

**Toyota Production System**  
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**Module No # 04**  
**Lecture No # 19**  
**Challenge and Respect Extended Networks**

Welcome friends, now, we are entering into the nineteenth session of this course on Toyota production system. And since last two sessions, we are discussing about respecting your people at partner and in that particular point, we are focusing that how many other things into Toyota production system are supporting or you can say adding value to your people. And therefore, the point of discussion which we were also focusing in our previous sessions, that many a times it looks like that it is a human centered production system, where you are giving maximum emphasis to your people.

So, the kind of human system, the culture you have, that needs to be value added and on the basis of that, rest of the decisions are taken in this to the production system. Now, in this particular session, we are going to discuss that people those who are working in your organization, your employees, your customer, they need to be developed, they need to be empowered. And that is one point, when we discuss TQM total quality management in that also we discuss these two particular aspects that we want customer delightness and we also want empowered employees.

So, the concept of TQM is also largely from the Japanese system of manufacturing. And in this Toyota Production System also, we are emphasizing rather more been emphasizing on this people aspect. But they did not stop here, they said that, we need to include extended network also into this consideration. If I only develop that it is not going to serve the purpose, I need to develop people who are working with me, those who are working for me.

So, that is the point of discussion in today's session, that title is challenge and respect your extended network. So, the extended network means I need to respect and challenge my suppliers, my vendors, those who are the service providers to me, and that is going to add a lot of value to my organization. This point is also very important, even if we stopped discussion Toyota

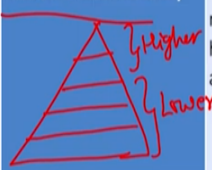
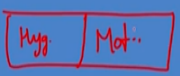
production system for a moment then you see that in the present environment, we many a times say that organizations are not competing with each other.

Maruti is not competing with Tata Motors in India rather we say that the supply chain of Maruti competes with the supply chain of Tata Motors. So, when I am saying that one supply chain is competing with other supply chain, it means that we need to create that kind of strength in my entire supply chain, that kind of elevation is required in my entire supply chain, then only I will be able to create a competitive supply chain.

And the point which was given or the principle which was given by Toyota is with respect to this giving respect to your partners. So that your partners can also grow and then your partners can add value to your organization, they can add some kind of competitiveness to your organization. When we were discussing in our previous session about various issues related to development of effective leadership, then how we can grow leaders from the organization and we were also discussing that how to create a balance between team excellence and individual excellence.

So, continuing from that particular discussion, we take some time in this session to discuss that how various classical motivation theories are mapped with respect to Toyota approach of doing the business two very classical important theories, which are related to internal motivation.

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Classical Motivation Theories and the Toyota Way		
Internal Motivation Theories	Concept	Toyota approach
 <p>Maslow's Need Hierarchy</p>	Satisfy lower needs and move employees up the hierarchy towards self actualization	<p>Job security- good pay, safe working conditions satisfy lower level needs.</p> <p>Culture of continuous improvement supports growth towards self actualization.</p>
 <p>Herzberg's Job Enrichment Theory</p>	Eliminate "dissatisfiers" (hygiene factors) and design work to create positive satisfiers (motivators)	<p>5S, ergonomics programs, visual management, human resource policies address hygiene factors, Continuous improvement, job rotation and built-in-feedback support motivators</p>

One is this Maslow's need hierarchy theory which is well explained with the help of this need hierarchy pyramid where you have 5 layers and out of that 3 are for the basic needs and 2 are for the higher level needs higher and these are for the lower and lower you have physiological needs, you have safety needs and you have social needs. And as you go up in the ladder, you have ego needs and the self-actualization needs.

So, that is the concept of Maslow's need hierarchy. Now, if you see the word approach, it is actually matches with this idea of Maslow's need hierarchy, it automatically provides you the sufficient you can say environment where the Maslow's Hierarchy concept is satisfied by providing job security, good pay. safe working conditions, all these things satisfy your lower level links that you have a job, you have a job security and therefore, you are able to fulfill your lower level needs.

So, the bottom three needs are fulfilled by providing this kind of basic amenities in Toyota production system. And then because the objective is to make a continuously learning organization, the focus is on development of individuals because it is expected that individuals will create a good team. And therefore, lot of learning emphasis is there continuous learning of individuals continuous learning of teams, that is the focal point of Toyota production system,

And therefore, this learning supports individual's growth and that is the satisfaction of higher level needs that is the satisfaction of ego needs and self-actualization needs. So by Toyota system also you are moving from lower level needs to higher level needs that is very well mapped with Maslow's need hierarchy. So, that is how you can help individuals at different stages when somebody joins the organization.

And if he feels that my job is secured, I am get fair wages and I will have no tension in this job then your lower level needs are there and then further by getting the opportunity to learn new things by participating in the problem solving activities, you improve your personality and when you improve your personality that is actually achieving this self-actualization objectives. So that is about the Toyota way and the Maslow's theory.

The other internal motivation theory which is again very popular to explain the concept of motivation that is Herzberg job enrichment theory. Now under Herzberg job enrichment theory,

we have the concept of hygiene factors and motivators. Two types of factors are there, if hygiene factors are not present you will be dissatisfied, but their presence does not guarantee that you will be motivated for the work.

So, there are some hygiene factors which need to be there and then there are certain motivation factor which will help you to work at a higher morale. So, that is the concept of Herzberg theory. Now if you see the Toyota way of working in Toyota way of working this 5S we have already discussed that how 5S help us in eliminating the waste, the ergonomics programs, visual control, human resource policies address the 5 S.

So, these are various factors which are helping you to eliminate the dissatisfies us and then continuous improvement, job rotation and your ability to stop the process built in feedback. These are the factors which help in achieving your motivators. So, some of the activities of Toyota way of doing business are part of hygiene factors and some of the activities are part of motivators.

So, that way, the idea of Toyota way supports the concept of Herzberg job enrichment theory. So, you see that hygiene and motivator. So both these factors are available in both our way of doing the business.

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External Motivation Theories	Concept	Toyota approach
<u>Taylor's Scientific Management</u>	Scientifically select design, Standardized jobs, train and reward with money performance relative to standards.	All scientific management principles followed but at the group level rather than individual level and based on employee involvement
<u>Behaviour Modification</u>	Reinforce behaviour on the spot when the behaviour naturally occurs.	Continuous flow and andon creates short lead times for rapid feedback. Leaders constantly on the floor and providing reinforcement.
<u>Goal Setting</u>	Set specific, measurable, achievable challenging goals and measure progress.	Sets goals that meet these criteria through policy deployment. Continuous measurements relative to targets.

Then we see some external motivation theories. And when we see external motivation theories, one of the very popular theory rather which is the basis of entire scientific management, the Taylor's way of doing the management, FW Taylor, Frederick Taylor is known as father of scientific management. And according to Taylor there are certain basic things like he proposed scientifically select design, he was of the view of standardization of the work and then train your employees to work as part that is standardization.

And he was also of the view that monetary incentives can increase the output monetary incentives can increase the productivity of individuals. So, he proposed the idea of money incentives relative to his standards. So, these were the basic premises of Taylor scientific management.

But here you will see that Toyota way is not exactly matching with this idea of Taylor scientific management, that all scientific management principles followed, because there are a lot of science with respect to improving your processes, how the right process will result into the right output, but, with respect to individuals productivity, these were not followed, these were followed at the group level rather than individual level.

And that is one very important differentiation between Taylor scientific approach and the Toyota way of doing the business. Why, because Taylor was focusing on individuals output, that individual will be rewarded for higher work, Taylor was thinking that individuals are like machine. So, there was no respect for the individuals in that case, but as per the Toyota way of doing the business, lot of respect shown for the individual.

So, that is one important change with respect to this Taylor scientific management here, money was considered a very important motivator, but here, money is not considered the important motivator, rather, it is employee involvement in the group activity, that is considered to be the important motivator, that if I am part of that decision making, if I am part of that team, which is achieving the success, so, that is more important motivator, rather getting some kind of monetary incentive.

So, that is where this is not exactly fitting into the Taylor's original concept. Then another theory which is there to be discussed that behavior modification theory it says that reinforce behavior on

the spot, when the behavior naturally occurs, that you have to do some kind of reinforcement of your behavior with respect to your natural behavior spontaneous behavior which occurs, so, you need to reinforce that behavior.

Now, in the Toyota approach, it is focusing on continuous flow Andon that is the automatic visual control system and it is basically based on rapid feedback and leaders constantly on the floor and providing reinforcements. So, your leader is there who is helping you who is supporting you. So, there are few things which are process is providing you like the continuous flow, the Andon and the rapid feedback.

So, these things are being provided by the process and because your supervisors, your team leaders are continuously in the shop floor, so, they actually create that reinforcement to your behavior. So, you need not to do that behavior modification on your own rather you are being supported by some kind of external agencies including the Andon's as well as your supervisor. So, that is again a slight point of differentiation with respect to the original concept of behavior modification.

Then another theory which is there that is goal setting a very popular term in modern management, the goal setting set a specific, measurable, achievable, challenging goals and you need to measure your progress with respect to those set goals. Now, in the case of Toyota approach, what it says that sets goals that meet these criteria through policy deployment.

So, for the goals, they are looking policy deployment, because they are driven by philosophy, they are not looking for short term gains. So, philosophy is more important and through that policy deployment, they want to achieve the goals and again, they follow continuous measurements relative to targets. So, now, because policy is in place, they again go for monitoring of targets with respect to the set objective set targets through that particular process.

So, here the focus is both on policy deployment without proper policy, it is difficult to achieve the goals or targets. So, this way, we had a good comparison of how Toyota way supports some of the theories as it is Maslow's theory, we saw that how it supports exactly providing some things which are related to lower level of needs, and then there are few things which are related

to higher level of needs, then we see that how it provides you factors which are related to hygiene factors.

And then the learning opportunity kind of factors are the motivating factor and with respect to Taylor behavioral theory and the goal setting theory we see that how Toyota concept is bit more customization of these theories. So, that, you it can be said to be the advancement of these theory is that the what is the original concept and how Toyota way slightly modified or improves strengthen those original concepts.

Now coming to the original topic of this session for which we started this session that is about respecting and challenging your extended network.

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- Principle 11:
  - Respect Your Extended Network of Partners and Suppliers by Challenging Them and Helping Them Improve



So, now, when I say that respect your extended network of partners and suppliers, by challenging them and helping them improve that is the principle number 11 according to Toyota principles of Toyota way, so, you need to understand that they are very important essential elements and without their help, you cannot achieve concepts like just to name simply JIT.

So, if your suppliers, if your vendors are not empowered, if they are not properly understanding the concept of Toyota away, they will not be able to do justice with the concepts of just in time. So, therefore, it is very important that you also need to develop them accordingly. And we will

see that in India also large number of OEM's, and PSU also, they have a good number of their vendors surrounded by their original locations.

So, if you go to Pune where Bajaj has a big facility. So, around the Bajaj plant, there are large number of vendors supplying products to Bajaj if you go to Dharuhera so, Hero Moto Corp is there. So, around that plant, hundreds of vendors of Hero Moto Corp are there, if you go to Gurgaon you have Maruti and around Maruti there are hundreds of vendors of Maruti there, you come to Haridwar at BHEL one of the largest public sector undertaking of government of India.

So, around BHEL there are hundreds of vendors, which are only there to supply products to BHEL and they also get benefited, because what knowledge is generated at OEM, that knowledge is being shared by these vendors. So, that is the idea which came from the concept of Toyota production system.

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- In Toyota's case, it means they have very high standards of excellence and expect all their partners to rise to those standards.
- More importantly, they will help all their partners rise to those standards.

Now, in this case, in Toyota's case, it means that they have very high standard of excellence and expect all their partners to rise to those standards, because Toyota's standards are best in the class, they are following the world class is standard. So, they want all their suppliers, their partners to reach to that high standards, and more importantly, they help all their partners to achieve those standards, they understand the limitations of these partners, that the size of these partners, their ability to invest in learning is not that much, which Toyota may have.



So, in the case of other supply chains, with the OEM have much more capacity, they have more resources, they have more resources to expose their employees for the best practices. But now, once you have acquired those special knowledge, it is your duty to transfer that knowledge to your partners. So, that is the Toyota way of developing the partners.

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- Toyota has been rewarded time and time again for its serious investment in building a network of highly capable suppliers that is truly integrated into Toyota's extended lean enterprise.

Toyota has been rewarded time and time again for its serious investment in building a network of highly capable suppliers, that is truly integrated into Toyota extended lean enterprise without the help of these vendors, it is never ever possible to achieve the objective of lean organization. So, therefore, this concept of developing your vendor is very essential for getting into the lean manufacturing activities.

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- While many companies would abandon just-in-time when the first crisis hits, Toyota works its way through the rare crises working hand in hand with suppliers. For example, February 1, 1997, a fire destroyed an Aisin factory. Aisin is one of Toyota's biggest and closest suppliers. Normally Toyota dual sources parts but Aisin was the sole source for something called a p-valve which is an essential brake part used in all Toyota vehicles worldwide at that time 32,500 per day. Toyota's vaunted JIT system meant only two days of inventory were available in total in the supply chain. Two days and disaster would strike evidence that JIT is a bad idea? Instead of faltering, 200 suppliers self-organized to get p-valve production started within 2 days. Sixty three different firms took responsibility for making the parts piecing together what existed of engineering documentation, using some of their own equipment, rigging together temporary lines to make the parts, and keeping Toyota in business almost seamlessly. The power of the supply chain is far more than information technology. It is the power of ingenuity and relationships.

Now if you see this particular case, which we have written here, that many companies, they actually abandon the idea of just in time, because companies feel that we need to do everything on the pull basis. So, everything has to be done in a reactive mode. And when everything has to be done in a reactive mode, you understand that the final time on which the customer will get the product will increase enormously.

This is the period where customers cannot wait indefinitely for getting the product because you are following a pull system you are guided by the Toyota Production System. So you are following that pull system and pull system will do things only when order comes. So, you find that most of the customers are losing interest in you, because you take a lot of time to deliver and they are going to your competitors.

So therefore, many companies can abundant just in time. And this also happened with Toyota that in one of the example when in 1997, one of the supplier of Toyota that is Aisin factory. So, this company was supplying a P valve to Toyota and this P valve company which was one essential component in the braking system of Toyota vehicles. So, this company got a major fire and because of the fire, the entire facility got destroyed, and this was something like that, they were selling somewhere around 32,500 vehicles per day globally.

Now, this was like a very difficult situation for Toyota and the Toyota's this JIT system was having because Toyota was following that JIT system. So they were only having around two days

of inventory available in total of its supply chain for this P valve. So, almost it was looking at that now the supply chain of Toyota is going to stop because there will not be any supply of new P valve.

So, in that particular time what happened this is a very classical example, that how you are empowered and respectful partners can do for you that is a means in a state of faltering 200 suppliers self-organized to get P valve production started within 2 days, because 2 day's inventory was available with Toyota and as soon as this information is spread to other vendors of Toyota.

So 200 of those vendors have they self-organized and decided that yes, we can produce P valve with doing minor changes in our facilities and they started producing P valve and as a result of that, Toyota line did not stop and they got supply of P valve so that they could follow the system of JIT. So, that is how the entire crisis was smoothly handled without giving any kind of you can say a shock to the market.

So, as we all know that these type of challenges do come in industry that you have some kind of unforeseen situation and when some such type of unforeseen situation happens, then the first reaction of the management will be that we should keep inventory, we should keep inventory as soon as you keep inventory the whole idea of JIT whole idea of continuous process flow system will go out of hand.

So, but because you had a good network of suppliers with you, they helped you in going out of this situation.

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## Find Solid Partners and Grow Together to Mutual Benefit in the Long Term

- Toyota's view is that, just as it challenges its own people to improve, it needs to challenge its suppliers.
- Supplier development includes a series of aggressive targets and challenges to meet those stretch targets.
- Suppliers want to work for Toyota because they know they will get better and develop respect among their peers and other customers.

So, for that purpose, you need to develop this kind of relationship, you need to find solid partners, the partners who can help you in the time of crisis and then grow together so that you have mutual benefit in the long term. So, you need to develop strategic suppliers for your organization.

Because with that, you also have a dependable supplier and that supplier also has a dependable customer and that is in the mutual interest for both the parties supplier as well as customer. So, that is a very important thing in developing the supplier relationship over a long time. Now how to index a new supplier and in that whenever Toyota normally has a pool of old reliable supplier and it is difficult to get into the supplier list of Toyota, but it is also not impossible. So whenever you are approaching Toyota to become their supplier.

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# How Toyota inducts a new Supplier ?

Small order

Test you / JIT / Lean / TPS.

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So, first time they will give you a small order a very small order is being placed to you and this is small order is to test you whether you are a fit case for JIT, you are a fit case for lean you are a fit is for Toyota Production System etc. And when you are able to demonstrate that you can understand the way Toyota works, then the size of order increases slowly and slowly and then you become a regular supplier to Toyota.

So, it is not that you are rejected or you are inducted with a particular level of order they grow they take supplier through a process, they nurture those suppliers. And once they feel now you have understood the way of Toyota's philosophy, then only bigger orders are given to a new supplier.

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- From Toyota's perspective, having high expectations for their suppliers and then treating them fairly and teaching them is the definition of respect.
- Treating them softly or beating them up without teaching them would be very disrespectful.
- And simply switching supplier sources because another supplier is a few percentage points cheaper (a common practice in the auto industry) would be unthinkable.

So, from Toyota's perspective, having high expectation for their suppliers, and then treating them fairly and teaching them is the definition of respect. So, Toyota is very much concerned about the respect of supplier. This is a very important keyword and because they are looking to develop your long term relationships. So, this respect aspect is going to be a crucial factor in getting out of these situations like we mentioned in 1997 which happened with happened with Toyota.

Then treating them softly or beating them without teaching them would be very disrespectful, you are not giving them proper coaching, you are not mentoring your suppliers and then you are expecting that they will do superior performance. This is disrespectful according to Toyota's way and simply switching interesting thing you see that and simply switching supplier sources because another supplier is a few percentage points cheaper would be unthinkable because other supplier is giving products at a lower price.

So which is a common practice in most of the industry that we always look for low cost centers that who is giving us at a lower cost and that is almost unthinkable in case of Toyota, because we respect more for our association, we respect more of our understanding of the way we want to work. So, this issue of switching suppliers from one to another for the lower cost is almost a sin in case of a Toyota production system.

So, if you consider the Ford and Toyota and how their approaches are different from the suppliers point of view. So Toyota as we know is have pioneered this respecting your customers

and respecting your partners respecting your people who are inside your organization. Ford on the other side, they pioneered the assembly line and when initially they started the assembly line system, they were known to have everything right from production of iron and ore to the production of final car or other distribution of car, the entire ambit of activities were controlled by Ford itself.

But around 1990's after Toyota Production System Ford also came with a concept known as Ford production system and many of the things are Ford production system was based on this Toyota production system only. But Ford production system, they could not understand the root philosophies of Toyota production system. So, even though they thought of copying many things from Toyota, it did not result into that kind of success.

And they hired some executives also from outside and to implement this lean manufacturing in Ford plants. But because everybody was having only superficial knowledge of this lean manufacturing it still resulted into huge inventories into the Ford plant. And if you go through this discussion, you will realize that Ford did a lot of wrong things. And therefore, they could not achieve the way of leanness, the way of empowering the customers the way of empowering their vendors, the way it was done by the Toyota.

So, there was though you say that the on the face, I am learning from you, but unless until you know the concept behind that ritual, you will not be able to achieve the benefit of that. So, here we have discussed the only those particular things that how what was the shortcoming of Ford, which resulted into the piling of inventories, despite following or despite developing a Ford production system, which was more or less the Ford version of Toyota production system.

Then we also say that we need to supply a develop partnership with supplier but at the same time, we need to maintain our internal capability, Toyota gives around 70% all the components to its vendors, so, only 30% of the components are being manufactured by the Toyota car company.

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## Partnering with Suppliers While Maintaining Internal Capability

Like other Japanese automakers, Toyota outsources a lot, about 70% of the components of the vehicle.

But it still wants to maintain internal competency even in components it outsources.

*Core Competency*

But it still maintains internal competencies these even in components which are outsourced that is one very important thing because one of the important vision of Toyota is self-reliance and to achieve that self-reliance, they want to have the one of the very common word which we use these days that you can say is a buzzword, the core competency. So, Toyota always want to have core competency with respect to engineering of automobiles.

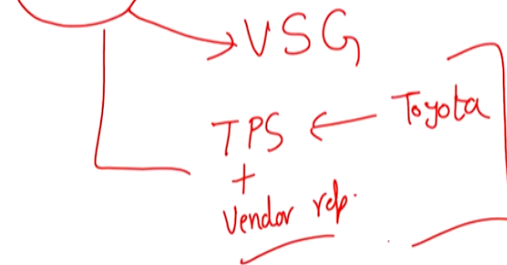
And at the same time it also want to know that these things can done by vendors in a better way. So, they outsource around 70% of the component, but they know that we are the maker of our future. So, if we need to be maker of our future, we need to be self-reliant. So, with this idea, they are maintaining a good amount of internal capability while they are also giving respect and challenge to the partners. And for that purpose, they have also given a very interesting concept of apart from quality circle and many other things.

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## Working with Suppliers for Mutual Learning of TPS

- jishuken or voluntary study groups



This concept is for learning of Toyota production system in a mutually beneficial manner. And for that purpose, this VSG's are created the voluntary study groups, these VSG's which in Japanese are known as jishuken. So jishuken are voluntary study groups, where you have some people who are trained in TPS, they normally come from Toyota facilities, the senior people those who already know what is Toyota production system, then plus vendor representatives.

And though that name is voluntary study group, but it is a mandatory activity under this vendor development programs. So, you have to develop vendors following this approach so, vendors necessarily need to send their representatives to this jishuken program. So, and in that those who are experts into it operating system, they teach, they tell about TPS, and these vendor people they share their experiences.

So, with this, a mutual learning takes place. So that is also a very important thing in the development of Toyota production partnerships. And then you see that there is a model that how Toyota can help its employees, those partners, who are those customers also those who are not able to perform up to a level. So, though, Toyota maintains a very high standard, but once you are part of Toyota, you will also not see many examples, that you are means fired from the Toyota re'slationship.

So, you unless until you have created some mega kind of mistake, then only you will be fired from the Toyota's partnership. So, this model will explain us that how Toyota is having this kind

of system that your employees, your partners, your customers can perform better. So and it is based on that Maslow's concept of need hierarchy. So we will discuss this particular model in detail in our next session. So, at this, we conclude this session. Thank you very much.