

## **Logistics & Supply Chain Management**

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### **Lecture 40 : Supply Chain Performance: Balanced Scorecard Approach**

Hello dear friends, welcome back to NPTEL online course on logistics and supply chain management. So today we will start a discussion on another very important topic which is balance score card. So we will see how we can align the supply chain overall performance with certain key strategic areas not only the financial measures but also we will try to figure out what are the known financial measures which we can align with the overall strategy, vision, mission of the organization, right. So, we will proceed in this way. We will talk about in generic what are the performance measures, quantitative, qualitative measures. talk about balanced scorecard approach, what are the different aspects we'll try to address under balanced scorecard, and then we'll try to see balanced scorecard in connection with the supply chain.

We'll try to develop the supply chain performance mattresses and then we will see how we can measure those performance indexes so that we can implement this balanced scorecard approach to improve the overall quality of the supply chain, quality, efficiency, effectiveness in whatever way you are calculating the performance so that we can improve and then we will end this discussion with couple of cases right so we will spend couple of session on this starting with supply chain performance measures so basic is what we are targeting is your effectiveness and efficiency what you are supposed to deliver right package of that product or services whatever you are delivering and how efficiently you are doing that having said that ,that means you need to align all the activities, all the functional areas throughout all the stakeholders involved in that supply chain from the starting to the end point, right? And when you are aligning those activities, not only you need to perform those activities effectively to deliver the product, but also the cost effectively, right? So efficiency, we need to target as well, right? So again, if I'll just, draw again the main stakeholders, raw material suppliers are coming from here and then we are having the manufacturers, co-manufacturers and then finally we have the customer through the distribution network or maybe you can see your distribution agency can also be sometimes considered as the customer and this is how it is happening. Sometimes what we are doing, we are processing the returns as well. When we are not happy with the products, we are processing the returns as well. So this is very basic supply chain structure we are discussing from the starting.

Now, when we are talking about supply chain management effectiveness and efficiency, just briefly I'll again just touch these points first point in efficiency and effectiveness is acquisition of the raw material right so acquisition means right raw material should be there right raw material in right quantity at right place right time that is effectiveness and efficiency how you can minimize the overall cost of acquiring that ownership of the raw material. So, first thing is if I will say cost of raw material is the first component when we will design the overall cost function. So, raw material cost is the first one then we are transporting that raw material to manufacturer. So, transportation cost is the next element in that how effectively how efficiently we are transporting that again depends upon the routing depends upon the vehicle utilization depends upon the mode of transport you are picking and other factors related to transportation. So, then what we are doing? We are storing in between the storage houses that raw material we are maintaining the inventory, because if we are not doing the just in time of system or even in just in time of system we are maintaining inventory for very temporary period of time.

So, then again the storage cost will be there, storage means whenever we are talking about storage handling will also come into that. again then now the second stage manufacturing converting your raw material into finished one that manufacturing cost will be added right so throughout this discussion of balance score card will keep all these points from where the cost is you know coming right you need to configure this cost function then manufacturer what is doing delivering the finished goods to the distributor then again we are managing the warehousing so warehousing cost will be there keeping that inventory track handling all that will do that in warehousing only right so sometimes we are doing the extra packaging sometimes we are doing kitting right so that will also be the cost warehousing cost right and then the final the distribution cost you can consider it as the end mile distribution cost so these basically when we will design the cost function these different components will be there when we are saying efficiently so that means we need to minimize the cost either your raw material acquisition how you can minimize the raw material acquisition cost by negotiating with the suppliers how you can effectively acquire the material by negotiating the quality by negotiating the variety right Then having said that negotiating the quality that means we have done that vendor rating whosoever is the best vendor you need to get the raw material from that vendor maximum raw material. How you can you know empower your vendors in that process you can. their technology, you can improve their skills, their processes, how they are producing the raw material. So, that way we have discussed in the vendor rating format and we have discussed in the supply chain coordination as well, how you can improve the performance and efficiency of the your stakeholders.

So, this is see we one end we are discussing on cost, another end we are discussing on the effectiveness, quality, other parameters. Then we are talking about if we will if we want to minimize the manufacturing cost may be we will try to produce in bulk. So, that the per unit cost. can be reduced, because if you are producing 50 units and if you are producing 5000 units per unit cost will be different, because you are enjoying the economies of scales, so that, but then if you are producing 5 unit, 50 unit or 5000 units, so then again the inventory cost will be varying in that way, if you are managing more inventory, but if you can ensure the consumption of the inventory in the market then it is fair enough. So, this is how you can minimize talking about distribution how end mile delivery you can reduce by may be electrical vehicles you are if you are doing the delivery using that may be you are doing delivery by bicycles or some other way where you can minimize the.

total cost so we have discussed this in detail how we can minimize the transportation cost how we can manage the effectiveness in during transportation in warehousing while picking our raw material suppliers then we discussed all different sessions we have done till now right so this is the brief scenario how when we are talking about you know productivity and efficiency we need to focus on this so again there is no need now to explain on this key components on time delivery, stock availability, order accuracy, production these are few measures right so the complete picture is there when you are talking about quick delivery so from the fulfillment center that means it is the performance measure related to your warehousing right how quickly warehouse is recording the order and then picking packing the order and finally making the delivery to the end customer so that this is one component related to your warehouse only but when we will keep on you know discussing different functional units different stakeholders this these measures will change right so because i have picked only few points for examples right so then you can you know we can we have discussed all those stakeholders in detail you can pick those performance measures and then accordingly you can design the balance score card for all that so obviously we have some qualitative measures sometimes we do not we really cannot you know quantify some things like how I am feeling about the product your experience about the delivery so maybe then you cannot you know exactly quantify in terms of numbers so then you are you know getting the feedback with satisfactory or less satisfactory or you know dissonance after purchasing or after sales services right so those are some of the qualitative measures you are recording quantitative on time delivery whether you are five minutes late or you are five minutes early right that is your quantitative measure quality defects how many product complaints are coming back to you that is another defect so you can actually record in time right so some other measures are there flexibility how quickly you can change over if you are producing model A then you need to change over to model B how quickly in 10 minutes

you are doing that in 5 minutes you are changing over from one model to another model that means your manufacturing is very flexible This is only I am talking about manufacturing. So this flexibility can be associated with warehousing as well. This flexibility can be associated with the transportation network. If today I need maybe small size packet or maybe same product small size, how quickly you can deliver the order? tomorrow I need bigger size maybe today I am let's take the example only family two three members are there and we want to order cake so very small size cake you are ready to deliver your courier partner is ready to deliver he is having that capacity your cake manufacturer that bakery is ready to deliver tomorrow I have invited maybe hundred people for the birthday purpose right so then you need that bigger cake whether you are manufacturing that bakery is you know flexible enough to manufacture that size of cake, so that is your just one example. Talking about quantitative measures, some measures we can directly attach with the financial measures and some we cannot attach with the financial measures.

So, non-financial measures that you actually you are calculating very important, but somewhere indirectly leading to your you know performance only, when we are saying performance That means either you are talking about you are making enhancing the customer experience then what will happen? Customer will be loyal then what will happen? Customer will go for more frequent purchases. That means again you can attach with the financial measure your profit is increasing, your market share is increasing. financial direct financial measure what is the return on investment that is direct financial you know measure how much you are investing how much you are getting what is the profit again direct financial measure right how much you are saving in inventory again direct financial what is the inventory cost again direct financial measure how much is the purchase order cost raw material acquisition cost again financial measure, non-financial measure your like quality of the product right so then you can see how you are on time delivery of the product right how you are ensuring quality how you are ensuring delivery so that is non-financial measures so let us quickly go through the financial measures So, obviously we have some fixed and operational cost and we want to find out whenever we are calculating or we are you know we are defining our KPIs, why we are doing this? There are two basic reasons, one is we want to find out where we are our performance level, right now where we are, what is our level? So, may be we are standing somewhere here. Then what is the benchmark in that industry? Where is the leader of that industry? May be somewhere here. So, this is the gap how we can bridge that gap.

So, two basic purpose first is we need to measure our current performance and where we want to be in next may be 5 years, 10 years down the line or may be smaller time period can be there depending upon what you are dealing with. So, you need to pick the

benchmark this is the basic measure. So, we can just go through raw material cost. whatever raw material cost you are acquiring so whatever you are paying not only the raw material cost the storage cost of raw material the transportation of raw material the handling of the raw material means total cost of ownership may be it is included here if it is not included you can see total cost of ownership how much you are paying to get that raw material into your factory and then you are means on the production line after that once production is starting then you know it will be under your manufacturing cost until that your total cost of ownership revenue from the goods sold how many goods you are selling and what revenue you are getting out of that right activity based cost so if you are talking about inventory management how much inventory management is adding to your overall cost if you are talking about logistics cost distribution transportation warehousing cost how much you are adding to overall cost like we discussed in the initial session in India the logistics cost is around 14 to 15 percent now what is the purpose of calculating this see the global average is somewhere 8 to 10 percent if we talk about the developed nation they are maintaining somewhere to 6 to 7 percent that means we are spending extra on logistics activity we need to reduce this heavily we need to do some optimization we need to go for picking the alternative route we need to pick for alternative transportation mode we need to update our warehouses go for updation may be automated warehouses, inventory minimization whatever required to minimize the cost because still we are spending somewhere 6 to 7 percent extra than what other players in the market they are spending if you are spending 7 percent extra that means that somewhere 7 percent directly profit you are reducing so your other foreign players will be cost efficient then they will be delivering the product on lesser margin and obviously then how you will compete inventory holding cost will come into that the carrying cost right during handling you are sometime damaging the product as well that cost will also be there transportation cost already we talked about whether you are going through air you are going through ship you are going through road and we have seen that ship is the most cheap and sustainable sustainable way to transport your product but then then whether we have that you know infrastructure to go for that then cost of expired perishable goods so what if goods are expiring in your warehouse in your storage center before producing that your raw material is expired because of the perishable nature of the product or in the final distribution fulfillment center the expired product expired because you could not you know move that inventory in the market you could not ensure the sales of that product right. Penalty for incorrect filling of the orders.

If some raw material is incorrectly coming to you, obviously issues related to quality. And then if still raw material suppliers are supplying to you, that means it is incorrectly filled. So that cost will be there. Either you will be segregating, you will be sending back. So then again transportation cost because this is system cost.

This is not only obviously your vendor will bear that cost. but again delay will be there and then you were expecting to reach the lot today and that lot reached but that is not in good shape in good quality so what you will do you will return back but then your whole production line will stop how you will maintain the on time delivery what you will do forget about the on time delivery what you will do with that thousand man power working on that manufacturing line credit for incorrect field that is already there if you are doing segregation or maintaining the raw material so obviously your vendors will pay and cost of goods returned by the customer if customers are returning the order because of any failure any defect any quality issue any functionality issue manufacturing related issue packaging related issue delivery related issue what is the cost right so that full exercise is gone right credit for goods returned to supplier. So, that also they need to credit that. Now, let us talk about the non-financial measures quickly. cycle time, cycle time basically for any activity we can say that how much time is required to deliver this session maybe 35 40 minutes right so but that is the actual time let's say the complete time when you will go through this lecture recorded lecture may be 42 minutes but when i recorded maybe i recorded for 44 or 45 minutes because of some interruptions or something like So, video editing team they did that editing part and then it is reduced to that much.

So, how much cycle time when we start if we are talking about the video recording. So, that 45, 46 time is the cycle time, but actual time in the end may be only 40 minutes. So, for any activity if we are placing order when we are receiving order again cycle time. So, then we can divide into two types supply chain lead time. right supply chain to transform the raw material into finished one and then to ship that finished product to the end customer that complete time required is the lead time today if you are placing the order you are placing order some for some customized product let's say so then once your order will reach only then I will start producing that product right that means because of your inputs are important to prepare the final product so that production time will be there and then it will take delivery will take some time.

Order to delivery if I am having in house the delivery and then how much time it is required to you know ship the product from the warehouse or the fulfillment center to your location. Customer service level. So customer service level, we talked about customer services level in, qualitative measures are also there for customer services. What variety they are looking for? Again, qualitative measures. What level of innovation they need for that? the experience of the delivery what are their expectations lead time how much time they can wait this is quantitative measures so these are some of the parameters we have designed from customer services level required order fill rate so how

quickly you are filling the orders coming from the customer from your existing stock that means customer place the order and your fulfillment center or retailer or wherever you are maintaining the inventory you have that inventory and you are quickly moving the inventory that is order fill rate stock out rate how many times you were out of stock if 100 orders were placed 95 you filled on time but for 5 orders you took may be 1 day or 2 day that means your order fill rate is 95 percent stock out rate is 5 percent and may be sometime you may lose the sales as well because if you are not maintaining the inventory someone else must be maintaining the inventory.

So, customer will shift to some other. Back order level, back order level means you have the order pending, but you have not sufficient inventory, so once inventory will come you will clear the back order. if you talk about the automobile industry Maruti if you go for purchasing any car or Hyundai or Toyota so usually they are saying that three months time period is there waiting time period is there sometime they are saying six months sometime they are saying one year waiting time right actually this is part of their marketing strategy also if they are saying that one year waiting time that means you customer will feel that this product is in great demand so that's why you know that much waiting time period is there but still 2 months 3 months waiting time is there because I told you this automobile industry in one model particular model may be more than 200 variants are there so maintaining for each type different type of model inventory that means minimum one inventory you will maintain that means minimum 200 cars in same make you will maintain the inventory 200 cars If we will talk about grand bitara, so 200 you just calculate the cost of inventory and that I am talking about only maintaining one piece of the product. because regular orders which are lying somewhere in the middle you may get frequently because they are preparing it on frequent basis most of the customer depending upon their predictive analytics they are buying that and then they are predicting the demand so but talking about the extreme model top model maybe that much demand will not be there ok So, then probability of on time delivery, so what proportion of customer demand you are meeting on time, what is the probability if you will place order today and when it will be delivered, so that way you can calculate. Inventory levels, so usually we are inventory we discussed about either maintaining raw material, work in progress or finished goods or spare parts, sometimes we are maintaining the inventory of the rejected material also.

returns also this is another inventory this is not completely rejected may be you deliver the product something during your delivery you broke your courier partner broke the product some component so that means the complete product is not rejected one still you can use that product only you need to replace the component so then that inventory also you are maintaining here only you need to make the balance when we are talking about

inventory levels you should not be stock out and all the time you should not maintain the excess inventory that's the only measure how you can measure the inventory level resource utilization usually with the organization we have variety of resources we have talked about five M's of resources man, money, machine, material, methods other than that also we are using different resources but we can generalize in these five different categories so let's say like we will take example of IIT Kharagpur only any educational institution so now So, almost for 2 or 2, 2 and half months we have vacation period is going on, right, from maybe we started somewhere in the middle of May, it will go up to July end, right. so all those lecture theatres, halls, all those rooms, facilities we are using now lying vacant we are not utilizing that capacity unutilized resources so that means those resources are there we can utilize those and still come with some profit, some margin maybe we can add into the institute funds and it will use those resources how we can use those resources this is one example when we don't have regular classes we can go for online courses like NPTEL is doing that during that time so still we can use this facility we can record the lectures and we can you know then we can you know serve these services to the maybe distinct students who are not here who cannot avail these facilities and then they can you know go through these lectures and go through these videos So, I mean we can find out alternative ways how we can utilize those unutilized resources during that time. So, manufacturing process again if what machines we are using, we are using different types of equipments in the manufacturing process. Let us say we are manufacturing two different models, A is in big demand, B is in less demand, but still we have separate manufacturing that production line for manufacturing your B product right but because production demand is not that high so almost we are running that production line daily may be 7-8 hours only but A we are running 24 into 7 right so that means that B production line we cannot you know remove that production line completely we cannot give that production line to something else So, what we can do is, is there any model which can be very closely related to B so that minimum change over time is required and we can combine with some model C or D or any other model. if warehousing you have maintained that capacity of may be you can store 100 ton of material but all the time somewhere on average you are storing 70-75 ton that means fully you are not utilizing the capacity logistical resources we booked the truck from Kharagpur to Calcutta On the way back from Calcutta to Kharagpur, we are not utilizing that capacity.

How we can utilize in a better way so that that can be ensured, full utilization can be. Similarly, we go with the human resources or financial resources. Financial resources example is inventory. Always you are maintaining 10 crore inventory within your organization in different ways, either raw material, semi-finished or finished. right that means that 10 crore is the amount you are not utilizing just imagine if you will deposit that amount somewhere in the bank you are doing nothing even then you will get 4%-5%



so if you will invest somewhere in the market then returns depends upon your capability how much you can generate so that is one source, qualitative measures customer satisfaction usually you are delivering Swiggy is delivering food to you, zomato is delivering food to you then they are asking for some your experience may be food quality, food taste, hygiene, packaging the courier partner who delivered the food package wearing the gloves or not so cut see how he was dealing with you payment was done smoothly if you want cancel the order where your payment is the you know return back to you so these are some of the points you quality measures you can just record customer complaints number of complaints coming from the customer related to maybe delayed delivery related to maybe some other things right so that also you can record customer response time how quickly you are responding if any query is there right from the customer right.

Product quality for quality like I told you food quality you can rate and then when next time zomato whenever you will search zomato so that restaurant means most of the customers are rating at the highest so that restaurant will be reflected first based on you know rating so that usually this the beauty of e-commerce you know website and market is that you can go for the general rating of the suppliers right. so delivery experience already talked about and order accuracy that I ordered something and I got the same order that means order were accurately recorded right so talking about either food if I gave some maybe you know cooking instruction that it should be less spicy so whether you maintain those instructions you implemented or not so that is order accuracy you can and then deliver the correct order in time let's talk about now the balance score card right this is a kind of tool which we can use to record all the performance measures whether financial or non-financial performance measures right so it gives us the you know comprehensive framework right comprehensive framework which helps to align the business activities to their main vision and strategy what is your vision and mission what is your strategy let's say if you want to be responsive in the market so that means to be responsive whatever customer is demanding you need to deliver that quickly whatever feature they are demanding whatever color variety flavor in whatever way they are giving their inputs and if you are saying that whatever inputs you will give they will provide you the customized services so that means that responsive supply chain manufacturing or order fulfillment is happening. throughout the chain you need to supply chain you need to maintain the responsiveness so that will improve if that common thread of vision and strategy is there so internal and external communication internal within the organization external means with the stakeholders your warehousing partner distribution partner transportation partner your suppliers so this was developed by Robert and David and they included financial as well as known financial measures into four different perspective where they included financial perspective as one performance key performance area where you can record different KPIs then customer is another key performance area

where again you can record different KPIs and you can improve on that internal business process how you are doing internally either you are manufacturing or you are storing how efficiently you are storing or you are doing the packaging how efficiently you are doing the packaging learning and growth how you are ensuring that your organization is sustainable If any new technology is coming, you are not getting obsolete. Your manpower is not getting obsolete. You are continuously improving their skills as well.

So this is a holistic approach which will tie all the organizations, all the stakeholders in that supply chain. just go through the center heart of this model is framework is vision and strategy like i told you if you want to be cost efficient or you want to be responsive that will be your heart your vision your vision in the market is to compete with the other players based on cost to compete with other players based on cost based on responsiveness based on quick delivery whatever can be there right so All these measures we are defining the objective for each whatever strategy we have, reason we have, we will define objectives, we will measure that objective, how we will, how we can measure that, some quantitative or qualitative measures. Then what are the targets initially and then what are the initiatives we are taking to implement that strategy. So, these four things we are defining for each set of strategy, each objective. So, talking about these four different perspective customer is one.

That means to achieve our vision how should we appear to our customer, how our customers are evaluating us. So, let us say when we are talking about customer we want to minimize the delivery time. now objective is to minimize the delivery time so how you will measure the delivery time maybe you are recording the lead time that is how you can measure the delivery time lead time when I am placing the order and when you are getting the order right then targets what are the targets right now maybe we are delivering in 5 to 6 days I want to ensure in 2 to 3 days that is my target or maybe firstly from 5 to 6 days you want to reduce to 4 to 5 days and then from 4 to 5 days you want to make it 2 to 3 days and from 2 to 3 days may be you will ensure the single day delivery right or may be then you will go for same day delivery so this is means not ending process this keep on we will keep on doing again and again we will keep on improving ourselves right so this will be target now initiatives what you will take the initiative So, initiative means if I am saying that let's take the example of 2 to 3 days. So, when I am saying that 2 to 3 days whenever customer is placing the order the courier partner who is picking that final product from any retailer or sales point should ensure that he is picking within 4 hours. Then the delivery to the nearest hub should be done in another may be 6 hours.

Then may be from that hub to the nearby hub to the customer may be within 24 hours it should be delivered. Then sorting and you know delivering the message to the customer

may be it will take no not. So, from the main warehouse let us say this is in Delhi and from Delhi to Kolkata we are saying that 24 hours it should be reached. Kolkata to nearby Kharagpur it may take another 5 to 6 hours then from 5 to 6 hours how we can ensure 2 hours delivery this is how we can plan when we are talking about within 2 days delivery so that means these are initiatives so for this courier partner initiative is within 4 hours you need to pick the order and then it should be delivered to nearby hub.

So, these are the target. So, let us talk about then learning and growth. So, let us say we have some unskilled workers, we have semi skilled workers and we have skilled workers. Now what is happening, once if I am working for organization for longer time and then I start experiencing that there is no learning, there is no growth, my career path I am not able to look, so that means I will feel bored, I will start applying some other organization. So, how you can engage your people in the organization? If your unskilled people are there, your target objective should be how you can make them more skilled. Measures are, you measure the skill level, their technical efficiency, their managerial efficiency, how they are doing the things, may be you can sort them depending upon different functional units.

Someone may be good with the marketing, someone may be good with the purchase, someone may be good with the manufacturing, quality, R&D, whatever different functional units are. then your target should be how you can move them from unskilled to skilled those who are moved to unskilled to semi skilled next target is move them to skilled and skilled is nothing like today I am skilled for this may be teaching this course tomorrow something else will be there in this course so again we need to you know reskill ourselves so skill skilling is the kind of process which is never ending process learning is never ending right So, initiatives are you will do some training and development programs. Then talk about internal business process, again let us say we are talking about FOR, fall of rejection rate means process rejection, process rejection means we are producing something during the process, processing that we are breaking the components sometime we are doing the faulty operation and then the complaints are coming from the market. So, may be the target is always less than 2 percent it should be, means how many products you are producing, defected products and how many total you have produced. If you have produced total 90, 100 products out of those 2 products are defected, 98 are ok, so that means fall of rejection rate is 2 percent.

So, now you see how we can measure this objective we objective is to reduce this let us say this is our new model we just implemented the process we want to make it less than 10 percent right now because we are somewhere feeling 12 to 15 percent fall of rejection rate. less than 10 percent we need to maintain measures will be fall of rejection rate for is

the measure target is initially I will go for may be 10 to 11 percent then I will go for 8 to 10 percent then I will go for 5 to 7 percent see when I am saying stage wise this improving this how this will improve either I need to make some investment in the process I need to change the process. I need to train my manpower. I need to opt for some latest technology.

That means this involves cost. So, when you are taking those initiatives, you are taking the initiative to implement new technology that includes some investment. So, you need to, you know, evaluate whether whatever investment you are doing, whether that investment is really coming in terms of reducing the FOR or not. financial measure so again to succeed financially how our stakeholders should view us that how we are doing financially so if you are talking about cost of production we want to reduce the cost of production this is the objective or may be logistics cost the last example we talked about is 14% in India how we can improve the cost may be this objective is we will make it 10% and because our 70% share is going through road transportation and we have seen that road transportation is usually carries more cost more delay will happen accidents will happen and weather condition depending upon so many external factors if you want to reduce that our first target should be we need to reduce the road transportation share we need to increase the ship transportation share where the cost may be not more than 1.5 rupees per kilometer but if you are talking about your road transportation the one may be the cost for shipping through 1 kilometer may be 4 to 5 rupees so how we can reduce that cost alternative ways of transportation initiatives you need to shift from one mode of transportation to other mode of transportation. what you will do with those resources which you deployed for road transportation that also you need to think , so when you are changing from one mode to other mode your many of the resources will go obsolete what you will do with those resources .

so this is you can see depending upon your vision and strategy what you want to be how you will be you are posing yourself your organization after 10 years 20 years in that industry different measures you can set right so this is complete balanced scorecard approach quickly we will go through already I have discussed this point if customer perspective is there customer is worried about cost time when he is getting the product quality of the product and services level .if you are saying within one day delivery I will definitely come to you if you are saying for medicine within half an hour delivery going to medical store searching for the medicines may be i will get may not i will get so then again go to the next store, if i am getting 30 minutes delivery this is fair enough right so this is customer how customer is experience your services customer experience can be enhanced so this is customer perspective there may be some other ways these are four major points right how uh responsibly you are responding to your queries after sales

services can also be very important right what type of variety you are offering what type level of innovation you are offering that can be customer perspective but this is how you can figure out the dimensions related to customer perspective talking about your internal process perspective like we talked about we want to reduce the fall of rejection rate So, how we can reduce that? We need to automate the process. So, if process automation is there, obviously there is no manpower because that defect, why defect is happening? Because manpower is doing the faulty operation. May be today he joined or very new on that operation, so he is taking time to learn. may be he is not familiar with the equipment, he does not know how to operate properly, how to set the parameters, even then that can happen, so if you can eliminate manpower, even then you can reduce those defects, but it is not only elimination when we are talking about the manufacturing, we can include the training and development programs, if those are the critical stages where you know most of the defects are occurring how we can design how we can you know ensure that only trained people are working on those stages process bottlenecks how we can remove the bottlenecks in the production so if may be one again and again I am taking example if this stage is taking 5 seconds this stage is taking 10 seconds that means there is bottleneck he is producing two pieces at that time and he is only able to process one piece so bottleneck you are limited by capacity because of the second stage if you can somewhere you know maintain the uniformity throughout all the stages you see may be more than 500 stages are there in the production line so you need to design accordingly how you are aligning your process and how you are defining number of activities per person if one person is moving from here to there everywhere he is dancing on the floor like that so that means most, most of the effort is going waste in that way right talking about the learning and growth perspective how we can you know ensure that our see when we are talking about learning and growth it's not only the manpower resources we are talking about they should learn and grow obviously they should learn they should grow and if anyone is able to see the career path in any organization obviously he will be motivated to go to the next level level 1 2 3 4 5 already you have defined and you have made sure that even the person will you know work in your organization for next 40 years even then he will not feel like he is saturated in his career if you can design that kind of career path for any employee in the organization obviously no one will leave because every day you are getting new opportunity new challenges your job is enriched your job is enlarged in that way you are also finding your passion but that is one point when we are talking about maintaining your manpower but what about learning and growth when we are talking about whether we are learning new technology if our competitors are implementing IOT right industry 4.

0 and they are automating their warehouses and we are still we may be 500 workers are working in the warehouse and then they are taking time where is that packet where is that product then they are picking manually they are doing the packaging then they are doing

the kitting manually then it is sent and sometimes because when you are putting the level or maybe the billing invoice manually you can do it wrong because daily maybe you are processing more than 10,000 products so that is quite possible right so how you are growing technologically how you are sustaining is the right word how your organization is sustaining how industries are doing today after 10 years the scenario will totally change right so how quickly your resources are opting for that right financial perspective cash flow how you are managing cash liquidity ratio if you are keeping you know all the time very high inventory that means your cash is involved in inventory only right and why inventory is there because you are not connected fully with the customer and you are not able to configure the demand return on investment if you are going for implementing IoT you invested 10 percent but you see that only return is 2 percent what is the fun of implementing IoT So that also you need to ensure whether you are getting those returns or not or wherever financial results either month wise, week wise you are observing or sometime measures are like that long term investment is there. so maybe it will take two years five years down the line when jio initially started investing into the market and they said that all services are free that means that was their investment for first year they were not looking at all for any single rupee of profit and then when once we will be well established capture at least sixty percent share in the market then we will come with our pricing policy right so that is one scenario how these four perspective are linked see how do customers see us financially if you are buying your product see whenever you start buying the product any home appliances so let's say if you are buying TV so first thing may be for middle class or somewhere upper middle class usually you talk about Sony is known best in the TV may be right If you talk about the sound quality system, Sony may be the leader. If you are talking about AC, Hitachi, Lloyd, these are maybe the leader. So that means financially if you are buying that brand, that brand is existing everywhere.

Like best example is Uber. anywhere you go most of the countries uber eats is there uber eats and then uber services you can get so that means wherever you are you are feeling comfortable that your service provider is there only right so you are not worried about if any returns are happening you are not worried about if you will miss any you know ride or something like that if you cancel any ride if i will visit some other country and if i am installing app temporarily and then using that app I never know whether I'll get my money back or not and whether that app is reliable or not. right so that means then customer and learning growth how are how we doing are we doing the best for stakeholders how our stakeholders are when you are saying that this year we earn ten percent profit and then you are saying that five percent will do it at dividend and rest five percent will invest further for further improvement maybe in technology maybe developing some resources maybe expanding or anything any other business That means whether your stakeholders are looking in that way or they want all the 10% right now. where we can create value for the customer through business processes and whatever we

are doing how we can excel in those processes we can be the best in that. So, this is best example of balance score card. So, you can just take any example if we want to improve the productivity, financial perspective means input is still this level output you are producing this much.

Earlier may be the situation was this much input and this much output you were getting at this level. Now, either you can do this or for the same input may be you can increase the output or may be you can reduce the input and still you are maintaining the same level of output. So, how you can do that? Capacity utilization is one point. how much percentage of capacity you are utilizing trial production, spare part production how you are doing that. so then you can monitor weekly monthly you can monitor like the best example I quoted today is that when for these two and two and half months whenever all the lecture theatres are empty and those facilities project high-end you know infrastructure we have developed here so that is lying you know idle we are not utilizing those resources can we run some training programs for some industries during that time we will not only generate the revenue we are also extending our hands helping hands to the industries where we can train our industry people also our industry is very you know big stakeholder for any educational institution only then those people will return back and will ensure the placements also they will also ensure the training they will invite the students from our campus for the training purpose So this is how you can what you are doing you are not investing a single rupee extra to develop those resources already those resources are there and for two and half months we are not using and same is happening during December month also when there is winter break.

So, this is one way other also you can I have already taken the example you can think of any you know continuous improvement we are talking about you can implement kaizen you can implement six sigma you can implement lean manufacturing. So, continuous improvement how you can improve and those you can monitor may be daily also you can monitor weekly also one very good example is striking in my mind when I was working with the Eveready India Limited so they were trying to get ISO certification for 14001 also they were trying and 9001 they were trying for quality and they were trying for environment so what they did before going for certification they conducted some training program for for internal you know employees so they picked one person from quality I was picked from quality one person from production one person from store and all those people were involved and they trained us for may be ten days and then they you know we attended one exam also and then we were you know ISO certified auditor so that means before going for external certification we have internal auditors who can maintain the records for may be next six months or one year and then we will see that now we are ready to apply for this and when those people will come because we have

already you know auditor team who have done this exercise meticulously that means obviously we will get that certification this is one way how you can align your strategy so what are the benefits you can align your performance measures your strategy at all levels of the organization all the stakeholders best way of communication single thread attaching all the stakeholders and obviously you are talking about the best practices where you are right now what are the benchmark in that in terms of kpis then organization mission statement and strategic plan you are attaching with all the four perspective and that is not only you are aligning that is coming as order that now you need to improve we need to implement ISO 9001 so that means we need to get that certification how we can do that there must be some employees internally who are regularly doing all the checks and then one day they will say may be after one year that now we are ready with our records now we have implemented all the manual whatever is required for getting ISO 9001, 14001 so then we can go for getting that certification. So you can see almost 60% of fortune 500 companies are using balance score card. So some, obviously, criticisms are also there, lack of well-defined strategy. The basic assumption of balanced scorecard is you should have one strategy, which is the heart of this complete framework, right? So always, because strategy is something you are judging the environment, you are analyzing the environment, and then you are developing.

So that means environment is changing, your strategy will keep on changing. So how you will align that? too much focus on lagging measures always you are talking about where you are lagging how you can improve but we are may be during that time we may miss the opportunity with our already we are very good with our strength but we are too much focused on lagging measures so that way may be we will miss that and we are using some generic matrix because if your player industry player is using may be same competitor still you can get some some of the kpis but all kpis may not be implicable for all the players right if you are somewhere producing fifteen percent for your the player who is working in that industry maybe somewhere ensuring 5% for how you can compare directly with 5% so you need to set you know those levels right and sometimes may be managers were getting those awards they are you know manipulating these things so that short term performance can be managed and then they can get those rewards this is one case where you can see south west airlines they used number of balance score card but what i am talking about here is they used that score balance score card for recording the ground crew performance and they wanted to lower down the cost and how they can load on the cost if they can ensure the fast ground turnaround. How quickly you can do that? Indigo is another very best example where the major of the industry players per plane they are maintaining 180 implies to 200 implies. Indigo is managing with 90 to 100 implies. ground staff i am talking about how quickly they are doing the you know ground turnaround and how they can save this because you need to implement that system so first you need to know where you are as per those parameters may be you need to train



your ground staff right and if you are talking about always the financial measure maybe the people who are working with the finance department accounting department it will make more sense but what about those people who are working with R&D today they are coming up with model maybe tomorrow they may not be able to commercialize that what will happen with that prototype so it's not that it should be discouraging that you are not adding any value maybe after 10 years they are coming with some unique product unique technology can you know leverage for next 20 years but directly connecting them with the financial measures is not possible same goes with the manufacturing also whatever you are manufacturing you cannot relate means quickly you need that sometimes you need to make multiple change over if all the time I am thinking about the cost may be I may not be able to provide the variety So, because variety will take time to change over, so then means it will not make sense for the person who is working in the manufacturing department.

So, that means if you want to improve overall you need to improve the perspective from all the departments. not only financial measures known financial measures should also be there and we can come up with one dashboard where the top management can only just those parameters and can say this department is doing fair good or we are lagging with some points right so that they can work on right so obviously we are working to satisfy the customer needs in a more profitable way customer experience should be enhanced but then we need to measure both the financial as well as known financial measures we should not forget the services are offered by different functional units like administration services distribution services maintenance services maintenance what maintenance department is doing just maintaining the equipment cannot you cannot relate how much profit we are getting out of that but you just imagine if our main machine is down for 30 minutes everything is gone your production is gone that those machines are working thanks to the your maintenance team because they are maintaining it properly so this we have seen how we can you know include all the different stakeholders using the balanced scorecard approach so in the next session we will continue this discussion and we will try to develop the balanced scorecard specifically for the supply chain industry. So these are some of the references. We will continue this discussion in the next session. Thank you very much.