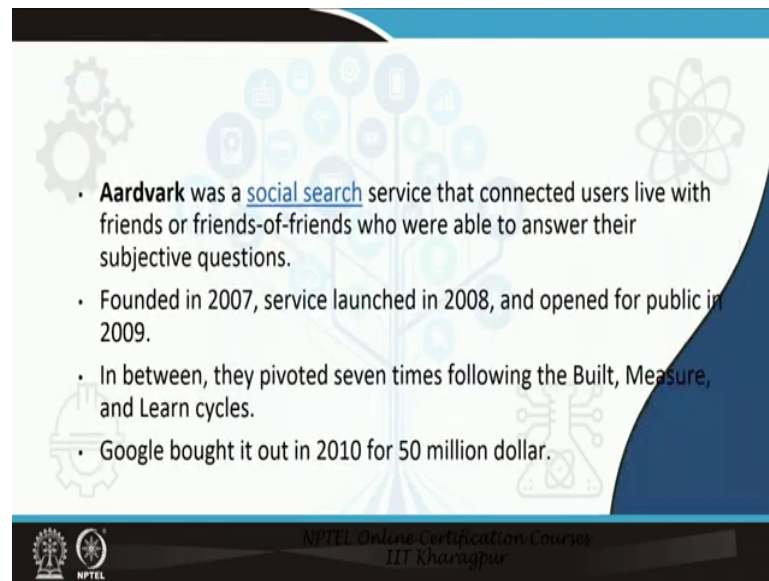
Image source: edX

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The slide features a blue header and footer. The main content area is white with a light blue background of various icons. A presenter in a white shirt is visible in the bottom right corner. The footer contains the NPTEL logo and text.

If you are making some kind of a website or is portal, it is better to give something like a wireframing. Where you just show that these is the icons and then you click here to get this this kind of a service. And, see whether people are interested in that service or not you gather data in the process and get your idea validated. Like we saw Zappos, they are minimum viable prototype or just images of shoes. Then Dropbox just explained, DoorDash, MVP just a landing page made in half an hour spending no money whatsoever. These are refers to as concierge MVP concierge Minimum Viable Product.

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The slide features a light blue background with a dark blue curved border on the right side. It contains a bulleted list of facts about Aardvark. The text is as follows:

- Aardvark was a [social search](#) service that connected users live with friends or friends-of-friends who were able to answer their subjective questions.
- Founded in 2007, service launched in 2008, and opened for public in 2009.
- In between, they pivoted seven times following the Built, Measure, and Learn cycles.
- Google bought it out in 2010 for 50 million dollar.

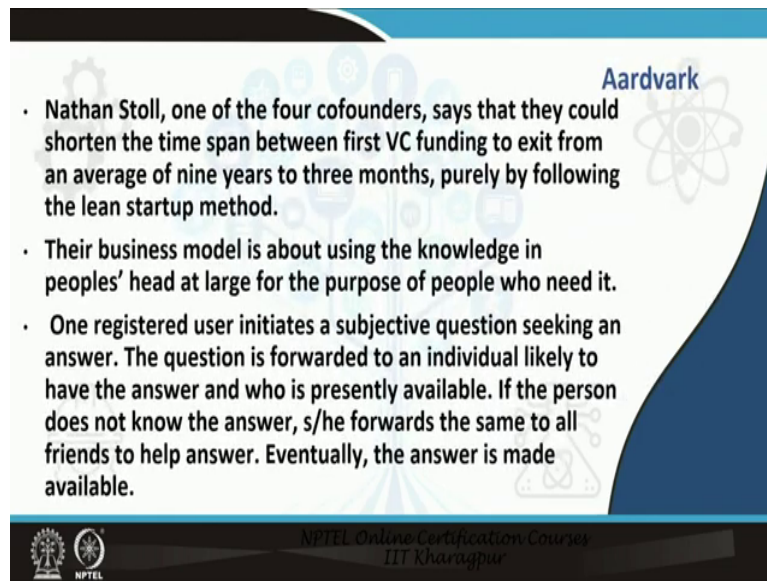
At the bottom left, there are logos for IIT Kharagpur and NPTEL. At the bottom right, the text reads "NPTEL Online Certification Courses IIT Kharagpur".

There was another company called Aardvark; its a social search service almost like Korra. It was suppose you have some problem, you upload the problem and I received this. So, I do not know the answer to that its a intelligent question and it requires some kind of background knowledge or talent or something, I do not know the answer. So, if I know that some of my friend actually knows the answer, I can direct it to him and he can directly answer that question.

And then eventually both people are happy; because majority of us would like to say tell people that look I know it. And we enjoy helping others through our intellectual capabilities. And the other guy who is actually struggling to find the solution. He is happy because he gets the solution whereas, other people are also happy because they could give the solution.





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The slide features a light blue background with a dark blue curved border on the right side. In the top right corner, the word "Aardvark" is written in a blue font next to a stylized atom logo. The main content consists of three bullet points. At the bottom left, there are two logos: the IIT Kharagpur logo and the NPTEL logo. At the bottom center, the text "NPTEL Online Certification Courses" and "IIT Kharagpur" is displayed.

**Aardvark**

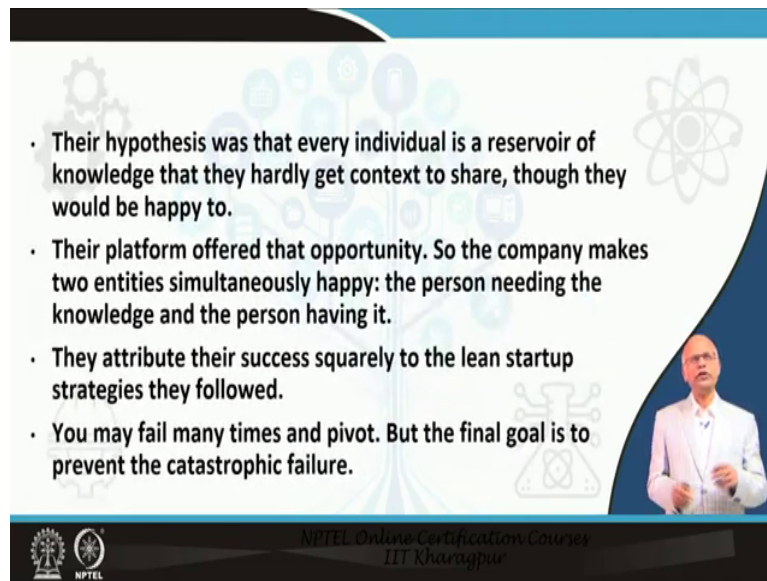
- Nathan Stoll, one of the four cofounders, says that they could shorten the time span between first VC funding to exit from an average of nine years to three months, purely by following the lean startup method.
- Their business model is about using the knowledge in peoples' head at large for the purpose of people who need it.
- One registered user initiates a subjective question seeking an answer. The question is forwarded to an individual likely to have the answer and who is presently available. If the person does not know the answer, s/he forwards the same to all friends to help answer. Eventually, the answer is made available.

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And in eventually it became a very successful company.

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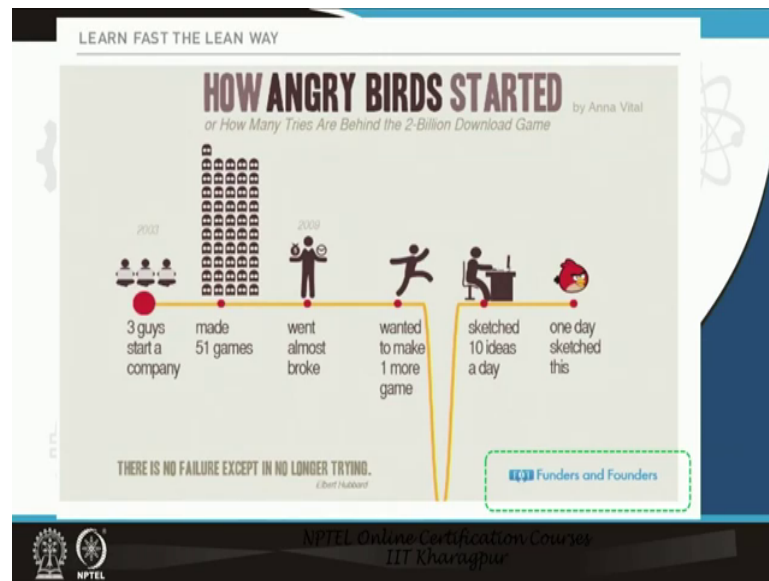
The slide features a white background with a blue header and footer. On the right side, there is a small inset image of a man in a white suit speaking. The main content consists of four bullet points. The footer contains the NPTEL logo and the text 'NPTEL Online Certification Courses IIT Kharagpur'.

- Their hypothesis was that every individual is a reservoir of knowledge that they hardly get context to share, though they would be happy to.
- Their platform offered that opportunity. So the company makes two entities simultaneously happy: the person needing the knowledge and the person having it.
- They attribute their success squarely to the lean startup strategies they followed.
- You may fail many times and pivot. But the final goal is to prevent the catastrophic failure.

And I think Google actually took it over. Their hypothesis was that, every individual is a reservoir of knowledge that they hardly get context to share. Like some people who are say housewife; housewife they are all educated mostly educated, but then they do not go to office or try to do something.

Now, we ask them some questions maybe somebody is good in chemistry. So, she will be more than willing to share her knowledge; because she has learnt it now she has now where to apply she gets the chance to apply not only that she gets a chance to get appreciated. So; obviously, she will try to help, if she does not she will she will maybe she will telephone to some of her classmates. And then together they will find a solution and throw it back to you wonderful, that is how this business actually was a wonderful business.

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Look at how angry bird started this was this is copyrighted by funders and founders I could not find where to take means where to apply for a permission, but kindly note that this is a screenshot from funders and founders.

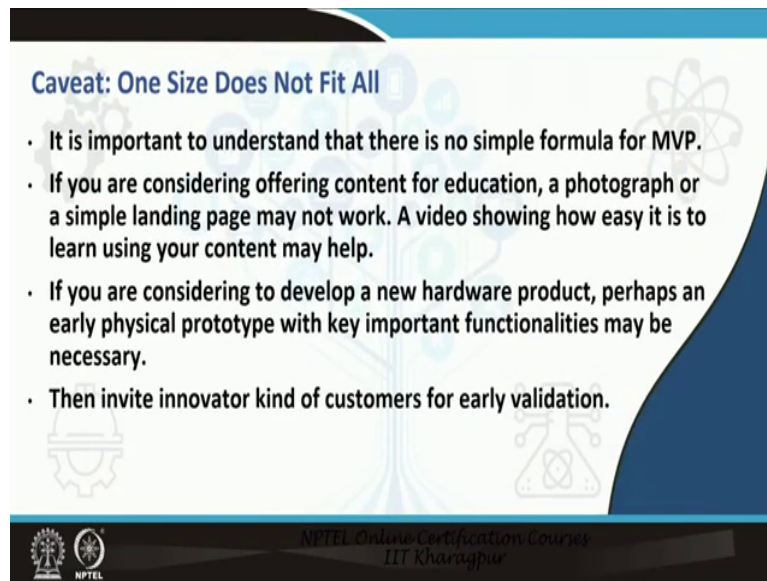
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So, this was how Angry Bird started so, simple with so, much. So, little money they started, but look how it is now if you just look at the difference between the complexity and fineness and all that. So, they did not think of the fineness and the graphical all wonderfulness etcetera, but then they just started.

So, that clearly means just do not look at the look at the picture or anything look at the simplicity when you can start something with less money, rather than waiting for perfecting and then approaching to the customer. You just you just want to solve a pain of a customer solve it and then gradually perfect it solve it to solve it better and better.

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**Caveat: One Size Does Not Fit All**

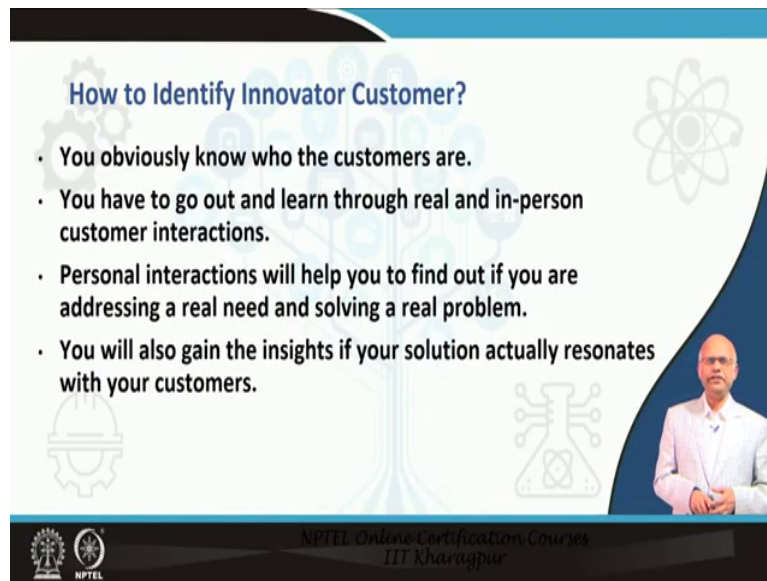
- It is important to understand that there is no simple formula for MVP.
- If you are considering offering content for education, a photograph or a simple landing page may not work. A video showing how easy it is to learn using your content may help.
- If you are considering to develop a new hardware product, perhaps an early physical prototype with key important functionalities may be necessary.
- Then invite innovator kind of customers for early validation.

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Remember one thing that MVP is not similar for all the cases; one size does not fit all. So, for every business there will be different kind of MVP for Zappos photograph of shoe actually helped, but suppose you want to start some education business. You cannot really start with the photograph or something you have to really convey that what value you are trying to give to your audience, that will matter means you need content.

Maybe you copy download something from somewhere because you are not selling this as a business. So, you are not violating anybody's copyright as long as you are not exploiting for commercial purposes download something and then, add your own value where you would like to project.

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**How to Identify Innovator Customer?**

- You obviously know who the customers are.
- You have to go out and learn through real and in-person customer interactions.
- Personal interactions will help you to find out if you are addressing a real need and solving a real problem.
- You will also gain the insights if your solution actually resonates with your customers.

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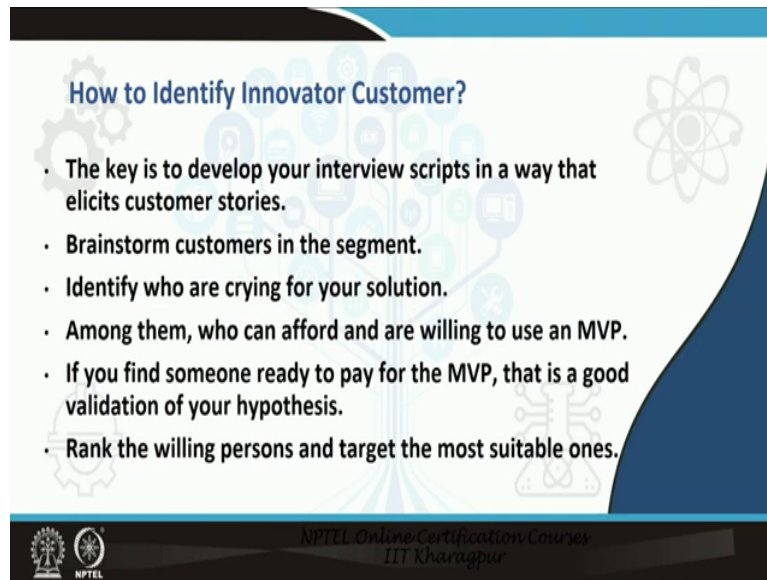
Whatever you would like to project as value proposition add that then, get it show it to students teachers and other get the idea validated. You how to how to find innovated kind of customer you; obviously, know who the customers are. You have to go out and learn through real and in person customer interaction you have to interact with them, you have to prove deeper and deeper based on whatever answers they are giving.

So, just go out, do not try to use secondary data and make some kind of a of philosophy or do market research based on secondary data. That is not going to give you inside. Personal interaction will help you to find out if you are addressing a real need and solving a real problem.

You also you will also gain insight if your solution actually resonate with your customers. In the process you get some addresses of the customer. Eventually when you are ready with the

product you can approach to these very people that look we discussed and you said yes or no or whatever based on your idea I have now developed. So, you have early customers.

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**How to Identify Innovator Customer?**

- The key is to develop your interview scripts in a way that elicits customer stories.
- Brainstorm customers in the segment.
- Identify who are crying for your solution.
- Among them, who can afford and are willing to use an MVP.
- If you find someone ready to pay for the MVP, that is a good validation of your hypothesis.
- Rank the willing persons and target the most suitable ones.

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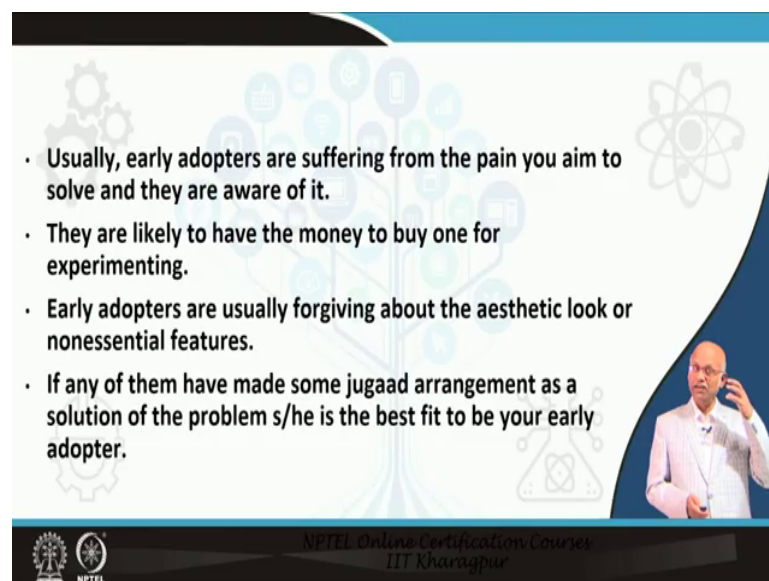
So, customer acquisition of the beginning maybe slightly shortcut, if you really have some people who validated your idea. The key is to develop your interview scripts in a way that elicits customer stories. Meaning you have to be intelligent is to what should I tell them. So, that they will actually emotionally get attached to my story and then tell truth, not really something exaggerated or some neither exaggerated nor a brief version of the story. Brainstorm customers in the segment identify who are crying for your solution most important.

And, most neglected item is to identify who are crying for a solution, only then you can build something that people will definitely buy among them who can afford. Many people may cry,

but they may not have the money to pay for it. So, you need to identify people who can afford who are crying and can afford and willing to use the minimum viable prototype. You find someone ready to pay for the MVP that is the best validation.


If someone is ready to pay for even for your MVP; that shows that that guy has real pain and he is crying for a solution and he is ready to pay and he has the affordability and readiness to pay and get the service. Then you can accelerate the process of development meaning that you do not have to steer left or right you have to move forward and go to market as quickly as possible. But, then one guy should not should not be or only validation there should be many other guys continuously keep on looking for looking for similar kind of guys at the same time at the back end start building products.

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The slide features a light blue background with a dark blue curved border on the right side. It contains a list of four bullet points and a small inset image of a man in a white shirt speaking on a mobile phone. The background is decorated with faint icons of gears, a tree, and a molecular structure.

- Usually, early adopters are suffering from the pain you aim to solve and they are aware of it.
- They are likely to have the money to buy one for experimenting.
- Early adopters are usually forgiving about the aesthetic look or nonessential features.
- If any of them have made some jugaad arrangement as a solution of the problem s/he is the best fit to be your early adopter.

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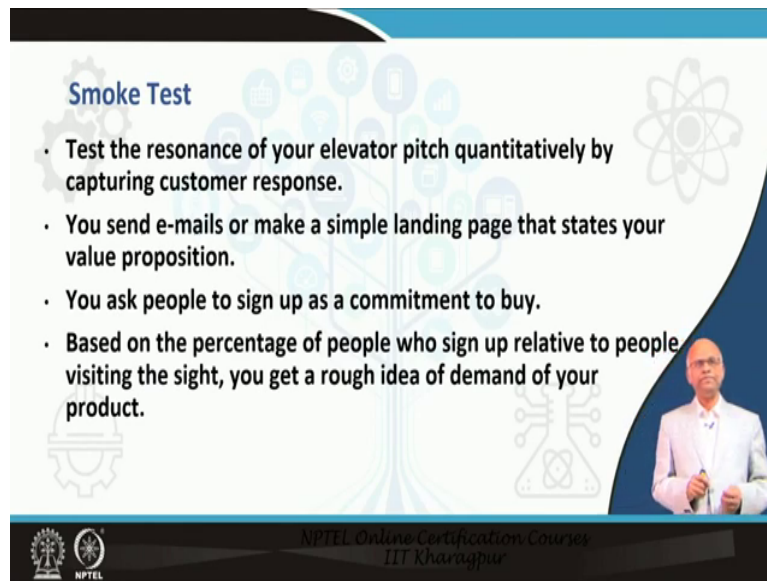


Rank the willing persons and target the most suitable ones. Meaning who are the most prominent people who are the most relevant people for your usually early adopters are suffering from the pain that you aim to solve and they are aware of it. Meaning that they know that they have a pain and they are actually looking for a solution. Those people are the early adopters because they are ready they have the pain, they know the pain and they are looking for a solution they are early adopters.

They are likely to have the money to buy one for experimentation, some of them will have the money and then do the experiment. Particularly if you tell them that we are a startup company and we are doing this they will be more than excited to test an experiment. Why did they have surplus money? Early adopters are usually forgiving they do not care about aesthetic sense and all that whether this color is right whether the body is good package is good or anything they just want functionalities.

If the functionality are good even they want to show this early MVP to their friends and tell them that look this is some companies manufacturing I bought this and they feel excited about it. And, other people will think that this guy is really innovator guy. Even though he will definitely not say that this is my invention, but then people value that and people innovator kind of customers they enjoy to talk about it. If any of them have met some [FL] arrangement to solve their problem, that also is the right candidate for your initial evaluation. Because they really have a problem they are really looking for a solution and they have already made some kind of a [FL].

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**Smoke Test**

- Test the resonance of your elevator pitch quantitatively by capturing customer response.
- You send e-mails or make a simple landing page that states your value proposition.
- You ask people to sign up as a commitment to buy.
- Based on the percentage of people who sign up relative to people visiting the sight, you get a rough idea of demand of your product.

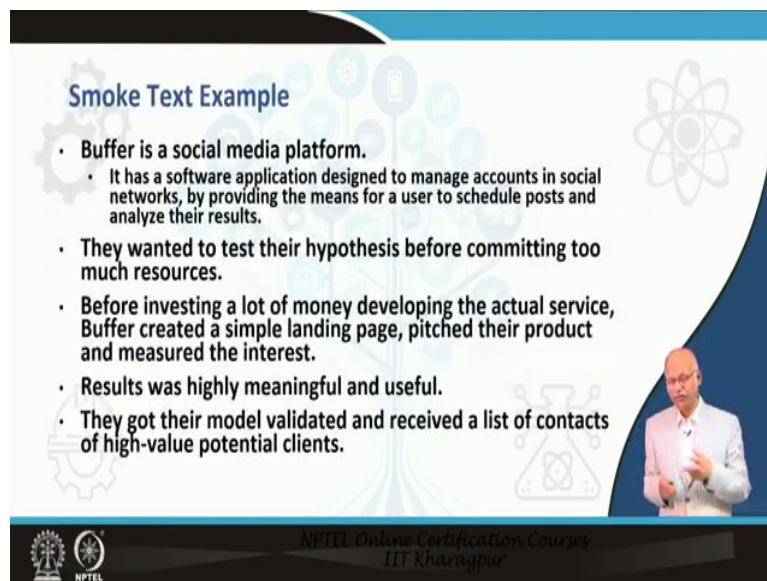
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A smoke test A B test these have to be done simultaneously. So, that you do not move forward and waste energy resources by doing something that people will not like. Suppose you think of some website or say color of the website, no you may think that red is good another person might think blue is good.

So, what is good whether it should be classic classical or it should be modern, it should be whatever. Depending on the product depending on the customer segment now you may be confused. Majority of the people do what they like if the founders majority of the founders like red color they will go for red they will think that red is the best color. Founders liking does not matter at all, it is the people who will buy the collective likings of the people who will buy that matters.

Now, talking about colors of course, it is very difficult to find. A collective opinion that this color is good, but then about many many things your customer segment will have some kind of shared, philosophy shared liking shared whatever. They will definitely they will give you some data that will indicate that majority like this. So, this kind of test should be done frequently.

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**Smoke Text Example**

- **Buffer is a social media platform.**
  - It has a software application designed to manage accounts in social networks, by providing the means for a user to schedule posts and analyze their results.
- They wanted to test their hypothesis before committing too much resources.
- Before investing a lot of money developing the actual service, Buffer created a simple landing page, pitched their product and measured the interest.
- Results was highly meaningful and useful.
- They got their model validated and received a list of contacts of high-value potential clients.

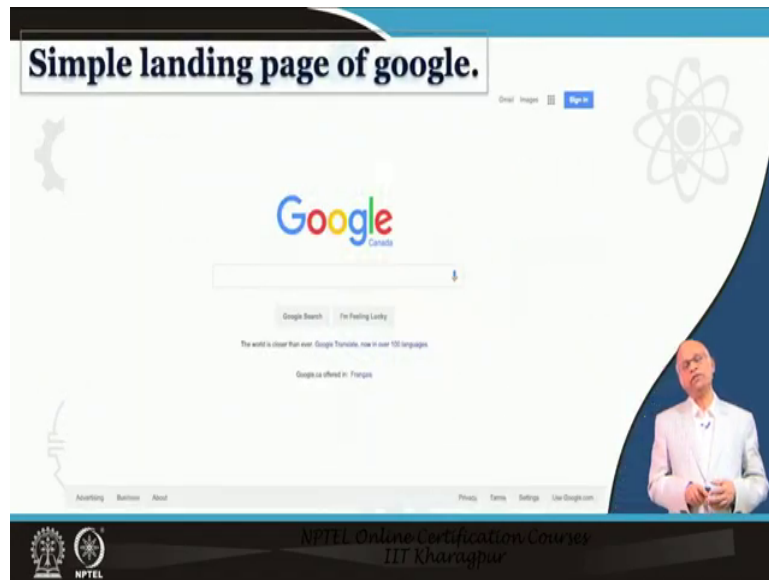
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So, that whenever you are you have a confusion number 1, that whether to do go left or right. Like say for example, Barack Obamas case they had a video in one web site they have a they had a still picture of Barack Obama alone, they have another still picture of Barack Obama with family.

Now, the footfall whatever was the footfall in different websites, but the conversion rate was maximum in the still picture with the family and the website where they had they still picture

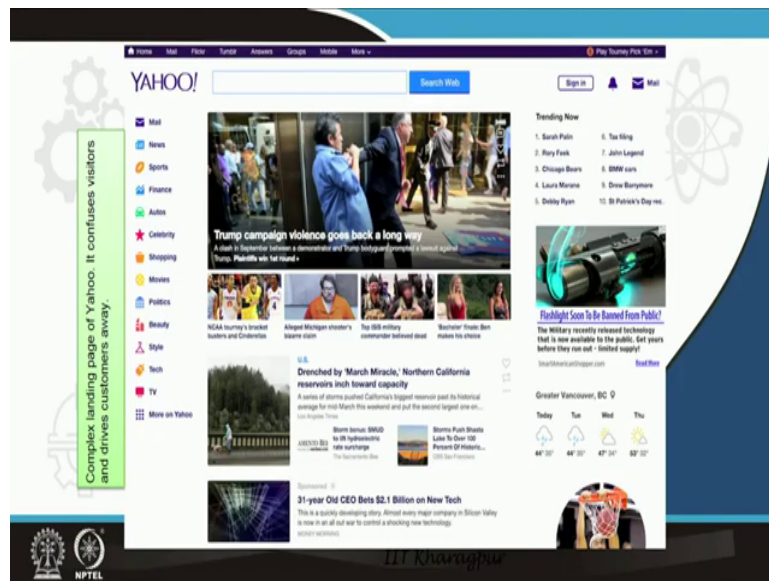
with the family. So; obviously, that gave them that this is the right format and then they remove all other and gave this format and their success rate was 85 percent likewise.

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So, you should keep on doing all those kind of tests, to come up with real likings of the people. Look at Googles landing page and look at Yahoo landing page.

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It is so, much cluttered; whereas, google is so, simple. So, that may or may not I do not know. But that may most other people say that simplicity of this website attracts more people to come. Whereas, yahoo things that we should provide everything so, that a guy coming here should not think that, we do not have these we do not have that we have everything something like that, but then Google is much wealthier compared to yahoo of course, yahoo is catching up.

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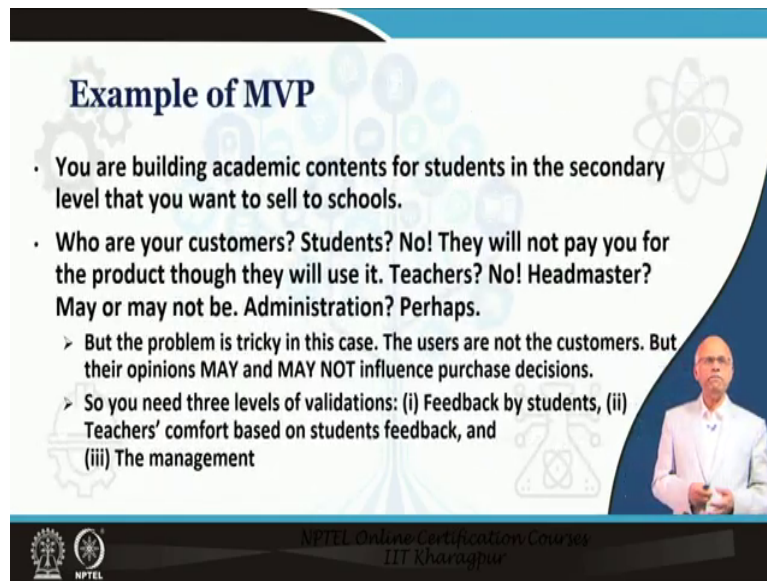
## A/B testing (bucket tests or split-run testing)

- A/B split-run test is a randomized experiment with two variants, A and B.
- It is a way to compare two version of single product or app which are identical except for one variation. Each version has some embodiment of an unique feature.
- The difference in the single feature may lead to different behaviour of users.
- Based on response of the users you may select the better embodiment.



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**Example of MVP**

- You are building academic contents for students in the secondary level that you want to sell to schools.
- Who are your customers? Students? No! They will not pay you for the product though they will use it. Teachers? No! Headmaster? May or may not be. Administration? Perhaps.
  - But the problem is tricky in this case. The users are not the customers. But their opinions MAY and MAY NOT influence purchase decisions.
  - So you need three levels of validations: (i) Feedback by students, (ii) Teachers' comfort based on students feedback, and (iii) The management

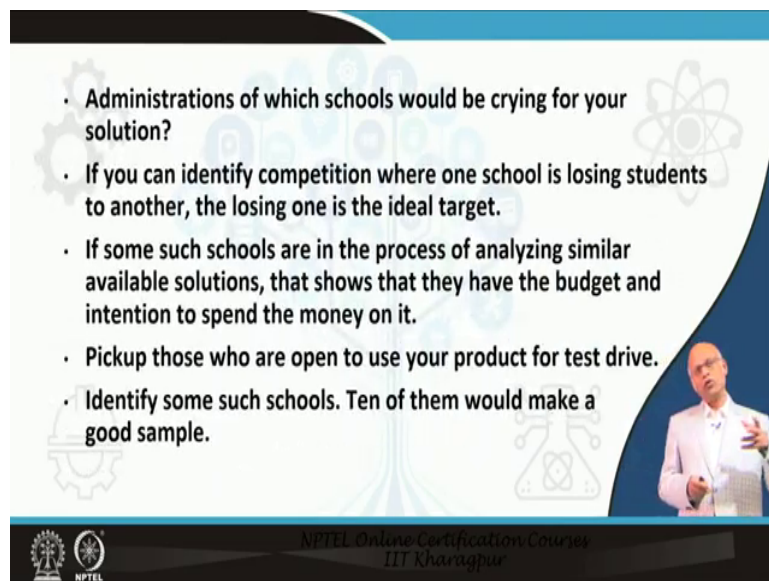
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A B taste we discussed let us not waste time. Suppose you are building some academic content this also has been discussed. For a students in the secondary level that you want to sell to a schools. Who are your customers? Now, who are your customers is a great question in this case; because a customer is that person who is actually paying for it, but students will not pay for it his or her parents are going to pay for it.

So; obviously, students are not your customer. Now, should you pitch? Before his her parents they may not have much idea or they may not they may not even try to make or they are not they are not going to make a decision on behalf of the school to buy that, but your target customer is a school. So, if you talk to the teachers they will say we are teaching and we have happy. So, are you facilitating the teacher are you supplementing their effort?

So, teacher may not be your customer, headmaster may or may not be he does not he or she does not pay who pays administration pays? So, perhaps administration is the real customer, but then a collective decision starting from a students, teacher, headmaster all of them together will give an opinion based on which administration. We will look at it may be positively provided they have the money. So, they may or may not buy.

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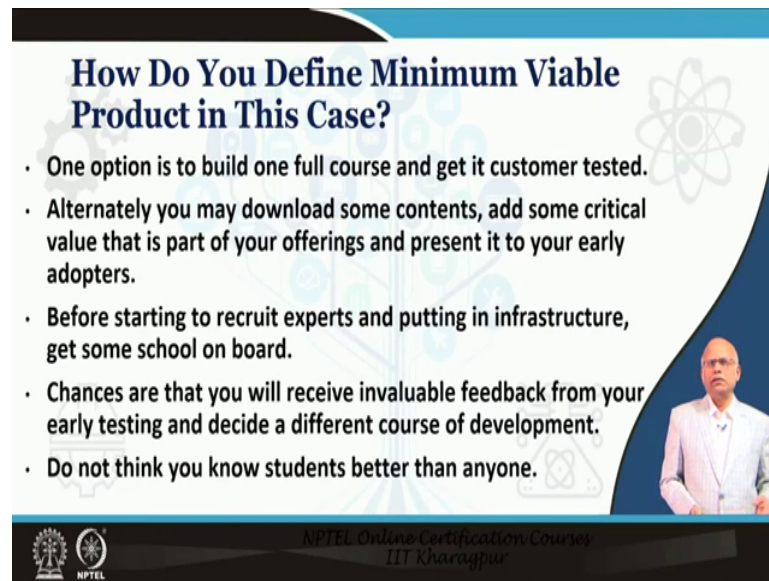
- Administrations of which schools would be crying for your solution?
- If you can identify competition where one school is losing students to another, the losing one is the ideal target.
- If some such schools are in the process of analyzing similar available solutions, that shows that they have the budget and intention to spend the money on it.
- Pickup those who are open to use your product for test drive.
- Identify some such schools. Ten of them would make a good sample.

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So, money is another issue now who the administration of the school would be who which administration will be caring for a solution? If one school is losing a student enrolment another school is gaining; obviously, the one which is gaining will not be interested; the one who is losing will be interested. So, you have to use intelligence also as to whom to approach etcetera.



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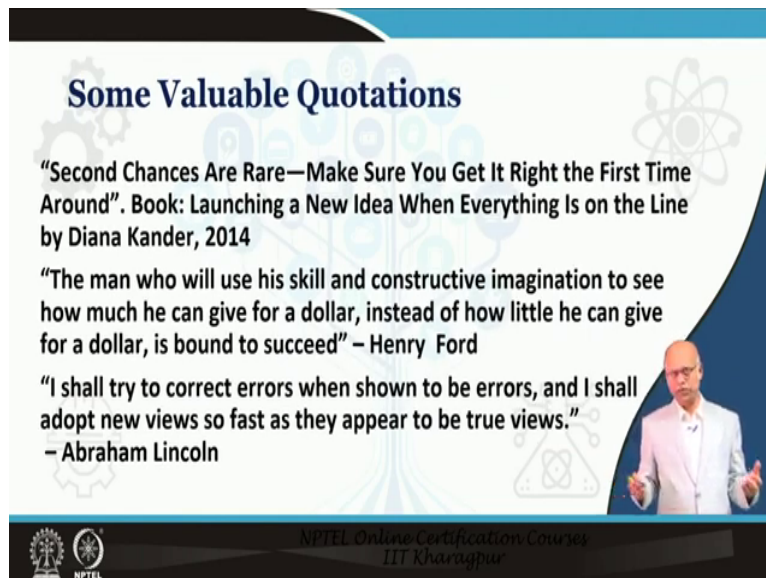
### How Do You Define Minimum Viable Product in This Case?

- One option is to build one full course and get it customer tested.
- Alternately you may download some contents, add some critical value that is part of your offerings and present it to your early adopters.
- Before starting to recruit experts and putting in infrastructure, get some school on board.
- Chances are that you will receive invaluable feedback from your early testing and decide a different course of development.
- Do not think you know students better than anyone.

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One option is to build one full course and get it customer tested. Alternately you might download some content this, we discuss will move forward before starting to recruit experts and create a lot of content. If you think that we should have some content ready before we approach to the students and other community. Then you may end up spending so, much money so, much effort. So, much time that this itself will translate your business into so, much of cash burn that nothing will remain to run forward move forward some quotation.

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**Some Valuable Quotations**

**"Second Chances Are Rare—Make Sure You Get It Right the First Time Around".** Book: *Launching a New Idea When Everything Is on the Line* by Diana Kander, 2014

**"The man who will use his skill and constructive imagination to see how much he can give for a dollar, instead of how little he can give for a dollar, is bound to succeed"** – Henry Ford

**"I shall try to correct errors when shown to be errors, and I shall adopt new views so fast as they appear to be true views."**  
– Abraham Lincoln

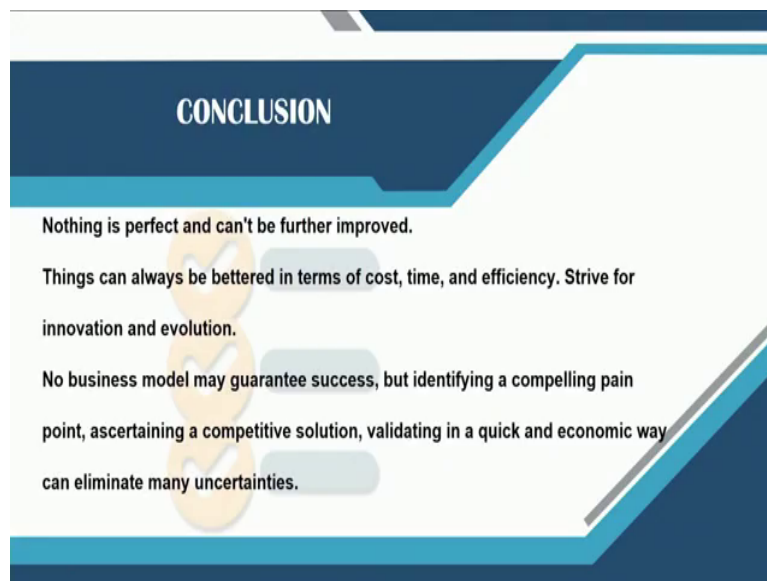
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This is from a book *Second Chances Are Rare*. Make sure you get it right the first time around, if you do if you follow lean startup philosophies if you do validated learning, cycle you will do it right in the first place. Because in the first round itself if there are mistake you are going to correct it. So, eventually when you go to market you are already right guaranteed something like that.

The man who will use his skill and constructive imagination to see how much he can give for a dollar, instead of how little he can give for a dollar is bound to succeed majority of us. Think that if I give less for a dollar I am going to make more money because by selling say 500 grams, I am making the same money rather than selling 1 kilo. So, I say one 500 gram, but the winner is that guy who always think that I must be able to give more for a dollar rather than less for a dollar Henry Ford said this.

Abraham Lincoln said that if a mistake is caught, if an error is found and the by the time the error I realize that there is really an error, I will immediately correct it and if there is new views if it is true I will immediately adopt that. So, meaning that I will not look at the quality of the person who is telling or the depth of anything just error. And, I realize that this is an error I will immediately acknowledge that there is an error and I will correct it.

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Abraham Lincoln, the greatest leader to walk on the street of this earth. Some references and few comments on conclusion same thing that we discussed.

Thank you very much.