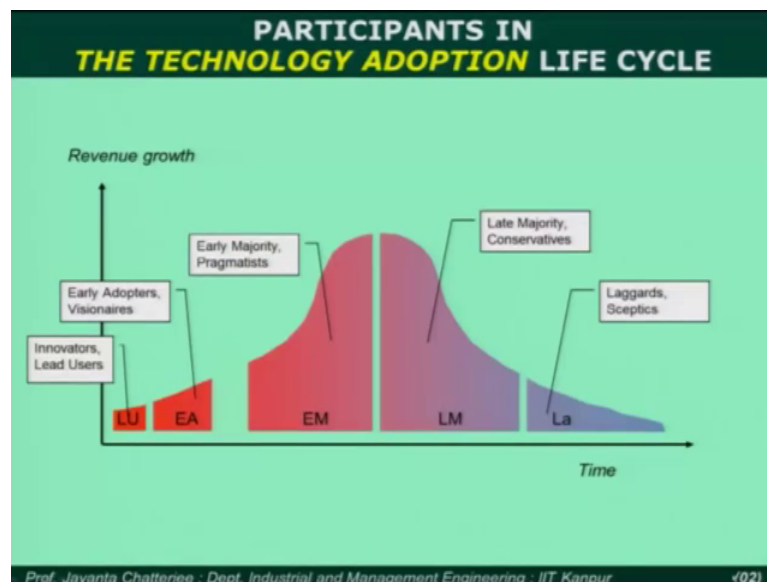


**Management of New Products and Services (MNPS)**  
**Prof. Jayanta Chatterjee**  
**Department of Industrial and Management Engineering**  
**Indian Institute of Technology, Kanpur**

**Lecture – 16**  
**NPNSM – Technology Adoption Life Cycle and Crossing the Chasm**

Hello. So, this is our next session on management of new products and services; and if you recall the image that you have in on your screen has already been introduced to you as the normal distribution that happens with respect to the technology adoption lifecycle, which generates the product lifecycle graph that we have seen.

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Now in the earlier session I have already when we were discussing about the market sizing and estimating the possible sales, we had said that these two segments the segment of innovators or lead users and early adopters or visionaries. I mean together they form about 16 17 percent of the total potent potential sales, which is the area under this graph and this is calculated mathematically as the area under this portion of the graph.

It kind of holds it can be 15 percent it can be 18 percent, but kind of in that ballpark area we see many products pan out. Now what we are going to do in this particular session is to understand the concept of chasm or the concept that the adoption lifecycle is not actually a continuous curve, but rather there are some cracks that are there which happened due to various reasons; mainly because the characteristics of innovators or lead

users or early adopters and visionaries are different from the early majority or pragmatists.


So, the same features for which the innovators or lead users are attracted to a particular product will be something that will put off the people who are in the early majority or pragmatists. So, you as a manager of a new product must create the possibilities and carefully calibrate the introduction and then continuing messages, and therefore, which means that the continuing evolution of the value proposition. That means, the way you project the product or service today the way you actually highlight the feature, the way you position your offering in the marketplace, which will attract the early adopters or the innovators will not be the message that you will actually continue to deliver over a long span of time because soon you will have to attract the early majority.

So, the product features will have to evolve remember the discussion that we had with respect to the product platform; that means, by combining certain elements the core remains the same, but you add some augmentations as you go along. So, that the product evolves from this stage to that stage. So, that it attracts people at this stage and then you attract people at this stage by additions, alterations by creating in a way a variant.

So, it is a this game of managing the technology adoption lifecycle and the managing the these what we call chasms or the cracks in the lifecycle graph is nothing, but actually a way of managing the product evolution or the product variants or the product family or the product platform. All they are highly related concepts which are deployed because one of the primary reason being the existence of this ah change.

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### THE EARLY ADOPTERS




- They are Visionaires that have...
  - the insight to match an emerging technology to a strategic opportunity
  - the temperament to translate that insight to a high risk project
  - the charisma to get the rest of their organisation to buy into that project
- They are looking for a fundamental breakthrough, +ROI
- They derive value not from the technology itself (as the Lead Users do), but from the strategic leap forward it enables
- They like project orientation and exert dead-lines that are hard to meet
- They give you the first big break and may generate the first burst of revenue and visibility.

*Prof. Javanta Chatterjee - Dept. Industrial and Management Engineering - IIT Kanpur* (04)

So, let us say now the early adopters. So, let us look at the characteristics of the innovators and lead users as depicted on the screen.

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### THE INNOVATORS/LEAD USERS



- They are Technology Enthusiasts, who want to try it out just to see if it works and start the fire
- ... derive value from the technology itself
- ... are first to adopt any new technology
- ... spend hours trying to get your products work
- They demand:
  - The truth, without any tricks
  - Access to an expert immediately when a problem occur
  - They want to be the first to get the new stuff – that is their reward

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That these are people who are technology enthusiasts they are all around you these are the people who will buy the first new series of smart phones or the new types of cameras or the voice assistant for a Google and ah so on and so forth. So, they derive the value from the technology itself they are excited by the value proposition contained in the new technology introduction, and they spend hours trying to get the products to work. And

very often these are also the people who are beta customers who will actually be part of your co creation.

These are the people who to whom you will you do have released the minimum viable product, who will actually help you to take it to the next level. So, they actually definitely demand your trust, they want to be your friend, they want to be very close to you. So, as I was saying that Microsoft has a group of loyal customers and they are given honor, and they are given the new products which may be containing lot of bugs and they take pride in solving those problems or finding the solution to those bugs and they create the fixes, they kind of have a worldwide competition going on that who can do it faster ahead of others.

And these access to this kind of collaboration between the company experts and these outside experts, these lead users is an a powerful way today we increase the velocity of introduction of new products particularly high tech products. And the main theme here is that you make them a part of your introductory process and ensure that they get the first products that is their reward, that is what they are looking for that they are the first of the mark and they have tested the new product and that is what they try to talk about. And they talk about such conquests, that they talk about that they solved the problem with a particular new product and the master did beat hardware, beat software and they talk to people who are usually the early adopters.

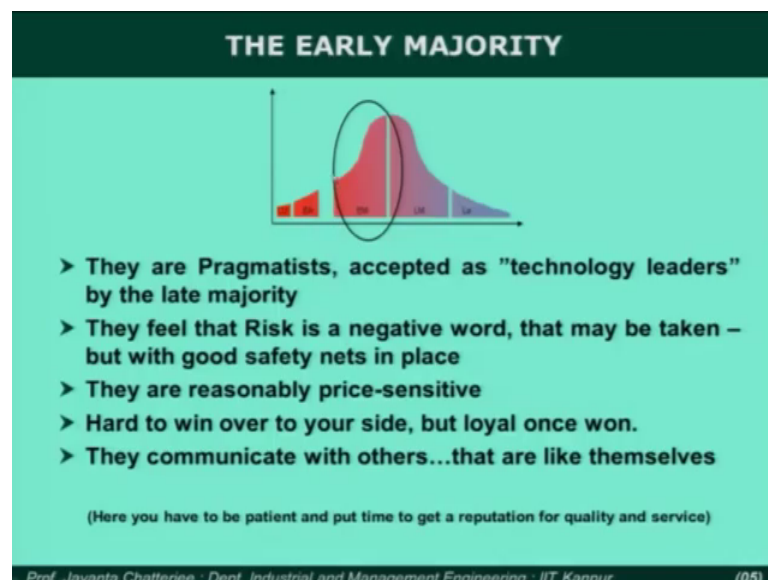
The next stage they are kind of in usually in close communication with the innovators and the lead users, and they are looking for really speaking not only the breakthrough of the new technology, but they also are now concerned about the return on their investment. So, they will be actually looking for a better cost benefit projection. So, your value proposition at this stage will have to be crystallized well and they actually are not only satisfied with the newness of the technology, but they are also actually trying to see what can it do in solving their problems better, getting their jobs done better. And they actually are people who look for you know proper time line for new fixes, they will not they will be a lot more impatient compared to the earlier a group that is the group that we were talking about the innovators and lead users.

So, early adopters are kind of already you can see we are approaching the mainstream, and will be interested in the commercial aspects, they will be interested in the revenues

or they will be interested in the benefit that they will accrue in their jobs their functions, in their companies, in their personal life from the new product. So, you will have to go beyond the excitement of the new technology and bring in very concrete benefits that you will actually provide. Now here comes the most important segment in some way with respect to the commercial success of a product.

So, until and unless you are favored by the early majority, you can be sure that your product would have died in this what we call this crack the valley of death we often called.

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So, these because the early majority are pragmatists; they are accepted as technology leaders by the late majority the next stage, but these people actually will not really like to be risk takers to the extent that, they may lose their investment or they can have make a bad purchase. So, they will definitely be looking for safety nets, they will be looking for assurances, they will be looking for guarantees and warranties and so on.

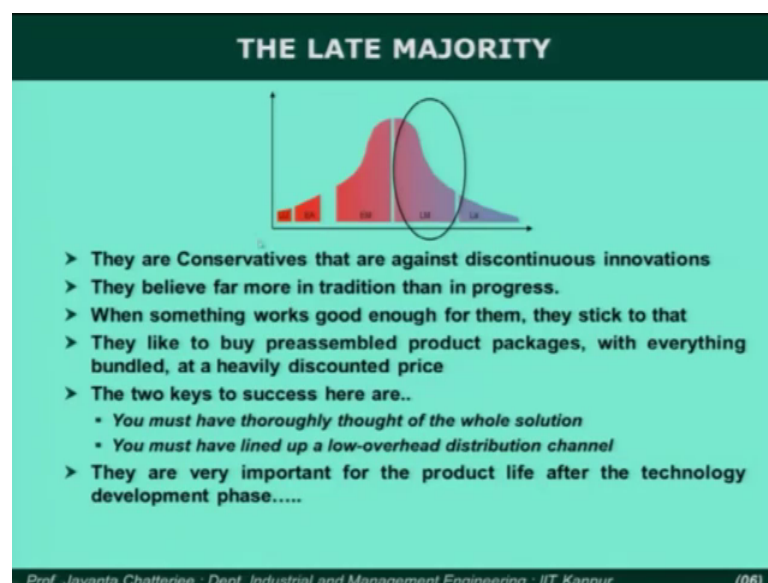
And they are also much more price sensitive compared to these early people. These you know particularly the lead users they will sometimes acquire technology at a much higher price point because they do not care that much for the cost benefit analysis, but here the cost benefit becomes extremely important and sensitive point, and they will need a lot more lot more effort to win over, they will not be just excited because of the newness, they will like to ask what is in it for us what will we get out of adopting this

new technology or. So, they will not change just for the newness sake they will be looking for rationale.

And they are big communicators; they are if they are dissatisfied they will immediately start talking on twitter or on facebook and other social media. So, therefore, you have to be very careful in the finished aspects of your product. So, the product should have been fairly good all the bugs should have been fixed so that you can actually win over early majority. So, you see the difference is these people are excited by the newness, these people actually do not bother that much about the completeness or the finished status, they will themselves contribute to fixing the bugs.

But here these people do not have the time to fix bugs; they will be annoyed and they will talk about their annoyance and therefore, it can kill a product.

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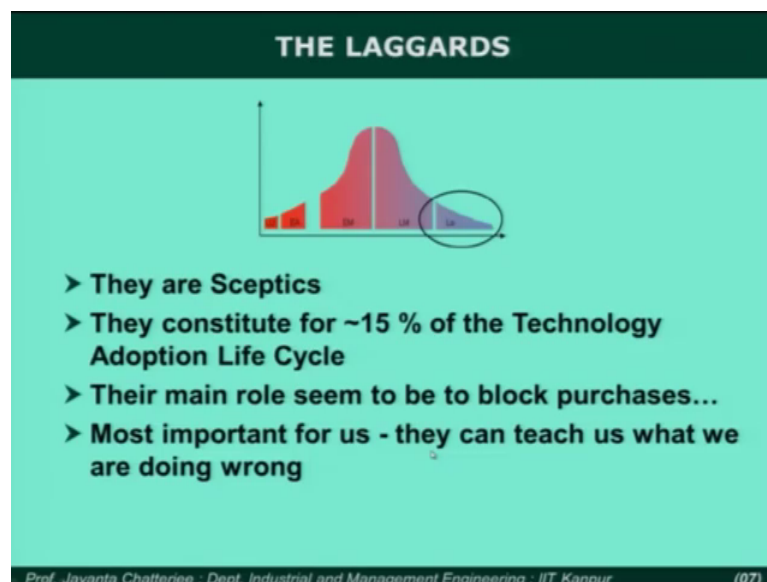


So, you have to put the time and patience to see that actually you are properly guiding the product in its variant and in all its features. So, that the benefits are very clear to these people. The late majority are quite influenced by the early majority and, but they will be a lot more traditional and they like to usually buy at the total solution, and they often go for a product and service bundle together and here the key to success will be that that solution orientation.

The system orientation; you have to ensure that even if you are not supplying the necessary ecosystem around your product has been developed. So, that all the hardware software accessories and everything are available ah, but then only this late majority will be satisfied. So, the late majority is therefore, influenced by the early majority, but they are even more risk averse and they are usually not prepared to buy separately and put things together to make it really work, they would like to see that right up to the last plug point everything is taken care of when you supply to them the package.

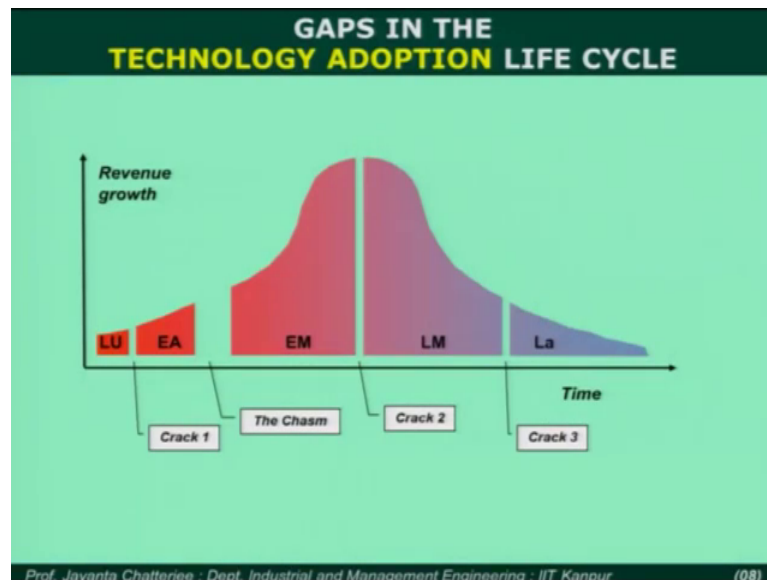
So, this thoroughness of system orientation is very important, and also at this stage your distribution channel your support channel should be quite well organized and should be quite explicit. So, that nothing is left to imagination here.

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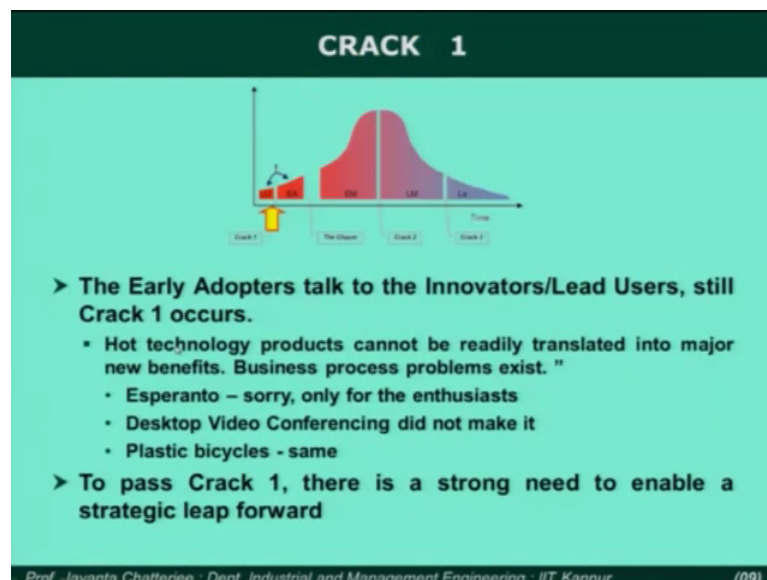
And finally, comes the laggards they will actually you know buy the new product only when they cannot get the earlier product or they are kind of forced due to obsolescence and ah, but they will often actually try to postpone their new purchase as much as possible, and then you know when they are they just do not have any other option they will buy.

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So, let us see the so, called cracks and chasms that we have talked about, that what is the nature of the crack one which is the crack between lead users and early adopters.

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Now, this is the people the crack one occurs, when hot technology products cannot be readily translated into major new benefits. So, the newness is there, but the benefits are not very clear and the business process; that means, you know the whole ah solution offering reaching the customer it that also kind of often actually puts them off. That is why see when desktop video conferencing which really needed a lot of additional



gadgets and it needed additional software, and it needed tuning etcetera at that stage the desktop video conferencing actually did not take off.

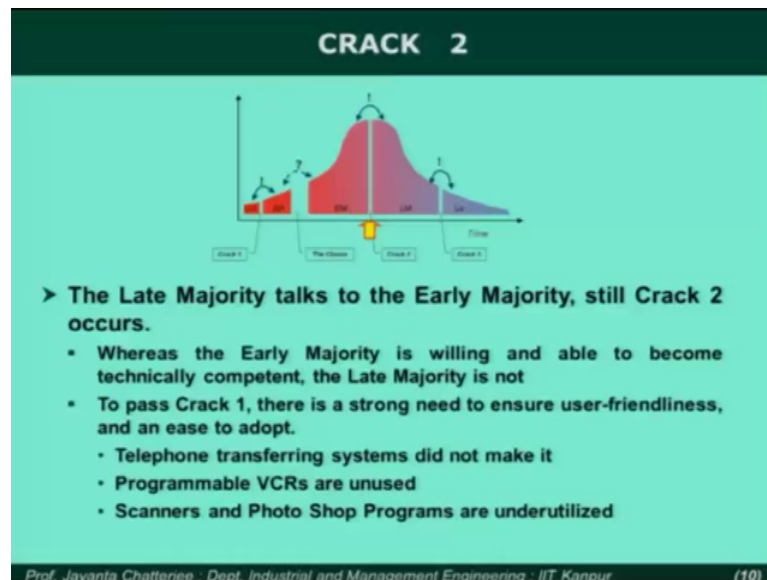
But once all those you know webcams etcetera were integrated into the desktop itself the software actually often came bundled with the desktop and ah. So, there were and there were a number of options where this video call is just another feature; then its popularity enhanced many people started using it and therefore, the webcam became a standard feature built into the desktop itself. But even then you will remember I mean this is this is something that has happened over the last 2 3 years that the video calling was still not a mainstream.

But today with the smartphone where the camera is ah is much more powerful and very much built in and the sound system also in the new phones are pretty good or you can use the headphone and now the a video calling a video chatting, become just mainstream. So, you see this is the difference between the kind of people who are the early adopters, even I would say that now video calling video chatting has reached the early majority and different from the kind of things that were expected from the customer when you know like certain something like esperanto was introduced.

Ah this was supposed to be a language which all embraced all languages. So, if you the concept was that if you could actually master esperanto you could communicate to anybody anywhere in the world, but that really never happened because it needed a lot of learning, it needed lot of learning or rather forgetting of the way you used syntaxes or grammars etcetera, and it needed a complete new system and people were not prepared to do that.

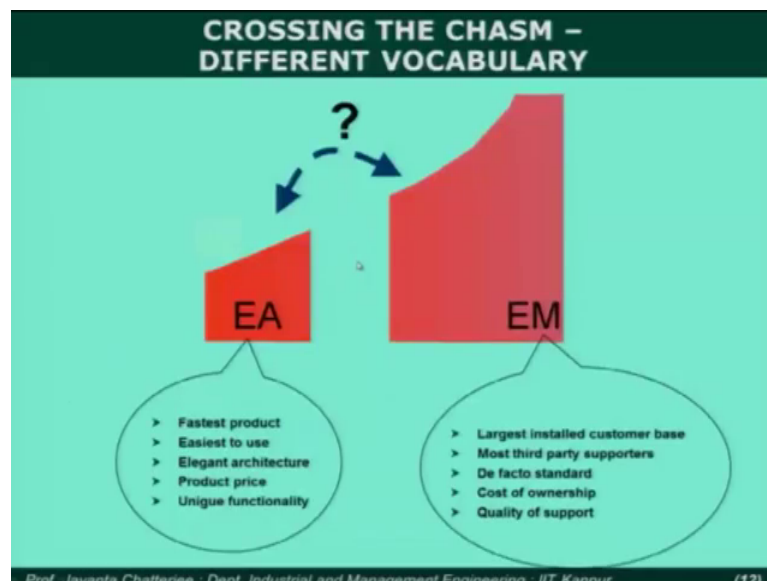
So, therefore, it really never took off or you should actually look for this history of a plastic bicycle. Conceptually very sound, but it never took off and why I leave that to you for your search because you will understand the difference between early adopters and early majority very well if you actually look into the history on Wikipedia or Google about this plastic bicycles, why they failed even though many major manufacturers were quite excited about this particular product.

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The next one which is actually the most important crack sorry.

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I think the next one I would like to discuss is this the so, called chasm which is the most important topic for the discussion today, which is the difference between early adopters and early majority.

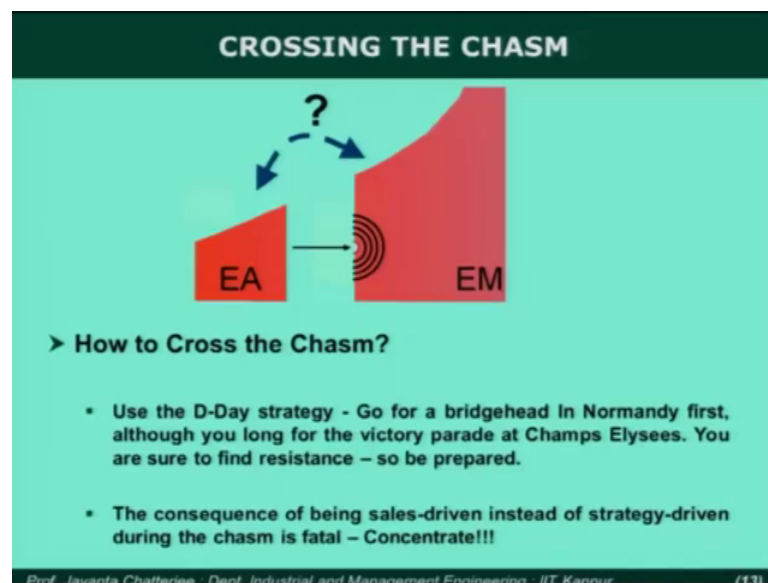
I was discussing the features, but here I have put together the exact; the early adopters are looking for the fastest product the easiest to use product, the elegant architecture will actually sway them, the product price is not that important at this stage, and the unique

functionality will be far more attractive to the early adopters. Whereas, the early majority they are actually looking for references. They want to know who are the other people who have used it and what are their experiences. So, they are looking for the installed base reference they will definitely be see interested that there is a wide support network available, and the support network they will not be totally dependent on the manufacturer, they can get a support network to help them.

They want to see that the product they are buying is according to certain widely accepted standards. So, that is why early majority normally comes into the market, when the dominant design if you remember the topic that we discussed earlier, has emerged. So, the standards have emerged. And the cost of ownership the total cost of ownership; that means, not only the initial purchase price, but the cost incurred over the lifetime including availability of spares, availability of a service if there is a problem or ah elimination of the downtime to the largest extent possible.

So, the quality of support and in some way therefore, service at this stage the intangible elements are become very important over and above the tangible elements or the product features. So, this is you can see the early majority winning the early majority, crossing the chasm is very important ah the service is very important in making that happen.

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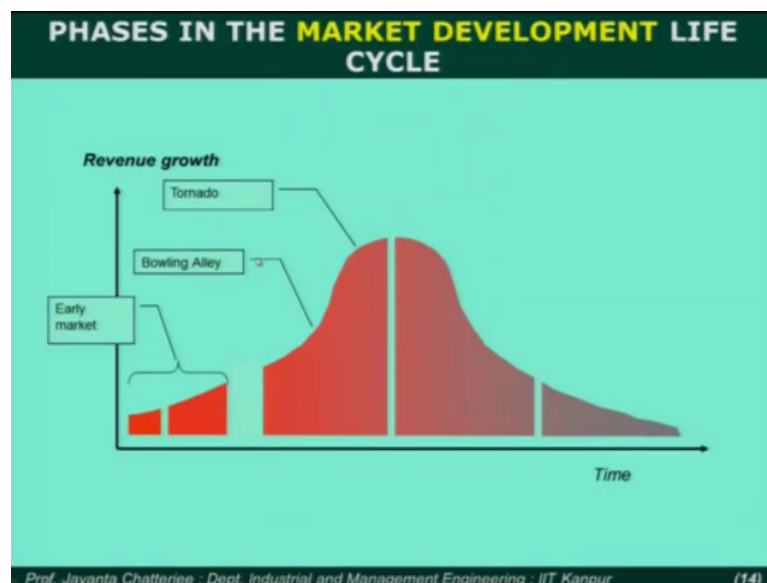
So, the how to cross the chasm? The author the author who introduced this first rows wrote this book crossing the chasm. So, according to him he used this strategy of the d

day you know d day is from the Second World war, when the allied army kind of fox the German or the axis group and landed at Normandy in France and they had they were quite successful in keeping that a secret, where they are actually going to land.

And then using that landing they rapidly progressed and pierced all the defenses of the opposition and that was the winning moment and turning point in the Second World War. Now this d day strategy fundamentally means that you must actually very carefully select a particular bridgehead of; that means, a part of the early majority market, where you will actually leap and where you will win surely because of the various a packaging that you have made of a product, features, price a commercial points technical points all put together so that you will be actually able to make rapid progress.

So, often actually point is that people who are just trying to increase their sales startups new product companies who are focused on increasing sales, acquiring the next customer often lose out this that; that means, winning all customers in this will not make you succeed here. So, you have to carefully understand that what will make this new type of customers interested in you, and how will you actually take your product from this stage to that stage and that will determine success. So, you have to be more strategy focused rather than being sales driven in your existing types of buyers ok.

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So in fact, some other analogies that have been given by moor is the author is like for example, here the bowling alley. You know bowling alley those 9 pin bowling the game

that is played there if you know that you are the ball that you roll must hit the strategically placed first pin and if you actually hit it well, then that pin will topple all the pins. So, which means that here you have to progress in this segment by segment. So, this understanding of this STP that we discussed earlier, and winning the early majority market segment by segment is a very important strategy.

So, it is similar to the bowling alley. So, you topple one pin, then it topples the next pin, then it topples the following pin. So, that is how you win one segment one type of segment and this segment is not fundamentally always geographical segment, but more like type of purchaser you know the psychographic and demographic variants are more important here, and that type of purchaser will then actually influence the next type purchaser. So, you actually win the use I mean you establish your product in an automotive industry, and that will in automotive industries have some major suppliers, they are called the tier one suppliers.

So, if you have actually been successful with a Maruti and they have started using your hardware or software or combinations; then all the tier one suppliers of Maruti most likely will start adopting. This is a very simplistic example of what we mean by this bowling alley strategy or winning the market early majority segment by segment of course, you know you have to go into far more detail in understanding your product, and that likely customers here and of course, this other terminology tornado means, the tornado is where actually you have reached this stage of the market, that top of the growth curve the market will be just booming and at that stage its very important that your operations, your supply chain all must be well geared up so, that you are able to meet that the exploding demand.

Otherwise sometimes if you are not able to meet the demand, then by this stage actually there are lot of competitions in the market and you will actually you might actually lose the very market which you have created.

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**THE MARKET DEVELOPMENT ERAS**

- **Early market** – the Lead Users/Visionaries/Enthusiasts are attracted. Possible first hype.
- **The chasm** – the technology is caught betwixt and between. No more hype and not yet any market acceptance
- **Bowling alley** – the technology is getting acceptance by one niche after the other.
- **Tornado** – the technology has passed the test and is perceived as standard for the mass market. Hypergrowth!
- **Early main street** – the era of hyper growth has subsided and a more slow and nice growth is the case. The final hesitants subside.
- **Mature main street** – the growth flattens out and commoditization increases. However no market risks
- **Declining main street** – the category has become ossified but not yet petrified

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So, the market development changes the market development strategy for a new product changes over the lifecycle, remembering all these cracks and chasms. So, in the early market the lead user visionaries enthusiasts are attracted possibly the first type, and where we will actually be also attracted by a hype.

So, the excitement is very important. So, your marketing communication has to be focused on product features and feature based hype and feature based excitement. The chasm the technology is caught between a no more hype and we will actually take you across the chasm, you have to come up with the very specific cost benefit rejections you have to establish some successful installations and you have to make the those successor known all around, and that referral should become or your sales collateral and the here the technology acceptance by the lead users and their experiences must be while widely shared.

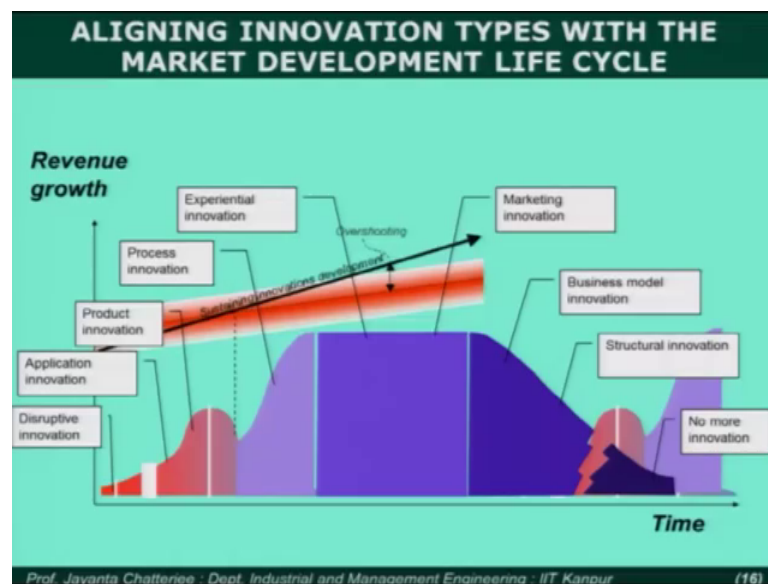
And remember in the early majority stage you have to focus and expand into the market niche by niche segment by segment and the better is well planned landing you make in each segment the better will be your progress. So, it you can think of this as a as a progress like the d day progress in the world war two; that means, they landed here at the at Normandy beach, but then they rapidly progress in both directions and widened the front segment by segment that is the strategy that you have to follow. And then of course,

as you grow you know you have to have that tornado street and then there are in moods book, he has talked about this early main street and mature main street and so on.

But this is these are actually terminologies of the same graph that fundamentally we have shown here. So, if you have been able to win up to this stage, then your momentum will often take you across. Of course, if you carefully manage these stages then you can have you know you should not become part of the shakeout and you will be the part of the remaining players in the market. Because as we discussed in an earlier session that even at this stage you can make a lot of money if you are the company which has survived among the few, because many at this stage market consolidation happens and there are shakeouts.

So, you have to ensure that you are not shaken out, rather you shake out the others.

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The last point that I want to make is that, you have to align your innovation type with the market development lifecycle that we have been discussing and the chasms etcetera we have been discussing. You see like if we start here your focus to attract the enthusiasts you know the lead users, the innovators has to be disruptive innovation. So, your innovation should be sparkling, your innovation should be really not incremental, but radical that is how you will attract this kind of buyers.

In the next stage; that means, from the early innovators to reach the next stage, you have to not only provide hardware, but you have to provide software, you have to not only provide product, but also the application. So, application innovation is important at this stage.

So, the core technology and application put together creates the new product innovation, which is what attracts this very early stage of the next level. Then as you are going as the product is maturing process innovation becomes very important. And here as you see we have actually created in a hump because instead of showing this as a crack I mean rather the chasm I have shown this as a dip; that means, if you are able to manage your process innovation at this stage properly, then here this the so called early majority winning segment by segment, I mentioned that their referrals become very important.

The knowledge about your successful installed base becomes very important. So, we often actually call this as the stage of experiential innovation, then this stage where actually the market is matured and stable and kind of a neither growing very rapidly like it was growing here, but ah its a kind of a linear continuity, there you need to penetrate deeper and deeper into the market is now already known lot of other people are there in the market. So, they are actually marketing innovation, how well you are able to carefully and craftily create a strategy to win over more and more people in that market.

Because at this stage you are no longer offering some you know striking difference. So, here actually your support network, your distribution network, fundamentally your management of the marketing mix the product features, the product variants, and the pricing that goes hand in hand, availability of different models for different price points. If you observe currently the say product range of Samsung for smart phones in the marketplace, you will get a feel of how actually the good marketing by covering all the different sort of buyer requirements give you success at this kind of the steady state stage of the market. As the decline happens you have to win by business model innovation.

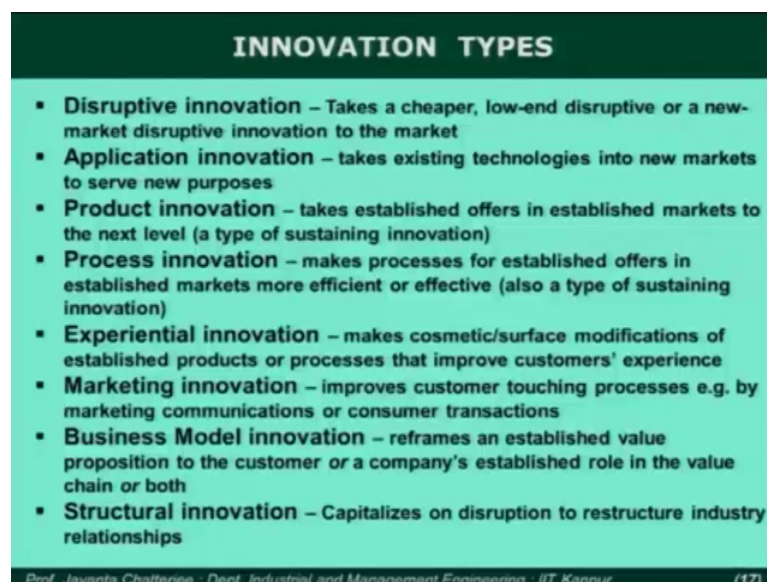
And then of course, later on the business model innovation, I will discuss in a little bit more detail at a later session and that will also give you the idea that what is the meaning of structural innovation and then of course, products do exit and, but if you have remembered that I have said that sometimes the products really do not die they take a new shape or get merged into a new product like the palm pilot which was a personal



digital assistant, it declined and it disappeared, but all the software that was there in palm pilot and all the features they got embedded in the software or for example, blackberry which was so, successful.

Now, blackberry as a product after the smart phones came and all the touch keyboard etcetera came, blackberry lost some of its value proposition. But today blackberry software is often licensed by other phone manufacturers, and they are embedded in the certain types of new smartphones. So, you see therefore, products sometimes when carefully managed over the life cycle they do not die, but they reincarnate and a new lease of life often happens in the new of tar.

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So, this particular slide I have kind of described the details of all these terms that I have introduced to you the disruptive innovation, application innovation, product innovation what it means is in more details given in this particular text. So, if you go through it you will get a clear understanding of a each stage of innovation, which should be driving your product platform based product portfolio strategy.

Both of these terms we have introduced earlier and I also showed you some diagrams and models what exactly means how from platform we derive a portfolio of products, and that will be driven by these different types of innovations that we have listed here. That is the end of today's session look forward to you tomorrow being there.

Thanks.