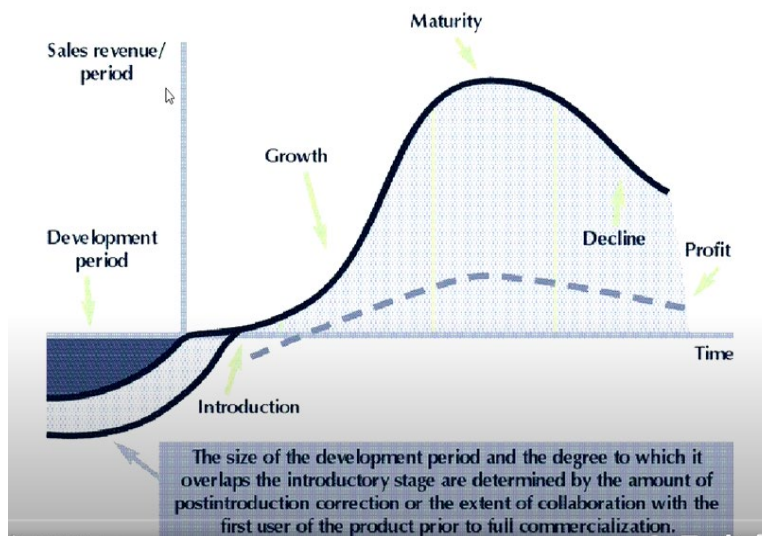


**BUSINESS MARKETING - TECHNOLOGY FOCUS**  
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**Lecture 10: PLC and TALC**

Hello welcome to our next session of discussions in the domain of business to business marketing also known as B2B marketing or business marketing or technical marketing or technology focused marketing and so on. In the some of the previous sessions, we discussed in the passing this concept of product life cycle and technology adoption life cycle. Today we are going to spend some time probing in depth in these concepts.

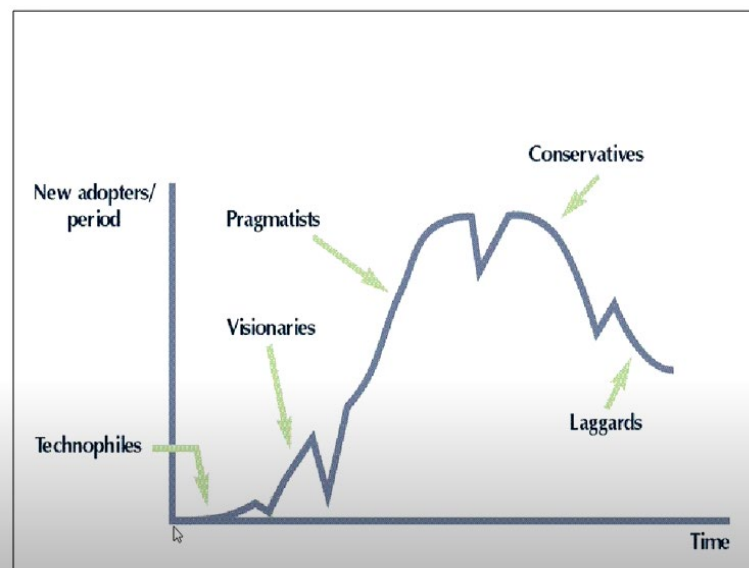


So, we will start with this diagram that you see in front of you which is the classic diagram of a product life cycle abbreviated as PLC. So, you see here we have on the y-axis the sales revenue per period or aggregated or accumulated sales revenue over the period and we have this time on the x-axis.

So, this is showing us how the sales of a particular product and indirectly therefore the adoption rate and adoption characteristics of a product or of a new technology in the marketplace over a period of time. So, we have on the extreme left hand corner this graph which is starting in the negative. This is the introduction, pre-introduction stage or the

development period. So obviously in this period, we have negative sales because we are spending all our resources in research, design and development and we don't have any sales revenue. The size of the development period and the degree to which it overlaps the introductory stage are determined by the amount of post-introduction correction because I think we have discussed that today this process of managing a product over the life cycle goes through number of iterations So sometimes we will get feedback at the early stage from the market.

And then based on that feedback, we might go back to the development stage and do some modifications, do some enhancements and so on. So the size of this development period may initially start here, but it might actually get expanded with some post-introduction inputs coming from the marketplace from the customers and as a result of which some modifications are done. So, the post-introduction correction or the extent of collaboration with the initial users of the product prior to the full commercialization, we discussed about this briefly in an earlier session. So, this early adopters and their interaction with the minimum viable product which is introduced with a rapid development phase, we might come back to the modifications and therefore, this area which is the extreme left-hand area might get expanded.



All the stages, I think I have introduced this graph in an earlier session.

So, we have post-introduction, the technophiles, the people who are technical enthusiasts, people who want to adopt the latest and the fastest and the lightest product. So these people are a small part of the overall possible sales over the life cycle. But they play a very important part because they are often ready to experiment with a product which may not be fully featured, what we call the MVP or the minimum viable product. And these are the trusted customers who will be actually giving the marketer feedback with respect to usage and variants which they may be looking for. So they also set the tone or inspire the next stage, the visionaries.

So the early adopters and the visionaries together constitute a certain percentage less than 20, which we can calculate based on the nature of this graph. But in that about one-fifth of the total possible population that will be enjoying the product or the service, we will get some good indicator of how the product is going to progress. However, there are some gaps that might emerge. About these gaps or the chasms we will discuss in greater detail in a later session. At this moment we are continuing to focus on the nature of the life cycle and the different things that happen at various stages. So, we discussed about the pre-introduction development stage.

### Basic Assumptions About the Product Life Cycle

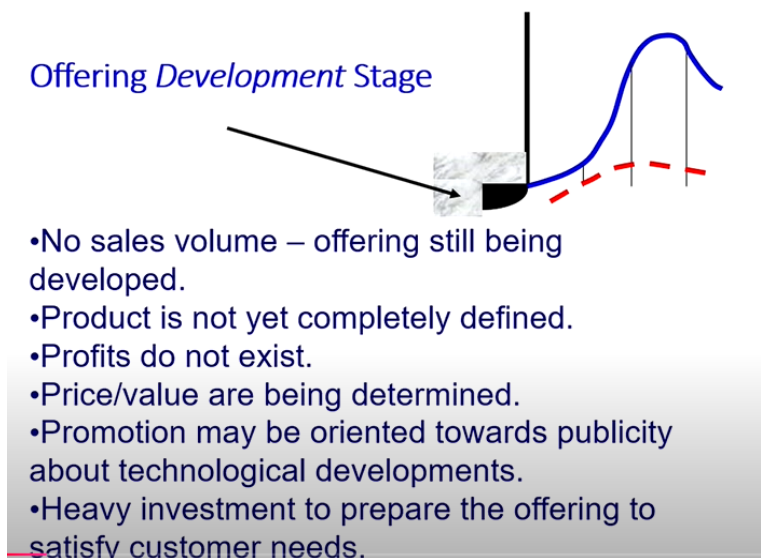
- All products and offerings have a limited life.
- All products pass through different stages of evolution
  - For each stage, there is an idealized marketing mix that best fits the environment in that stage.
- Different stages offer different opportunities and threats –
  - Segmentation and targeting should reflect the changes
- Profits vary over the product life cycle.

Now, we are discussing the introduction stage. But at the moment, it will be good to touch base on some of the basic assumptions about the product life cycle. It basically is

based on the premise that all products and offerings have a limited life. It is introduced, it grows, it saturates, it declines and so on.

So, there is a limited life that is a fundamental assumption. All products pass through different stages of the evolution. For each stage, this is an important point, that as for each stage there is an idealized or there is a most convenient marketing mix that best fits the environment in that stage. We will discuss a bit of it in this session. And different stages offer different opportunities and threats.

So, segmentation and targeting should reflect these characteristics or these changes as it evolves over the life cycle. And obviously profits vary over the product life cycle. So these are some basic assumptions about PLC. Now let us look at the different stages in little bit more detail.

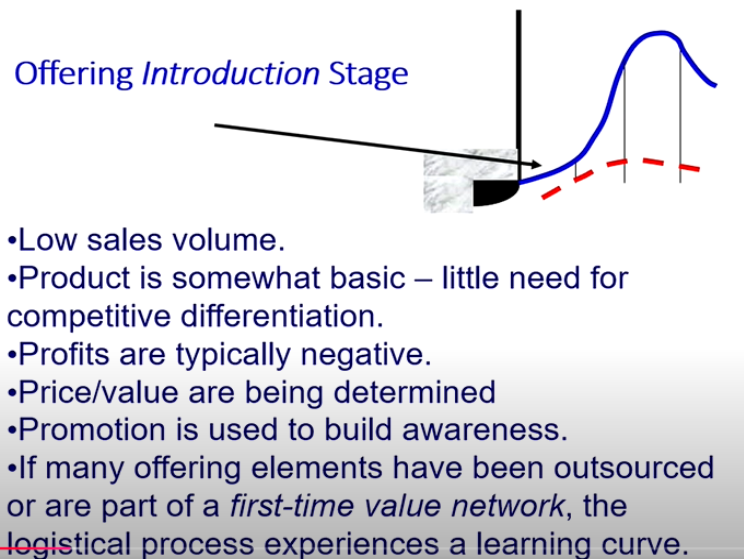


So, the development stage as we were just now discussing, no sales volume, the offering is still being developed.

Product is not completely defined because we start with number of assumptions, some of which may have to be revised with the feedback coming from the beta customers or the early adopters. Obviously, there is no profit at this stage because there is no sales. And therefore, the price-value relationship is yet to be determined in its entirety. At this stage,

in the marketing mix, the promotion, obviously there is no question of advertisement at this stage, but there may be some promotion coming through seminars, conferences, some maybe interactions with the press based on some early release or early projection. So promotion is basically therefore publicity or the skillful use of media.

And these days, social media may be a preferred platform where early information about the new product will be released, discussed and so on. Heavy investment is done at this stage. to understand the customer needs in more and more detail and those nuances are built into the product features.



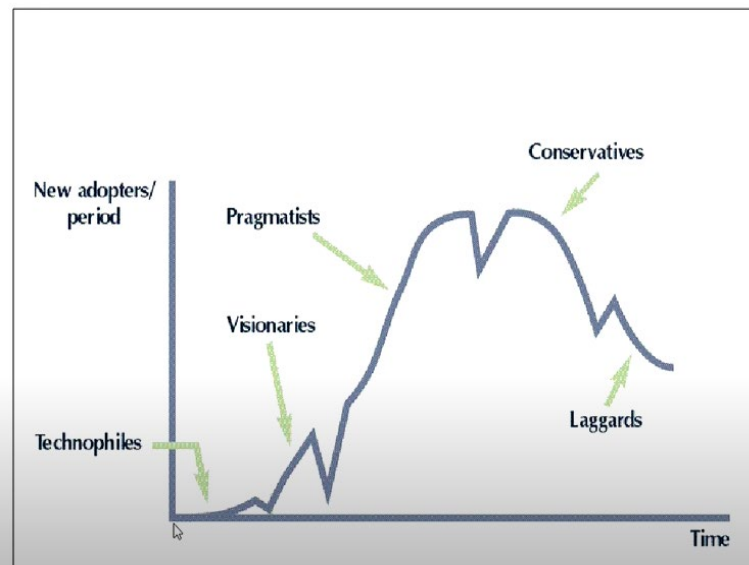
So, we go to the next stage that which is the introduction stage. So from the development stage we are going to the introduction stage. The sales volume is low because it is just about as this graph shows here in the arrow.

It is the slope is kind of at ease. The sort of a low pickup is the feature of most product life cycles. And at this stage, how the product will be differentiated may not be fully understood because the competition may not have fully emerged. Profits are still typically negative. Price is often sort of tentative at this stage.

So, the early adopters may get some preferential prices, which later on might be more solidified as we gain more experiences. At this stage, there may be some social media-

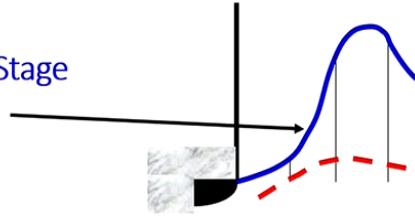
based, technical press-based, exhibition, seminar-based promotion, whose main aim is to build awareness about the new product or the new technology. If many offering elements have been outsourced, for example, if it is a new car, then there will be different parts or sub-assemblies which are typically outsourced like the brake assembly or the steering wheel assembly or the like the window controllers or the door locks and so many subsystems will be there which will be outsourced and so this outsource value network will be in the process of getting built or process of getting finalized.

So, it might not be, there may be still some kinks in that network. So the logistical process is kind of an emerging learning curve at this stage. So these are the characteristics of the introduction stage.



So, we come to the next stage which from sales revenue and profit generation perspective is the most important stage. It comes from this part, which is the pragmatist market segment. And this is the segment which leads to the growth stage.

### Offering Growth Stage



- Profits increase - new adopters accept product.
- Market penetration pricing may be appropriate as competitors bring pressure on high margins.
- Accordingly, product differentiation becomes important to distinguish the offering from competitors (and to help protect margins.)
- Promotion serves to remind/reinforce decisions.
- Distribution is often important in the training and education of customers.

So, this is the mainstream market. So this is the stage where profits increase significantly. And because more and more people are now adopting the new product, new technology. Market penetration pricing may be at this stage adopted because this is the stage where we want to build as much volume as we can. Though there will be more and more pressure on pricing coming from the competition because this is the stage where many new competitors join the fray.

So at this stage, therefore, the competition will be based on initially, at the initial part of this graph. This graph, as you see, is a longish portion of the total graph. So at the initial stage, there will be a lot of focus on differentiation, feature-based competition, which soon gives way to cost based competition or operational excellence becomes the key strategy at that stage. So product development, product differentiation, product features dominate the competitive process at this stage and cost optimization.

Cost-based, which means resulting in price-based competition will be the feature of this, the following part of this portion of the graph, which is the mainstream market portion of the graph. And promotion at this stage also might become mainstream. So, besides the usage of social media, besides the usage of technical seminars and exhibitions, etc., there may be some advertisement in trade journals at this stage. There may be some paid advertorials which will be deployed at this stage. And the promotion's whole purpose at this stage is to reinforce the tentatively formed decision in the customer's mind.

So, it will be a persuasion or confidence building oriented promotion strategy. And distribution at this stage, channels at this stage, are often people like system integrators or there will be some kind of evangelist. That means maybe not so much paid, but free training will be used as a method of promotion or awareness building about the product. So, this customer education and training is a role that is an important role played by channel partners at this stage.

Of course, the customer's technical department, training department will be engaged with the marketer's technical department along with the technical people of the channel partners. So, there is a lot of knowledge exchange that happens at this stage to spread widely the message about the new product or the new technology.

#### Key Issues As a Product Enters the Growth Stage

Product Acceptance	Market pragmatists must now play catch-up or attempt to leap-frog market visionaries.
Product Differentiation	Total offering attributes are important to differentiate the product.
Economies of Scale	Growth is likely the function of a B2B customer specifying the product for inclusion in its offering. This creates a sudden growth in volume that will require economies of scale.

So, key issues as a product enters the growth stage are the following. Product acceptance. Because the pragmatists must now play catch up.

So, they will be rapidly adopting and the volume will increase and therefore it will exceed the volume of the previous stage. Then there will be focus on product differentiation as I just now discussed. So, there will be more and more feature based competition and then that will lead to economies of scale oriented, cost optimization oriented, operational excellence oriented efforts. So, these are the key issues of this growth stage. And growth is often likely the function of a B2B customer specifying the



product for inclusion in the offering. And therefore, there will be a lot of importance of customer visits, customer demonstrations, training and technology-oriented expositions at this stage because the growth, as rapid a growth as possible will be the key focus of the marketer at this stage. And because of the rapid growth, there will be complex issues often arising in terms of supply chain management, delivery chain management. Those also are key features or part of key challenges that one faces at this product growth stage.



- Profits have peaked, competition fights over market share.
- Promotion reinforces buyer decisions and focuses on supplier reputation and value.
- Distribution strives to serve all market sub-segments.
- Price is a major component of the marketing mix.
- New customers do not replace sales volumes as old customers move to newer products

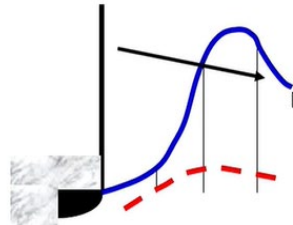
Then comes the maturity stage and this maturity stage where sales will saturate. We are talking about this part of the graph. So, the profit would have peaked by this time and there will be an intense fight in the marketplace for market share. The promotion at this stage will be focused not only on acquisition of new customers, but also on reinforcing the relationship with the existing customers. So, there will be a lot of confidence building and partnering with customers so that we can get more endorsements and more references to convince more and more customers in that narrowing market that emerges at this stage. So, at this stage also, there will be some lateral expansions, some introduction of the existing products in possible new market segments. So, there will be some variants which will be developed.

So, you might be very successful in a product range created for children or young people. But that a new variant may be then developed which will be appealing for the senior citizens who in terms of usage may have some similar characteristics. So, this lateral

expansion in adjacent segments also is an important part at this maturity stage. And most importantly, the strategy, marketing strategy will be focused on customer intimacy, developing solid relations with existing customers so that their references and their endorsements can actually appeal to yet to adopt customers. Price is a major component of the marketing mix at this stage because there will be price will often be variable pricing based on new penetration objectives at this stage in the adjacent segments or relatively untapped segments.

So, new customers will not be replacing the sales volume and the old customers may have a tendency to move to newer products at this stage and all these are to be worked against.

### Offering *Decline* Stage



- Consolidation usually occurs among suppliers
- Product line is reduced to minimize product variation – efforts are made by remaining competitors to operate at productive rates.
- Promotion reduced to minimal levels to accommodate existing customers.
- Price, particularly associate with a long-term contracts, is a major part of the marketing mix.

So, there will be a lot of defensive marketing necessary at this stage, so you protect the the base while you explore the new segments. Then comes the decline stage, which is kind of inevitable. At this stage, there might have been some shakeout in the market. Some of the competitors might have exited the marketplace.

So, some consolidation usually occurs among the vendors at this stage. The product line might be rationalized at this stage. So instead of maybe 11 variants, a particular manufacturer of components might have now focused on six major demand segments.

And everybody would like to develop some productivity stage at this stage. So, there will be some trimming that will be going on of low sales variants.

And there will be a promotion will not be very stressed at this stage because the focus is on often is on existing customers and not so much on acquiring new customers. The promotion at this stage is focused more on solidifying the relationships, trying to leverage the customer base for the next launch or for the next technology or product lifecycle and so on. And therefore, price becomes kind of stable or predictable at this stage because we are dealing with customers. Many of them are long term relation oriented customers. So contracts, long term contracts become important part of the pricing element in the marketing mix.

A question that often comes up, that if these are the marketing variants that are there as the PLC evolves, how do we know when we are coming afresh in the marketplace that where we are with the technology lifecycle or if we are already operating in the market, often we want to know that which is the stage at which we are now on the PLC. So, there are some, this is a very difficult question to answer very accurately. But we can make some estimates. So, we can create some educated guesstimates.

### How Can You Determine Where an Offering Is in the PLC?

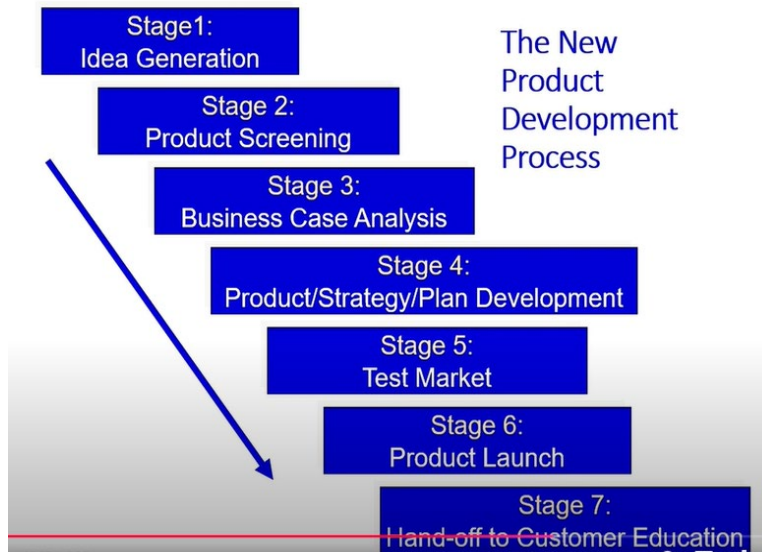
- Develop and review trend information for the past 3-5 years or business cycles.
- Examine changes in the number and nature of competitors.
- Review short-term competitive tactics – are competitors pricing to utilize new capacity or improve short term sales volume?
- Are new product introductions aimed at segments currently served by existing offerings?
- How many years before a major consolidation occurs among suppliers?
- Will a competitor innovate your organization out of business?

And those are done through analysis of current numbers. So, we develop and review the trend over the last three, five years. We would like to see whether our own sales revenue

how that is behaving the industry sales volume how that is behaving. And we will also examine the changes in the number of competitors because as we were discussing just a little while back, the number of competitors will be rising at the growth stage whereas number of competitors will be coming down or will be highly stabilized at the maturity stage and will be coming down at the decline stage. So, the number of competitors also will be a good indicator to know where we are with respect to the product life cycle.

And some short-term competitive tactics will have to be evaluated. because we will have to observe how competitors are behaving. Are they suddenly coming up with some price discounts? That means they have added some new volume that will give us an indication that we are maybe still operating through the growth stage. And so this tussle to improve the sales volume with pricing strategies will give us an indicator that we are still in the growth stage.

So, these observation and analysis of these numbers will give us some guesstimate with respect to where we are on the PLC graph. Also, when we see that there are forays in opening up new adjacent market segments, then we know that we are entering the maturity stage and we are as more and more efforts are made to create new segments, develop variants appealing to adjacent applications. Then we know that we are approaching the maturity stage or we are in the maturity stage. Also, as we discussed that the number of competitors give us some good handle on the position. And the rate of innovation, rate of new features coming into the marketplace, rate of radical, not radical, but significant incremental improvements also give us an indication that whether we are approaching the upper end of the growth stage.



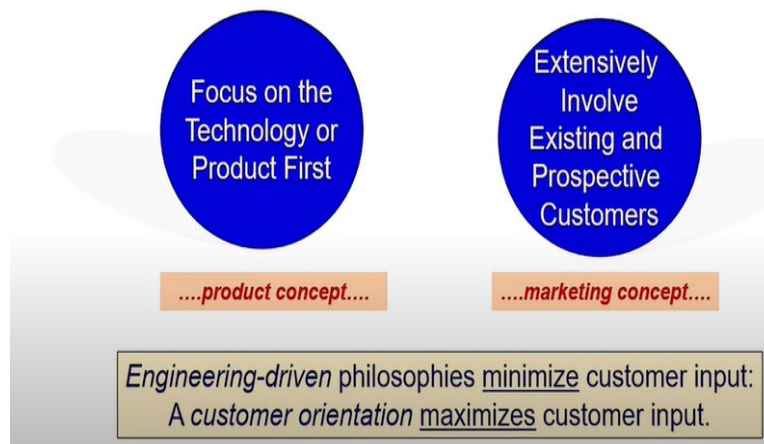
I will now, before concluding, spend some time on discussing certain other features of the new product process. Because we discussed about the development stage and the introductory stage when we were just now discussing the product lifecycle. But I will highlight some of the processes that are nowadays widely used for the product design or development in the B2B domain. These stages are there also in consumer products, but in business products, in industrial products, in technology-oriented products, some of these stages are much more pronounced and transition from one stage to the other stage often will be not a very linear simple progression, but may involve some iterative processes.

So, the traditional view of the new product development process is in front of you on the screen. So we have this idea generation to product screening, to business case analysis, to product strategy and plan development, then test market, then product launch, and then you know, hand over to the sales, general mainstream sales. Now, these stages will be mostly there in all B2B technology-oriented product life.

But what is important is that today, this is not a very linear process. We know that we must have an iterative process. So, we may be going back to the idea generation stage after some feedback coming from the test market. Or there may be some reworking on the business case based on feedback coming from the product strategy or plan development stage. So, this some amount of looping back and forth happens in the current way we approach these developments.

So, these are not very clear cut over the wall handover but more going back and forth on this path. As a result, today we classify that there are these two notable approaches to developing new products. One is focused on technology or product. So, this is the traditional product development focus.

### Two Approaches to Developing New Products

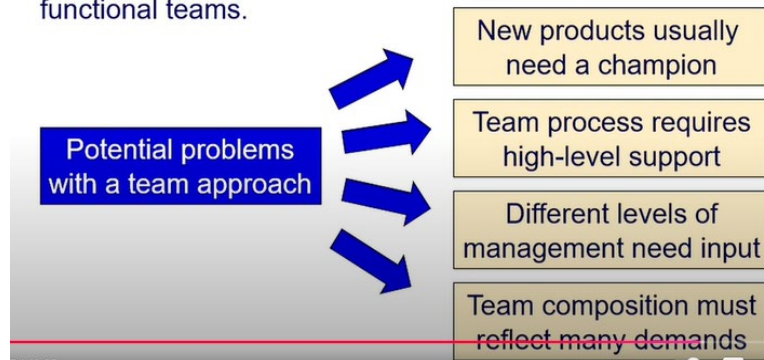


Whereas nowadays in the lean product development, the focus is more on customer development or customer focused product development. So, extensive research is done on current customers or future possible customers capturing the voice of the customer and translating that in the product design for which we discussed the process in the previous session processes like QFD or the Kano model and so on.

So, earlier this used to be the approach. So the laboratory or the design studio based development led to the product which was then fully prepared and then released to the market and that led to many expensive failures. Today more and more our approach is to come from this right side to the left side, so we focus more on the customer voice, focus more on the user interaction and then there is lot of involvement from the user for moving from this right side to the left side. So this is the new era of design thinking leading this customer focus, customer centric product development process which dominates the B2B domain today.

## Team Approaches to New Product Development

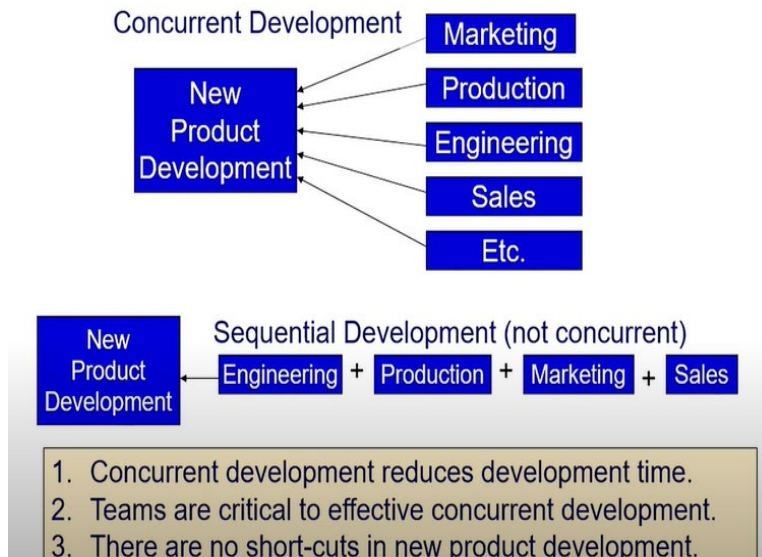
Companies have moved from separate silos (marketing, engineering, sales, customer service, etc.) to small cross-functional teams.



So, in this new approach, not only there will be many parallel processes or loops or going back and forth iterative processes, but there will be often people from marketing, from engineering, sales, customer service all working together in the development process and interfacing with the customer, some of the beta customers or early stage customers through these various disciplines and bringing the feedbacks back to the design activity. So cross-functional team formations are now the order of the day. But remember that some of the caveats here are that we need always a product champion.

We always need high level support, top management support for the team process. And there need to be interactions with the different management levels and different management disciplines, be it finance, be it production, be it maintenance in the development process. And service department, for example, who earlier used to come into play only as an after sales service that means a post marketing interface. Nowadays play a very important part even in the early stage product design because their feedback with respect to the current products and the problems faced by the customer create lot of valuable inputs for the new product design.





So, the new product development therefore is now a more concurrent development process A, that means there is lot of iteration, there will be lot of back and forth among the various stages. In the same way, or sort of simultaneously with that, our focus is on continuously involving the marketing department, production department, the maintenance people, the engineering people, the sales people, the service people, all in the product development process. So concurrent development and cross-functional team-based development now are replacing this sequential development process, which used to be the dominant process earlier. The other important part is that once through this iterative processes, through this concurrent development processes, a product has been fully defined.

Maybe we have also crossed the minimum viable product stage and we are giving shape to the final commercial version of the product. At that stage, of course, we may still go because that is a stage where we are going to rapidly finalize all the work out all the kinks. So, we may still go for this kind of a linear process. But that is at the very end. The main process will be this concurrent and cross-functional team base.



## Marketing and the Product Development Process

- In a market-driven organization, marketing continuously reviews customer needs and develops new offerings to meet those needs.
- However, many organizations minimize resources for marketing throughout the process.
  - 22% of new product development projects reported no marketing study.
  - Another 46% reported poorly developed marketing plans.
  - Test marketing was omitted in 58% of studied projects

So, the interaction between marketing and the product development process should attract our attention at this stage. So, in a market-driven organization, that means remember that in that graph that we showed where we are coming from the right side to the left side, the marketing concept dominates. So, in that kind of an organization or in that kind of a product development process, we have the marketing, sales and service people often taking the lead role. And we know today from analysis that people who have not given this priority and precedence to the sales, marketing and service functions have often led to costly failures. But unfortunately, many companies still persist on the old we know the best type of approach and they don't rely on extensive customer involvement at the development stage.

## How Should Marketing Serve the Tech Organization?



But those numbers are coming down because the success of the customer focused, customer involved design process now under the umbrella of design thinking is found to be the most appropriate approach or the most effective approach and so now widely adopted for all kinds of new product, new technology, new service development. So towards the conclusion, I would like to say that marketing therefore has a key role to perform in the B2B domain with respect to new product development, new technology development. So, marketing needs a lot of technical depth in today's B2B domain because they not only need to define clearly today's customers' jobs, but they also need to understand deeply customers' current latent desires and they need to uncover some of those difficulties that the customer may be living with to develop further design factors which will wow the customer, will delight the customer and the customers communicate to the vendor organization through the marketing and service interface.

And therefore, their inputs will be valuable to create an economic approach to screening and selecting ideas. So having said this, let me say in conclusion that the most important issues today are understanding that all products are subject to a limited life, all products are subject to an evolving life cycle and all product developments must rely on concurrent activities and cross-functional team activities. And we discussed so far with a graph that was actually kind of a continuous graph, but we had those dips or chasms on that graph which we will discuss why those chasms operate, chasms emerge and how do

we operate to successfully bridge those chasms. Those are some of the issues we will discuss in a following session. Thank you.