Managerial Economics
Prof. Trupti Mishra
S. J. M School of Management
Indian Institute of Technology, Bombay

Lecture – 29
Demand Forecasting - I

So, if you remember in your demand analysis, when we are discussing about it, we have identified there are number of factors, which affects the level of demand like what is the price of it? What is the price of substitute good? What is the income of the consumer? What is the future anticipation of price and what is the number of consumer in the market? Apart from this also, these are the information that helps us to know or helps us to decide the forms to know what is the level of demand, whether demand goes on a increasing way or demand goes on a decreasing way.

So, in today's class, we will focus on the forecasting of the demand, how generally the farms they does the demand forecasting keeping all the information used or may be using all these information whatever available to them for knowing what will be the demand for that product in the future. So, today we will talk about demand forecasting what is basically demand forecasting? What is the need? What are the different types of demand forecasting and what are the different methods to do this demand forecasting?

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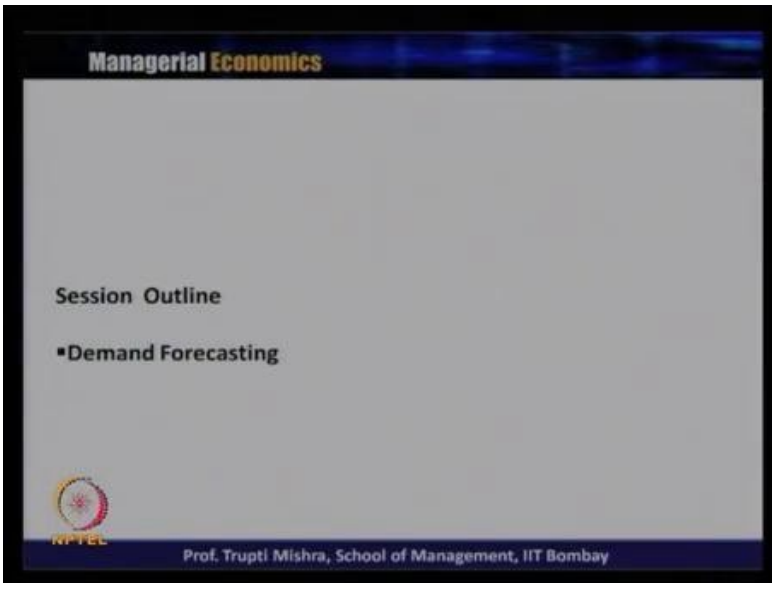

So, today we will focus more on the subjective method of the demand forecasting. So, initially we will know what is demand forecasting? What are the different types of demand forecasting? And then we will talk about the subjective method of the demand forecasting. Now, why to forecast demand? What is the need or why generally the farms they do a market share way they do a market research to know what is the demand.

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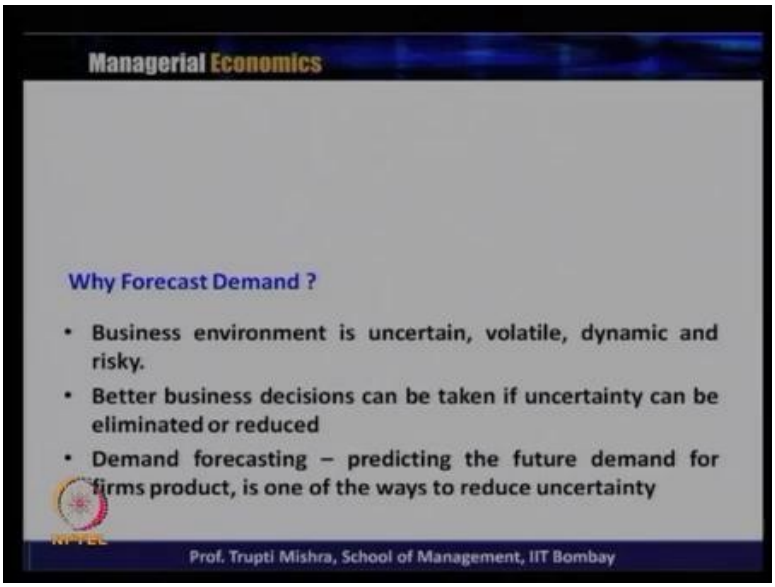

The, if you look at the economic condition is always depends on the economic activities of the farm. And business environment whatever the business environment that is dependent on the economic activity. And since there is always a cyclical nature of the economic activity, sometimes it is expands, sometimes it is contract that way it also affect the business environment. And that is why there is a uncertainty, there is a volatility and there is a some amount of risk, if there is a plan and actually is not matching and also the dynamic, because every it is not a static condition business environment, every time its gets changes with the change in the related variable.

So, demand forecasting is required to know, because the environment is uncertain its it is volatile and its dynamic and it is risky. And better business decision can be taken if the uncertainty can be eliminated or the reduce. So, if I know that it is going to be uncertain whatever the decision I am taken it may not be optimal in the future time period. So, one has to reduce the, or the, eliminate the uncertainty associated with it. And then only that can be a better business decision or that can be profitable or the successful business decision

So, demand forecasting basically predicts the future demand of the farm products. And this is one way to reduce the uncertainty, because now predicting the future demand, we will reduce the uncertainty that what will be the demand. And on that basis now the supply can be planned, now the price can be planned and there are other activities also can be planned. So, demand forecasting it is basically to predict the future demand of the farms product. And this is one way to reduce uncertainty and this way we can reduce the uncertainty may be the business decision can be also profitable and viable.

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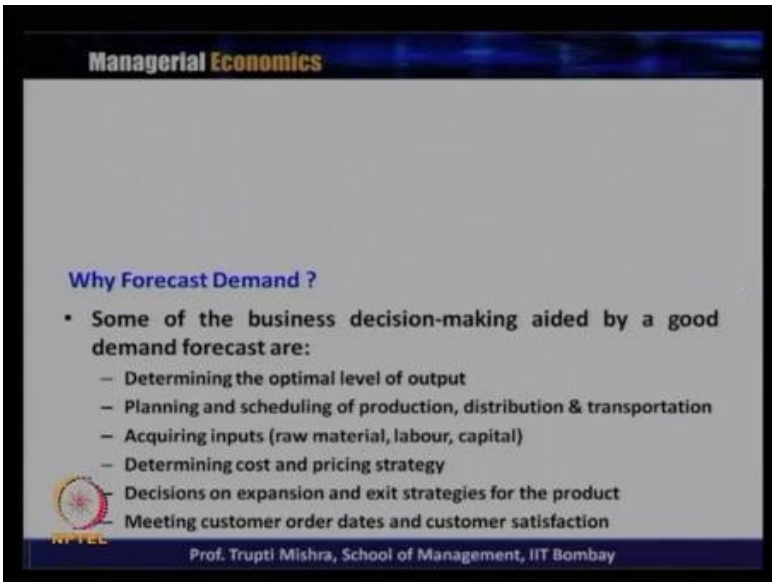

So, some of the business decision making that is added by the good demand forecast, if there is a good demand forecasting it helps in some of the business decision making. And what is the business? What are the, what are those business decision which gets good positive outcome by demand forecasting? Determining the optimal level of output, what is the optimum level of output that can be decided through the demand forecast? Because on the basis of the demand the output plan can be decided and whether at that output level that this is the optimal level of the farm, whether the farm needs to expand, whether the farm needs to contract, whether the farms needs to, whether they can expanded the increasing cost, whether they can expanded the decreasing cost. And on the finally, how they can determine the output level through the demand forecast

Then planning and scheduling the production distribution and the transportation. So, this demand forecast helps them in scheduling the production like the future demand forecast says that in the month of Jan, 20 units require the month of Feb, 40 units require. In the month of March, 50 units require, in the month of April, 20 units require on that basis the production scheduling can be done in a way. So that it delivers 20 units in Jan, 30 units in Feb, 40 units in March and 50 units in April, matching the demand it can just deliver that. So, the production scheduling can be done if the demand forecast forecasted demand is known for the specific time period also the distribution scheduling the distribution and scheduling the transportation.

Because it is not that every time the producer is the supplier of the product, if it is if producer is not the supplier the product once they produce they have to also plan the distribution and the transportation is how the end product reaches to the market to the retailer. And on that basis they know that Jan, 20 is require, how they have to plan that the transportation of the 20 units to reach the regular before Jan. So, this planning schedule of production distribution and transportation can be done if the demand forecast is known for the specific time period. Acquiring inputs, typically the raw materials labour and capital if, if you know that what is the requirement of output in the next couple of month, next couple of week.

Accordingly, the input plan can also be done, what is the raw material required for that typical output, typical quantity of output? What is the required labour? What is the required capital? And that way the acquisition of the inputs can be done on the basis of the demand forecast. Demand forecast helps in determining cost and pricing strategy. If the demand is more then accordingly the pricing strategy can be done whether it is a big time period whether it is a optic time period. What is the kind of the output demand that helps in the pricing strategy that what kind of pricing can be done? And also it helps in determining that how the scale of operation should be. If the demand is more than the scale of operation is more the possibility is that at least the farm is getting some economies of scale.

Similarly, the determining the cost like whether, whether it should be a increasing cost in the scale of operation, whether it is going to be decreasing cost in the scale of operation, this can be decided on the basis of the demand forecast. Then demand forecast helps in decision on expansion and exit strategy of the product. How it helps in expansion and exit strategy of the product? If the demand forecast says that by the end of this quarter the demand has to be 100 units. Taking specific example, if it is 100 units and if a specific farm has a capability of

producing only 80 units through the demand forecast it helps them that they have to expand the output in order to fulfil the market demand for their product. And they can do that expansion activity on the basis that even if now at the present time period the demand is not 100 units, because in next quarter it is going to be 100 units, they have to expand and produce 100 unit in order to meet the demand for the product.

Similarly, it also helps in the exit strategy of the product, if the forecasted demand says that the market for this product is going to down, there is no there is no demand for this product it going to decrease or may be, there is no proper there is no proper demand for this product. Generally that helps the farms to identify with that level of demand whether at least they are covering whatever price they are going to charge. And with that price whether they are covering cost of production or not. If the variable cost or production is not covering up they will prefer to go out of this market.

So, forecasted demand also helps in the exit strategy of the farm that if the, what is the level of demand with that level of demand whether the farm can survive in the market or not if. And if they can survive in the market, if they cannot survive in the market where they should exit or where they should shut down their operation it can be helped through the demand forecasting. Finally, the demand forecasting also helps in meeting the customer order dates and customers satisfaction. How this customer order date and how this customer satisfaction is related to the demand forecast? Because it will give us that, what is that demand from the customer in the different time period. And on that basis the farm can work on the o production scheduling the farm can work on the distribution, the farm can work on the transportation. And finally, that will that will help in that fulfilling the customer ordered dates on that specific date and also the customer satisfaction, because whatever demand they are doing in that time period that is getting fulfilled with the specific time period

So, forecasted demand helps in determining the optimal level of output, planning and scheduling production distribution and transportation. It helps in acquiring inputs raw material labor and capital it helps in determining the cost and pricing strategy. It helps in taking decision on expansion and exist strategy for the product and it also helps in meeting the customer order dates and customer satisfaction. So, demand forecasting taking all this taking all this usefulness of the demand forecasting.

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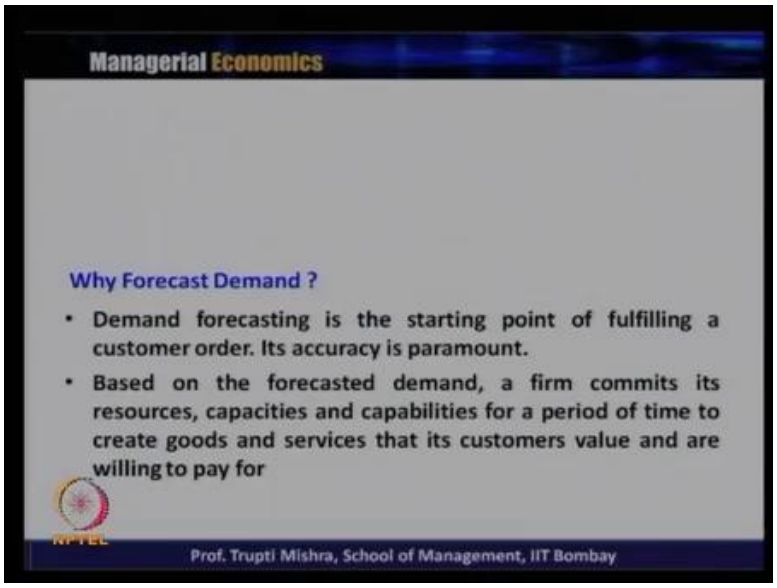

We can say that demand forecasting is the starting point of fulfilling a customer order. Its accuracy is paramount that accuracy of the demand forecasting is the paramount. And based on forecasted demand, a farm commits its resources, capability for a period of time and also the capacity to create the goods and services that its customer value and willing to pay for it. So, the forecasted demand helps the farm to do the commitment on the basis of resources on the basis of the capacity, on the basis of a capability for a time period to create goods and services for that customer and particularly customer what the, what they generally value for it.

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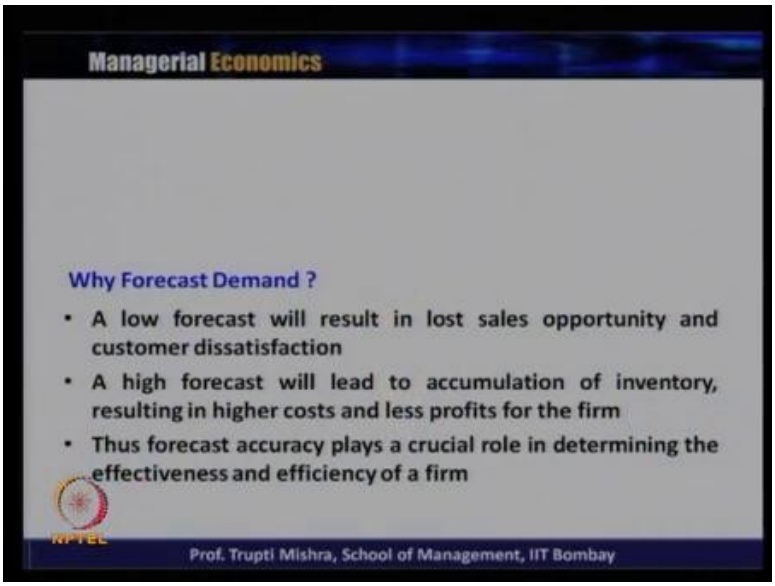

Generally if the forecast is low it will result in loss opportunity and customer dissatisfaction. If the forecast is not proper, if whatever the forecast that is not appearing it is considered as the low forecast and what is the outcome over here? The outcome is a result in loss sales opportunity and the customer dissatisfaction, whereas the high forecast will lead to the accumulation of inventory resulting in a higher cost and less profit for the farm. So, if the forecast is not proper either it can be low or it can be high, if it low it generally leads to the loss sales opportunity, because farm is not ready to fulfil the demand. And because the demand forecast is showing at a lower note and that is why if it is not ready to fulfil the demand from the consumer. They lost the sales opportunity and the consumer get dissatisfied that whenever they demand for the product that is not getting supplied by the farm and there is a waiting time to get their product. Whereas, if the demand forecast is not proper and if it is forecasting very high, it will lead to accumulation of inventory.

Because whatever if it is high forecast the farm is already produced a higher amount of the product and if the higher amount of the product is produced. And if it is not getting sold in the market, because of low consumer demand that leads to accumulation of inventory which incurs a cost for maintaining or managing the inventory which results in the higher cost. Because you are producing at a higher level and that is not getting immediately sold and also that is why it gives less profit. Because supply is more demand is less and on the basis of basis of the basic market forces the firm has to the firm has to charge a lower price in order to also dispose of some amount of the inventory if they cannot keep it for a longer period of time.

So, high forecast is not good, low forecast is not good, low forecast is also leading to negative outcome and high forecast is also leading to negative outcome for the firm. The forecast accuracy plays a crucial role in determining the effectiveness and the efficiency of the firm. So, when it comes to a proper forecast or good forecast it helps in the effectiveness of the firm or efficiency of the firm. Now, this demand forecasting is categorize on the basis of level of forecasting.

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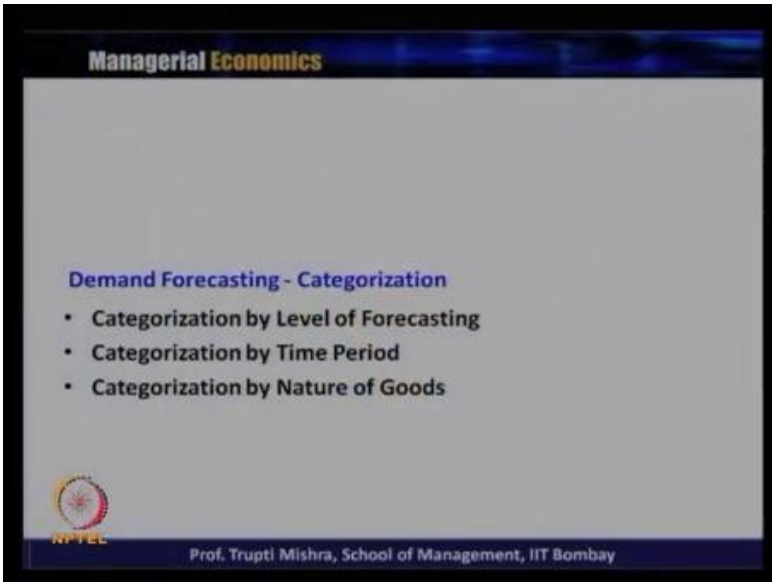

On the basis of the time period and on the basis of the nature of goods. So, that mean demand forecasting is can be on the basis of level of forecasting, on the basis of the time period or on the basis of the nature of the goods. So, if the categorization is on the basis of the level of forecasting, what are the different level? One if firm level and second is the industry level.

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So, in case of farm level, it refers to the forecasting of demand by an individual farm for its product. So, level of forecasting the first level comes in the farms level and in farms level this

is the forecasting of the demand of the individual farms for its products. So, typically when the individual farm does the forecasting for their demand for their product this is farm level and here the most important category for a manager for taking important decision to the marketing and production.

So, this farm level forecasting, demand forecasting helps the manager for taking important decision related to marketing and the production. The second level of second categorization is based on the industry level forecasting. And what is industry level forecasting? It refers to a demand forecasting of a product in an industry as a whole. So, it is not about a specific farm product rather the products which comes from the industry as a whole. So, there may be multi product like if you consider suppose PNG.

If you look at the product in all the segment of all the segment whether it is food, whether it is non food, whether it is non food and also in the FMCG. So, FMCG also they have variety of product. So, when the demand forecasting is done for all this product, what is the demand forecasting for PNG as a whole that becomes the industry level. And what is the farms level for a typically for a toothpaste for a soap if the demand forecasting is done may be it is for the dove soap or the Garnier shampoo.

In this case, generally this is the farm level. So, industry level forecasting is done as the demand forecasting of the entire products of all the industry. It provides insight into the growth pattern of the industry, because as a whole the demand forecasting is good. And through the demand forecasting they are coming to know that the products they are going to do well in the market in the long run, because of their increase demand this provide a insight in to the growth pattern of the industry. And this is also helps in finding out what is the relative contribution of the industry in national income, because through demand forecasting they will know that what is going to be the revenue? What is the going to be the, their contribution? What is the going to be the growth in the income? And through that also they can find out what is the contribution of this specific industry in the national income. Same way what is done in the sectoral level also, it helps in finding out what is the growth of the sector in the long run and also the growth of the contribution of the sectoral income in case of the national income.

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Then if it is in the economy level or the macro level. So, when the categorization by the level of forecasting, it is from the micro level to macro level. Macro level; we talk about the farm level forecasting and then we talk about the industry level forecasting. And finally, we reach to the larger scale of forecasting that is the economy or the macro level of forecasting. Here the forecasting refers to the what is the forecasting of aggregate demand in the economy. So, this is combining together all the sector all the industry, all the farms that at a specific time what should be the aggregate demand for all the products coming out from the various sector in the economy in a specific time period that is done through the economy forecasting level or the macro level forecasting.

And generally, this forecasting helps in policy formulation for at the government level that what should be the different policy? Whether it is the sales substitution policy, whether it is the production policy, whether it is the regulated policy or the planning, This generally helps the government in formulating different policy, and also for planning for next time period. And this, this in the macro sense and the farm level is generally in micro sense. Then the categorization comes in the form of the time period.

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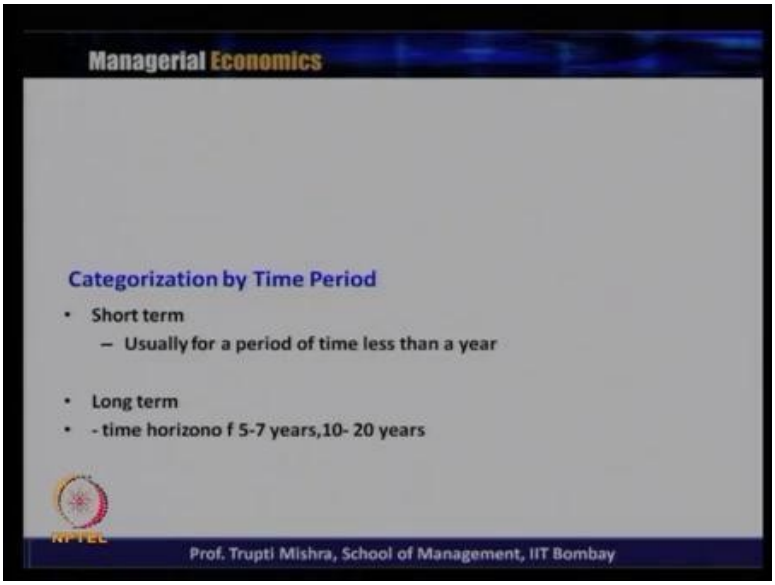

So, categorization here, so there are 2 type of, 2 type of categorization; one short term and second one is the long term. Short term is generally the forecasting usually for a period of time that is less than 1 year and long term is time horizon of 5 to 7 year and it can also be extended through 10 to 20 years. Now, what is the forecasting? What we do in the short term? One, with this is for a time period is less than 1 year it never crosses more than 1 year, and long term we can do it do the forecasting for a time horizon of 5 to 7 years and also it can be extended from 10 to 12 years.

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Now, what kind of forecasting we do in the short term? In the short term, this is to avoid generally this short term forecasting is done to avoid the under production and the over production. And also to take a decision that what should be the inventory level, what should be the cost on the variable factor? What should be the sales target and what should be the appropriate pricing strategy? To take a decision on all these thing, generally the short term forecasting is done. And long term forecasting is for the man power planning, long term capital requirement, investment decision, what should be the interdependence of the industry?

So, generally its avoid generally, this long term is mainly for the man power planning, long term capital requirement, because if you look at if you are doing a forecasting from 5 to 7 years that generally helps in planning for next 5 years that what should be the demand and on what basis should be the output? And how this output is to be produced and how the demand to be, demand to be satisfied? So, long term forecasting is mainly for the man power planning, long term capital requirement, investment decision. And what should be the interdependence at the industry level? To take a decision on then generally the forecasting helps. Then the categorization is on the basis of the nature of the goods. And here we will take two categorizations; one on the basis of the consumer goods and second on the basis of the capital goods.

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So, in case of consumer goods generally, the categorization we do the forecasting is needed, if it is the case of the durable goods either it is new product all together new demand or the replacement demand. And in the non-durable generally, the demand defers on the basis of the income level, on the basis of the social status, on the basis of the age, on the basis of the education, on the basis of the occupation of consumer. So, non-durable the demand depends on this and also on the basis of the gender.

So, this durable and non-durable consumer goods, the forecasting is different, because for this durable the forecasting is mainly on the basis of what is that new demand going to come and what is the replacement demand? Whereas in case of non-durable, the demand changes due to all these factors and the forecasting has to be done when there is a change in the income the forecasting has to be done. What happens when the social changes, the forecasting when the age changes, the forecasting when the education level changes and also the occupation of the consumer? The second categorization is on the basis of the capital goods. Here typically the nature is great demand, because the capital goods is get the capital good is used to get produce the consumer goods. So, if there is a demand for capital goods that comes from the derived demand from the consumer goods.

And that is why this forecasting of the capital goods, demand for the capital goods generally that helps in the long term growth other than the short term whatever other than the short term assessment rather than it helps in the long term growth. Now, these are the steps for the demand forecasting, because the demand forecasting is a it is a, if you look at it is a very adjective process.

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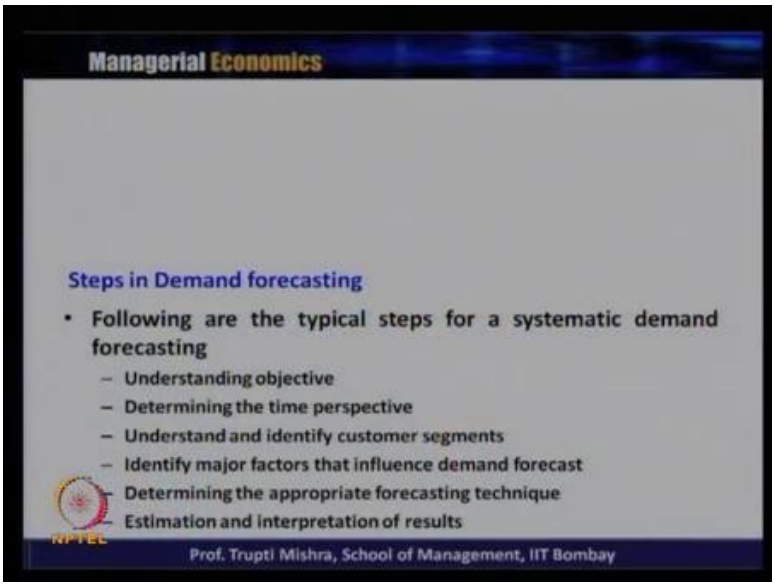

And these are the following are the steps, the typical steps for a systematic demand under forecasting. Now, what is the first step? First step is to understand the objective. Now, how to what is the objective for, what this forecasting is being done? Whether to know the inventory, whether to know the demand, whether to understand the time, whether to understand the about the product, whether to understand the, whatever the dimension they want to know. We for the first things is to understand the objective why the forecasting is being done.

The second is determining the time perspective means whatever the goal within what time period this goal has to be achieved. So, determining the time perspective whether it is a short term, whether it is a long term. Then understanding a identifying the customer and segment like if the product is about the younger generation, the customer segment has to come from the younger generation. If the customer segment is from the working people, if the product is for the working people, the customer segment should be the working people. If the product is for the kid then basically we have to identify the parents who is having the small kid.

So, the first is to understand the objective, second is to determine the time perspective and third is to understand and identify the customer segments. Then after identifying the customer segment next task come as the identifying the major factor that influence the demand forecast, because whatever factor that influence the demand forecast, we need to moderate we need to rations that. And that is how we need to identify the major factors that influence the demand forecast. After doing this determines the appropriate forecasting technique, what is the appropriate forecasting technique to forecast specific about the specific product in a specific time period and with a specific customer group. And finally, after determining and identifying the appropriate forecasting technique, we need to do the estimation and interpretation of the result

So, these are the steps generally being followed when it comes to the level of forecast when it comes to do the forecasting, understanding the objective, determining the time perspective, understand and identify the customer segment, identify the major factor that influence the demand forecast, determining the appropriate forecasting technique and finally, the estimation and interpretation of the results.