

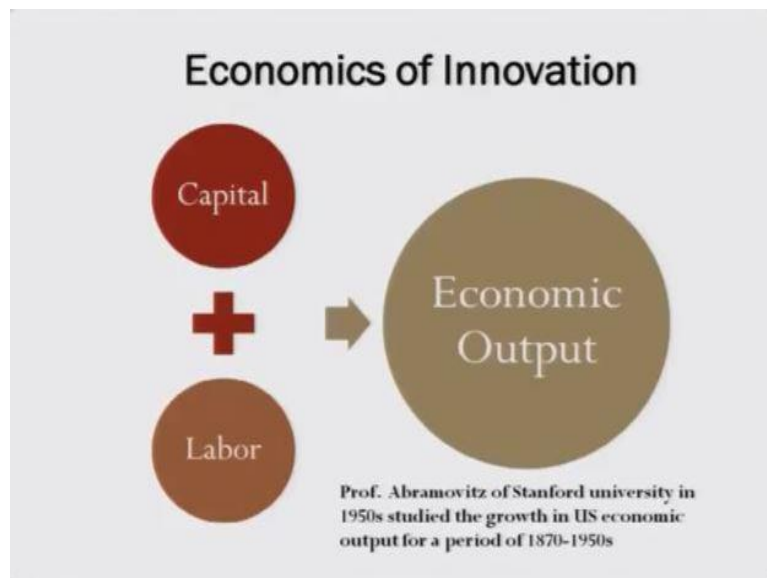
**Marketing Management II**  
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**Lecture No W1-L4**  
**New Product Development**

Hello and Welcome to our course Marketing Management part II. We are in week 1. This is session 4. I am Shashi Shekhar Mishra and I have with me my senior colleague Prof. Jayanta Chatterjee. We started talking about the First P. That is the Product. In last three sessions and what we have discussed is, what Product is okay and then what are the different benefits that a customer expects from a product and what is a product hierarchy, all this concept which are relevant to product as a concept, we have discussed in the previous session.

Now what we are going to discuss today is something, which is very important when we talk about the product is, new product development, which is also commonly abbreviated as NPD.

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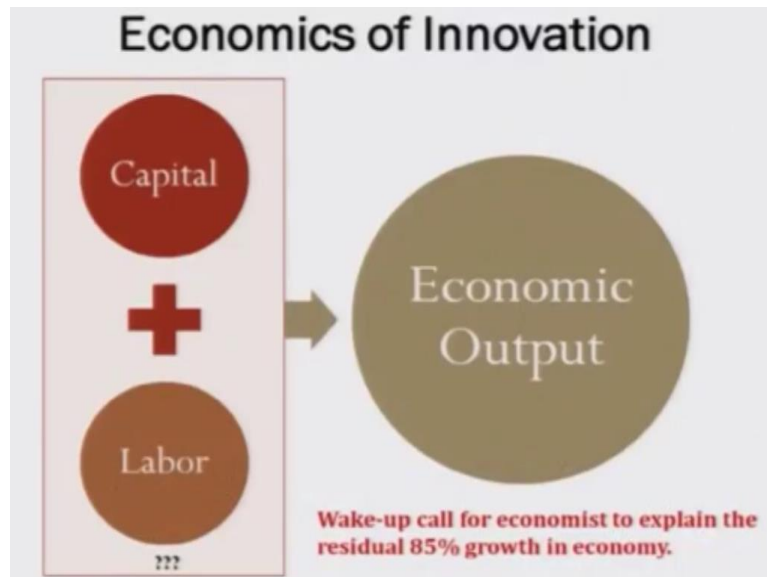


Before we go into the process of New Product Development, it is important to understand why a new product are new product is class of innovation why innovation is so important to organizations or to any economy.

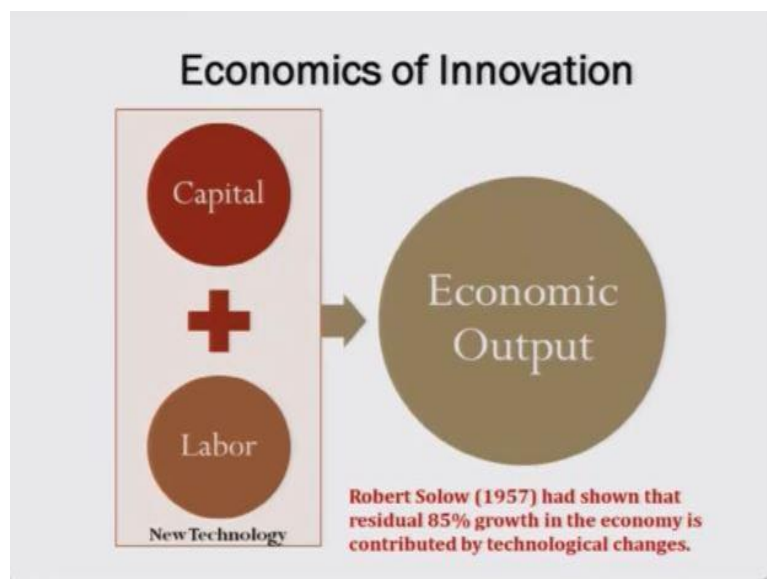
So, Prof. Abramovitz from Stanford University in 1950 persuaded a study, where he has looked into the economic output of United States for the period of 1870 to 1950's. And he has tried to model this economic output in terms of two key input variable, that is capital and

labor. Interestingly what professor found in that study was, the entire change in the economic output only 15 percent of that was explained by these two-key input variables. That capital, that means capital and labor only contribute to the 15 percent change in the economic output of the United States in the given period.

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So, now the big question at this point of time in front of a CAD mission was, from where this rest of the growth of coming from. And then Prof. (()) (02:20) Peters student Solow came in with the study, where he talked about he has shown that residual portion of the economic growth is coming from the technological changes or the through the innovations. So, you can understand that collectively capital and labor only contributes 15 percent to the change in the

economic output. On the other side, single handedly technological changes contribute to more than three fourth the growth in the economy.

So that is why, there is so much of emphasis on the technological growth or technological development. Because this is the primary driver in the economic growth of any society and that is why you also see the current day, all the organizations are so much focused upon, activities which are related with innovation. Because innovation is something that drives today organizations growth and at least we can say that it is the necessity or it is compulsion to any organization for their sustainability in the market.

In fact, these days there are global studies, where even a nation is studied in terms of its total innovation competency as well as the innovation output. Because even in the, as it is rightly shown in this work, that they not only the growth of an company, to explain the growth of a company. We have to look at the role of new products and the role of innovation. Similarly, even in the growth of a nation the GDP of a nation. The growth in the total economy, we have to look at the new products, new services and innovations.

So, in fact, as Prof. Chatterjee saying there is the global index of innovation of the different countries. And you can look at, the most developed nations are the one which are the most innovative one. So, you will see a direct correlation or the correspondence between their societies innovativeness and its well being. Because newer method of technological development, they contribute directly to the betterment of the society and whether it is in the medical sciences or whether it is in the life style, agriculture.

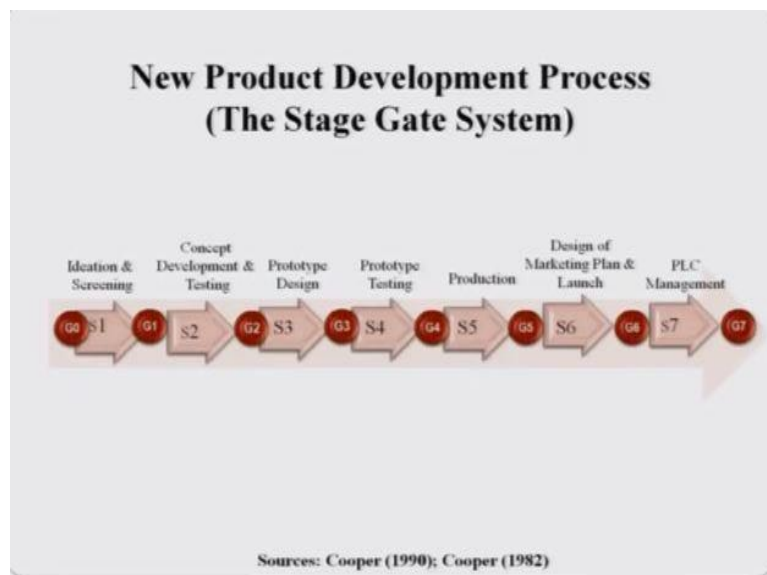
So, all these things contribute to the betterment of the society and that is why you see a surge in the economic output of that nation compared to the nations which are lagging in terms of capturing these technological changes. So, with is I think we have a well highlighted the importance of the innovation and not only to a society in organization is also relies upon innovation.

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## New Product Development Process

And one type of innovation is product innovation, under which this new product development process comes. There are other type innovations like, there are service innovations, there are management innovations, there are process innovations. So, among the different types of innovations, there is one which is called product innovation and under which we study this the new product development process. Where an organization comes out with a new product of the offering in the market that set caters to the needs of the customers.

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Now what constitutes this new product development process is, you will see that across organizations, there are different ways or there are different activities which are performed to come out with a new product. But you will still see that there are common differences or the obviously differences are across the organizations.

But one thing is there that across all this organization you can broadly classify this new product development process in the way, it is being depicted in this slide. And this model was all this stage gate system of new product development process was given by professor Robert G Cooper.

Now in this stage gate system of new product development process you can see there are seven stages of new product development process which starts with ideation in screening followed by concept development and testing, then prototype designed testing followed by the production of the new product and then designed and launch of the product and then last stage which is shown as PLC Management or Product Life Cycle Management.

Now here, I was just going to say that in the product management literature the stage one on this diagram which is ideation and screening, has been expanded and that has been called the so called fuzzy front end of new product development or fuzzy front end of innovation. The reason being that, while from the second stage that is when you have a concept which is well developed and ready for testing from that stage. It can be managed as a project, as may be somewhat linear maybe there are multiple branches, multiple activities. But it's still almost like a sequential process.

Thus, the success of one stage leads to the other stage and they have a cost cause effect or some kind of causal relationship. But in the first one which is the ideation and screening their people have distinguished among these three terminologies. One is the first is opportunity and then from opportunity it leads to idea. So, opportunities can be many and opportunities are triggered either by customers need or social needs. And opportunities can also be triggered by opportunity recognition can be triggered by the developer's curiosity or creativity.

So, it can arise in a lab, it can arise in the mind of a product innovator researcher, But the other part is actually it is, comes from the customer voice of the customer it comes from social need. So, these are two different ways ideas arrived out of opportunities recognized and then we have to follow methods, to select, to evaluate different ideas using some models and tools and then comes a concept which we need to.

So, in a way concept comes from ideas and ideas come from opportunity recognition. These three stage is the part of the this first stage here this can be called as sub stages or some kind

cyclically process. And at that level it is not exactly linear. But it may be a recursive loops back and forth. Some people have called that process as double diamond, that means diverge and then converge again diverge and again converge. So those are interesting things may be in a later session, we can discuss.

Because it is very important for entrepreneurial companies to understand the fuzzy front end in depth and but we can actually look at today. In Today session or may be even Tomorrows session we can devote our discussion to a new product development in a large organization multiple business. So, in a multi divisional company what is a process portfolio of products, maybe today's session and tomorrow session we can dedicate to that.

Okay, lets I will just sum up of what process research Chatterjee has said like the opportunity recognition can be from the researcher's side and either it can be recognized from the customer side. Commonly in market literature there is there are terms of which are given to them one is called Market driving and one is called Market driven. So, market driven is when the opportunity is identified from the customer side and when your are market drive market driver or in that case the idea is coming or is pushed from the researchers or the product manager side. So, these are the two things.

And as you can see that the opportunity leads to identification of opportunity leads to new product ideas. And then it is this idea being generated has to be screened. So, you can see after each of these stages you there have been there are has been gate which is shown as gate1 gate2 up to gate7. After each of these idea, after each of these stages, the stage has to be evaluated on predetermined criteria on these each of these stages and then once the activities from this stage is passed they basically progress to the next stages.

Now it is very important to understand that importance of the fuzzy front end and it is also it is very important to understand that if you have to fail, fail early. Because as you progress in the new product development process failure becomes more expensive. It becomes more expensive and organization has invested a very scarce resources and the time of its management and staff and then the mistake could be something which could leads to future problem for the organization.

So, moving from the ideation and screening the next stage is called the concept development whatever ideas you have screened, you try to develop full concept out of them and you go to the customers are the target market and you try to test them. Once you tested and find out which are the ideas which fulfill the needs of the organization on gate2, you move and progress to gate3. The stage3, which is prototype design and the next stage.

In some organization, you will see that prototype, prototype design and testing are combined in one stage. So, you developed the different prototypes and test them in the market commonly this prototype testing if it is inside the organization, it is called as Alpha testing and when it is done at the customer stage in B2B market or often it is defined as often it is referred as Beta testing, with some loyal customer are no close customers.

So, from here onwards once you have decided and found out tested some prototypes which looks to be good. The process moves into the production stage where you have started you damp popular production facility and you go into production process, you refine your production process as per the needs of the new product and at the same time though it is shown as a different stage or the next stage. You start to building your marketing launch program for this new product. So, the product have to be launched and you have to be ready with all your marketing plan.

So that the product is launched with full preparation in the market. And the last stage is once the product is launched it goes through the different stages in its lifecycle. So that last stage is called product lifecycle management. So, with this is the stage gate system of new product development process and as I have already said that you will see though you will see that in different companies' different activities are the different manner where various activities are being carried out. But if you want to sum up the new product development process, they can be rearranged under this stage gate system of model.

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Now the important point here is what decides the success or a failure of a new product development process. So as Prof. Chatterjee was saying, that it is very important to understand that the new product development process in the large firm differs from as it is being pursued in a small time start up. So, there are basically different factors and one of the way of understanding the success or failure or the performance of a new product is dividing or distinguishing the factors at the business unit level and thus critical success factor at the project level correct.

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Major Drivers of New Product Performance at the Business Unit Level	
<b>High Quality New Product Process</b>	<ul style="list-style-type: none"> <li>• Solid up-front homework</li> <li>• Sharp, early product definition</li> <li>• Strong market orientation (voice of customer)</li> <li>• Tough go/kill decision points</li> <li>• Quality of execution throughout</li> <li>• A complete, thorough NP process</li> <li>• A flexible process</li> </ul>
<b>A Clear New Product Strategy</b>	<ul style="list-style-type: none"> <li>• Goals defined for total new product effort</li> <li>• Role defined for new products</li> <li>• Business goals clearly defined areas (areas of focus)</li> <li>• A long-term thrust</li> </ul>
<b>Adequate resource for new products</b>	<ul style="list-style-type: none"> <li>• Resources in place to achieve NP objectives</li> <li>• R &amp; D budgets adequate</li> <li>• Necessary people in place, time freed up</li> </ul>
<b>High quality project teams</b>	<ul style="list-style-type: none"> <li>• Dedicated leader (to one project at a time)</li> <li>• Team interactions (good team communication)</li> <li>• Handle outside decisions well</li> </ul>
<b>R&amp;D spending on new products (% of sales)</b>	

So, now looking at the business unit level what are the drivers of the new product development process and as you can see the there are five important factors which have been mentioned in this slide, that defines or that plays an important role in deciding the fate of the



new product. So, the very first thing that comes into the drivers of new product performance at business unit level is the, quality of the new product development process.

So, how you execute the new product development process is something very important and they are the first thing what you are already talking about, that solid upfront homework we will talk about more on this part, that how you managed the fuzzy front end because that is the part of the entire process which has the maximum level of uncertainty and that is where also this is also the time where things are taken in more lighter way and things are not formalized.

So, on the one side it is critical to product development process and quite often the companies take it in an informal way, so that is not in consumption not in synchronized way of as it is required. And many interesting studies have been done to show that at this stage, your investment in developing the product is minimal, because you haven't got any, may be not procured materially or no machine time, it's everything is happening in the mind of the team.

So, the investment is low but it's impact on the later need of investment or it is impact on the later cost structure of the product. It is impact on the success possibility of the product is high. So, cost incurred is very low but impact to the future cost is very high. So, in fact decides the fate of the organization.

So, one thing is that how you manage the fuzzy front end and then the different decisions like if you have tough go or kill decisions at the end of each gates. So, how you decide these which products ideas to pursue? which ideas not to pursue? how you evaluate that the different stages is something very important.

Now one thing is which I would like to highlight there is that quite often this stage gate system is also criticize, because it is a new formalized way of new product development process and people say that sometimes when we are formal or when we follow this state gate system in a very regimented way. often the creativity gets killed. Because sometimes I can go back on this model and you can see that whenever there are newer ideas, which are radical in their nature. They may not be able to fulfill the gate1 requirements of the organizations like a routine.

I mean and probably, what you say commonly available idea, that is something which is not new to the world. On the other side, we come out with the radical ideas you may not be able to understand what is the market potential and in that case sometimes the idea gets killed at the stage one itself and that is where the criticism for this stage gate development process also comes into the picture.

I think that it is important that while we understand what this stage gate system is. But at the same time, we also understand what are its limitations are so that you can even you are able to manage the process better. So, the next factor that comes into the picture is a clear new product strategy. So, which about the business level you should be clear about the goals for the new product that you are going to bring in the market.

So, I think at a business unit level, there will always be some opportunities which are incremental opportunities or adjacent opportunities, where certainty will be high and the business managers will usually refer those kinds of projects. However, as you rightly pointed out that in the process we may actually ignore certain little uncertain or little out of the way or little radical ideas which if pursued can leads to a big growth.

So, I think in many organization these days therefore there are two parallel activities, there is a regular, finance dominated top management, dominated process where risk is used as a measure or chance of success is used as a measure to filter and decide on investment priority it is. But side by side one should have some kind of internal venture fund dominated process where you can actually look at some these wacky ideas, some of this out of the box or radical ideas and provide them also a fund.

So that which means, don't take this very black and white position, have some space and opportunity for some in some of this grey or mixed or uncertain areas. So, in terms of basically the portfolio of new products, you have to hedge the risk and you have to balance that some ideas should be able to provide a growth in the market at the same time, some kind of balance that you are able to sustain that what here what you are already doing. So that is basically is talking about the new product strategy.

The next thing is that comes into the picture is the, resource allocation for the new product. So how you allocate the new resources to the new product development projects is also very

critical. You have very ambitious project but you have right kind of people, people do not pursue the right and in the lack of the skills that good idea or probably very radical idea may also die. Another thing is that you need to have in terms of the financial resources as well as the other types of issues competencies. All these should be adequately assessed before the project and they should be allocated.

So, a product idea should not die. Because it lacks the resources many times. This has been observed in the organizations that good ideas have died. Because it not the right kind of resources have been allocated. I think this portfolio word, you used is a good idea, which means that you can think about depending on your financial strength or current financial imperatives.

For example, if a company is which is actually doing not so well. In terms of cash flow when they decide their new product Portfolio or the projects that they are going to fund, they have to see that those products which are cash flow positive or those products which are those ideas which are less cash demanding, can be given priority and whereas on the other hand if a company's cash flow is very good and there are lot of cash getting generated, but may be the profitability is not that good, so you go for the radical ideas.

So, you then you can actually fund some of the radical ideas. So, this mix of whether it should be 70 percent for incremental and 30 percent for radical or 80-20 or 50-50 that will have to be determined out of the company overall financial position and strategic objectives.

So, the last thing which is set to be important or critical to be the product performance at the business unit level is the quality of the project team. At the end of the day, probably it is the people who matters and the new product process this is a basically a cross functional activity. So, what kind of a people related resources to allocate to a project is very critical. It is said that you are supposed to bring in the best people from the organization for the new product development process.

Because product development is something that which drive the organization's. Because other routine jobs and the other kind of related jobs can be done by the people which pursue you are having a, which have the basic skill. But for new product development process you

have to the best talent at the people who have critically analysis skills and they can basically common probably contribute to this thing.

And one thing which is also very important is, it has been talked about in the literature is how basically these teams are managed what is the how what is the culture inside the team, that small group dynamics. The group dynamics, the communication, the autonomy given to these teams and also one thing that has been talked a lot in the literature is their product champion actually.

So, the person who pursues that idea, that has to be a person who has to pursue the ideas, all the other organization resources and the people can gel around him and that actually drives organization to pursue and thats the whole issue about the leadership. So, may be a we can wrap up this session at this point and perhaps in the next couple of sessions we can go into details of these stages and these activates.

So, we will stop this session here with this discussion on the major drivers of the new product performance at the business unit level. When we will meet in the next session, tomorrow we will talk about the critical success factors related to project level and then we will also talk about some of the cases studies and also, we will talk about the differences in managing the new product development process in large organization versus a small organization or a startup. Thank You very much.