

**Toyota Production System**  
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**Module No # 02**  
**Lecture No # 06**  
**Principles of Toyota Way**

So welcome friends you now we are entering into the second week of this course on Toyota production system. In our first week, we discussed about some of the fundamental issues, what is production? How the global trends are moving? What is the China magic? What are the new trends which are happening in manufacturing? We also discussed about the very important aspects of Toyota Production System, one is elimination of waste and the second is though this system started from the manufacturing organization, but now, it is equally applicable to services organization

So, that it is very much universally applicable system nowadays and it is going to help you in achieving excellence in your operations. Now in this second week, we are going to start with some of the basic principles of Toyota production system. The basic principles of Toyota production system is based on 4 P's. Normally, all of you are aware of 4 P's, which we discuss in our marketing classes, product, price, place and promotion.

Similarly, Toyota production system is also based on 4 P's and these 4 P's give rise to 14 principles of Toyota way. So, in this class, we are going to discuss these 4 P's and based on these 4 P's, those 14 principles will be the basis of our next 14 sessions. In each of these sessions, we will be discussing one principle in detail, but today, we want to keep our self to basic 4 P's, because if we understand what are those 4 P's, we will be able to justify the entire philosophy.

And then we cannot limit our self to these 14 principles itself, we will be in a capacity to develop the system develop the principles for our organization on our own, because these principles were developed in Japan with a different kind of cultural background, when I want to customize this in for my Indian organization, I just need to understand what is the philosophy and based on that philosophy, I can design my own way of implementing the Toyota Production System.

And rather that will be more important contribution of this course, that if we can understand the philosophy properly, we will do more justice rather just copying the principles of Toyota Production System.

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## 4 Ps

- **Philosophy** as the Foundation. *Means → Ends*
- The Right **Process** Will Produce The Right Results.
- Add Value To The Organization By Developing Your **People** And Partners.
- Continuously Solving Root **Problems** Drives Organizational Learning.

Now going into that 4 P discussion, these are the 4 P's one is philosophy, the second is process, third is people and fourth is problem solving. So, these are the 4 P's the foundation of Toyota production system is the philosophy. We have a diagram here, which shows that the foundation of Toyota production system is the philosophy.

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**Terms**

**11** •Continual organization  
**10** •See for yourself  
**12** •Make decisions *HRM*

**4** •Grow leaders  
**10** •Respect, develop and challenge your people ✓  
**9** •Respect, develop and challenge your suppliers *Elimination of waste*

**5** •Create process "flow"  
**8** •Standardize tasks  
**4** •Use pull systems  
**7** •Use visual control  
**3** •Level out workload  
**6** •Use only tested technology  
**1** •Stop the line

**1** •Base management decisions on a long-term philosophy *Change Mgmt.*

*Market Demand*  
*Customer*  
*Challenge*  
*Continuous Improvement*

That you have to have a long term philosophy Toyota production system actually talks off long term sustainability for the organization. So, this is very important that you have to address this challenge we cannot get the short term advantage with the Toyota Production System. And unless until we understand that how Toyota production system is related to sustainability, then only you can have your top management's commitment for the implementation of Toyota production system.

If you feel that today, I start this project of implementing TPS in my organization and tomorrow I start reaping the benefit of it, it is not possible. So, therefore, Toyota production system has this very important aspect that is it is based on a long term philosophy. So, that is the foundation of Toyota production system and you need to develop that whatever is the long term philosophy.

I am not saying that the long term philosophy is only of X type, the long term philosophy maybe customer satisfaction, long term philosophy, maybe to achieve new products every 10 years long term philosophy maybe to become number one company in your segment. So, there may be N number of long term philosophies, but it has to be a long term idea. The second important thing is process Toyota says that the right process will produce the right product.

If you have the right process in place, your output will also be correct. And this is very important. Even in Indian system also, we believe that a right objective can only be achieved by right means. So, there are two things one is means and another is ends. Many a times people say that ends matter means do not matter. But Toyota says no if you have the right means your ends will automatically be good.

So, it is very important that you use right processes and right processes will result into the right output right products and if you believe in Indian scriptures, particularly Gita, so that also says that we need to be more action oriented, if you have the right action, your target will also be right. So, that is the second important P and if I take you to this diagram, that is the second level of activity P.

The issue in which we were focusing in our last session, that is the elimination of waste that is actually related to this second P that is the process part. So, if we understand the process particularly that how my processes are going to add value, which are liked by the customer, you

are having the right type of process, but if your processes are those where a lot of non-value adding activities are also there a lot of wasteful activities are also there, then you will not be producing the right kind of product which is liked by the customer.

So, emphasis on the processes, particularly elimination of waste, that is very important. But at the same time I will say that most of the organizations consider only this meaning of Toyota Production System, they only feel that elimination of waste that is Toyota production system. So, organizations normally do not consider other 3 P's, that they are also there elimination of waste, the focusing on your processes, that is one of the 4 P.

And unfortunately, many of us take this short sighted vision about the Toyota Production System, that if you eliminate the waste, if you achieve the lean manufacturing, that is Toyota production system, where it is not the case, it is just one of the activity of 4 P's, but nevertheless, it is so then third important P is about people in our previous discussions, I added one more you can say defect in that discussion.

And now that particular defect is highlighted in this P particularly when Toyota says that you can add value only by respecting the people you need to respect people, you need to challenge your partners. And when you challenge your partners, they will be able to perform at a higher level and that will add value to them and they will be also on the path of excellence we all want to join those organizations, where we continuously face new challenges, when we face challenges, we consider it as a learning opportunity.

So, as a intelligent person, as a rational human being, I always want to learn new things, and when I want to learn new things, for that purpose, I need challenges without challenges, without stress, I cannot learn new things and that is what Toyota says that you can add value to the organization by developing your people and partners and that is going to happen by challenging them and that is the third important P.

So, philosophy is the first P process is the second P people and partner that is the third P and the fourth P is about the problem solving. What Toyota says that continuously solve root problems, which are going to give you organizational wide learning do not just try to solve do not just try to paint your symptoms. Rather you need to go to the root causes of the problem, when you go to

the root causes of the problem, these will give you more organizational learning's and that is what people want to know.

When you try to organize that how a particular problem has come and what is the root of that in our quality management classes, we discussed particularly fish bone diagram, that fish bone diagram is going to help us in identifying the root causes of various problems. So, that type of thing we need to do continuously in an organization where we are implementing Toyota production system.

Now, if I see this discussion of 4 p in the form of this diagram, so this diagram normally we see in case when we are discussing Maslow's hierarchical motivational theory. Now, in that Maslow's Hierarchy motivational theory, we have 5 steps, here we have 4 steps. So, as we just discussed, that philosophy is the basis that is the foundation and if you see in this diagram, we have 1,2,3,4,5,6,7,8,9,10,11,12,13 and 14. So, the 14 principles, which are given for the implementation of Toyota production system are related to different P's.

So, for philosophy, you have 1 principle for processes, you have 5 principles for people and partner you have 3 principles and for problem solving also, you have 3 principles. So, that is how you can understand that how these different principles are coming from these basic 4 P model. And then you also have the Japanese versions of these 4 Ps, that Kaizen and Kenichi that are the Japanese name for these 4 P model.

When we talk about philosophy, so, that philosophy says that you need to have your discussions, your management decisions based on long term vision. So, you need to have a long term vision and when you have a long term vision, which can pass from one generation to another generation, and then you can institutionalize your philosophy into the organization that is the basic premise of Toyota production system.

And therefore, many a times in our general discussion, we say that, as per the Japanese system of management, quality is not built on machines, quality is built in your minds, and that is precisely coming from this very point that we need to have a philosophy of doing something. So, it is not your action, it is your thoughts, which are going to govern the organization. So, if you are going to have appropriate thoughts that will result into the appropriate actions.

So, that is first important thing. Now, for that purpose, we need lot of issues with respect to change management. And therefore, you will see that Toyota production system is not a subject of operations management alone, it has to do a lot of things with human resource management also, that unless until you have that type of human orientation, who are going to accept these principles, it will not be possible just to mechanically implement these concepts.

Because of various things which we are discussing the proper human involvement is very important. So, the philosophy which is related to change management that you need to have a long term vision for the implementation of such kind of ideas, the second is P, which is a process and that we discussed is more related to elimination of waste.

Now, when we are talking of elimination of waste, we say that we need to create a single piece flow, continuous flow, single piece flow and the single piece flow continuously will help us to surface various problems that is going to happen, when you are having a continuous flow, when you do not have that continuous flow, sometime problems do not come at the surface, then it also says about using the pull system.

Pull system is more like JIT, whenever there is a need, you should be able to respond to that need push system on the contrary is that you are things many things are in anticipation, that demand will be there. So, I should be ready with the items, why pull system is more reactive in nature that since demand is there, therefore, I need to produce all these things. So, the processes according to Toyota production system should be designed based on the pull system, then you need to level out the workload.

Level out the workload means, how to have almost uniform workload with respect to various machines and with respect to different days of the week, it is quite possible that because of uneven workload, some of the machines are overloaded and some of the machines are starving for the work and therefore, chances of failure, chances of requiring of the maintenance will increase with respect to those machines, where workload is high.

If I talk different days of the workload, so, if more workload is there on Monday, so, chances of creating more defects on Monday will be higher. If with respect to different persons XYZ are

there in a company X is more loaded than Y and Z so, obviously, chances of errors at X will be much higher than Y and Z. So, Toyota Production Systems says to minimize the errors, we need to level out the workload with respect to days, with respect to employees, with respect to machines, etc.

Then, you have to standardize the task because nowadays more and more automation is happening and we all know that robots industry 4.0 that type of concepts are coming very fast in the manufacturing area. And therefore, we need to do more and more standardization, more and more standardization will minimize the chances of mistakes that we need to have visual controls. Visual controls, though, are very much like this will help us in minimizing the problems.

But at the same time, you also need to see that these visual controls are designed where these are not distracting the workers, if visible controls are in the form of LED screens, and if you have a shop floor and close by a LED screen is also there. So your workers focus may shift from the assembly line to that LED screen and this will create some kind of accident this may create some kind of defect also.

So, on one side we require visual control, because these are very useful in our process management, but at the same time, we need to minimize the uses of LED's computer screen at the shop floor because this will distract your focus. So good amount of visual controls in the form of simple lighting etc., are possible. So, visual controls are important, but in our session, particularly on this visual control, we will discuss in detail that what type of visual controls are more useful for the manufacturing organizations then use only tested technology.

The technology which is already proven in a mass manufacturing organizations, which is already available in the public domain, we need to use only those proven technologies. Many a times because the technological cycles are moving so fast or you can say that technology adoption models are becoming so narrow that we are using technologies which are sometime not have proved their worthiness and therefore, organization may suffer some kind of losses.

So, for many organizations, it is advisable that those technologies which are already successful technologies, we should use them only. Then the next level of this discussion is people and partners that is the third P and as we say that this is related to elevation of your employees, how

you use the creativity of your employees, how you are able to create a learning organization where employees feel that yes, we are learning and we are also contributing for the success of the organization.

And for that purpose, there are various things that you have to respect, you have to develop and challenge your employees unless until you give them new targets, how will your employees will develop you need to give new targets to your vendors also that I am going to develop a new product and you have to supply these components for that new product. And you start doing R&D for that.

So, your vendors will also think for those new components new parts, somebody is a material supplier. So you challenge that material supplier, that I want a new material with these kinds of properties I am thinking for environmental sustainability. So you reduce these lead component in your supply in your material and develop a new material, which can substitute the requirement of this, I am developing a new kind of car.

And I want that this car should have similar kind of functional performance as my previous car, but I do not want to use fossil fuel, I want to use 80% of the methanol for this purpose. So how you can give me that kind of fuel, you can give me that kind of engine which can use 80% methanol, and only 20% petrol or diesel. So that type of challenges if I give to my suppliers, to my people, then only they will do more creative activities for the interest of the organization.

So I need to respect them whenever they come and why will they do these things? Because I am respecting them. I am considering them as my stakeholders. I am considering them part of my family. I am trying to create leaders out of them, I am trying to create a succession planning out of them best of the best Indian organizations are suffering because they are not able to do these things, they are not able to create leaders out of them.

And therefore, this people and partner is a very important aspect. I said we are discussing it as operation management subject, but how to have how to understand the importance of people and partner this is the core of the success of Toyota Production System. So, therefore, it is equally important human resource management subject also that you need to respect you need to challenge you need to grow them and they will contribute for the success of your organization.



So, that is third important P then we come to fourth important P that is problem solving now this problem solving P that is also very interesting. Then because there are two views with respect to problem solving, one view says that if a problem is happening at a particular level, so people those who are dealing at that level, they are the best persons to solve that problem. So, they should be involved in solving that problem.

The other view says that we should not hide the problem at that level, we need to surface the problem to the top most level. We need to involve the top management in showing that problem. and Toyota Production System believes in this second approach that we need to show the problem to the top management, we need to highlight the problem and why should we highlight the problem? Do we want to punish those people? No, that is not for that purpose.

The reason for highlighting the problem is that when a top management is involved in that problem, they may see the problem from different point of view, how it is going to affect other functional activities of the business, how it is going to have impact on some other aspect of the business this what can we the possible root cause of the problem. So, because the top management has a different kind of vision, when they are involved in solving the problem, then they will give you much wider aspects of the problem.

And we discussed that we need to solve the root of the problem, not just the symptom of the problem. And therefore, the involvement of top will help you in solving the root of the problem, that problem should not happen again. And this is very important that from the top management's point of view, that is a particular principle, we will be discussing that see for yourself, you need to see the problem yourself.

And some of you may argue that if top management is always involved in solving each and every problem, so, how the top management will get the time for some kind of future vision of the organization, how the top management will contribute for the long term success of the organization because his entire time is involved in solving the problems then therefore, you can classify problems into the routine problems and exceptional problems.

So, if some routine problem is coming, and if the frequency of that routine problem is increasing, then also the involvement of top management is required and whenever some exceptional problem is coming then suddenly the involvement of top management is required. So, by this way, you can optimize the involvement or you will optimize the time utilization of your top management into the problem solving.

So we discussed these 4 P's from philosophy, process, people and partner and problem solving. And as I said, many organizations are only limiting to this process part most organizations but it is much more than that. When I am talking of philosophy, it is more related to the strategic management. When I am talking off, people and partner, it is more related to human resource management.

And when I am talking about process, it is related to operation management. So, Toyota management system is not only the domain of operation management, it takes inputs from strategic management, it takes input from human resource management it takes input again from strategic management in the form of problem solving. So, it is a kind of package. If you understand it properly, you can do the management of your organization so that your organization can go to the level of excellence.

So now in our upcoming sessions, we will start discussions one by one on various principles of Toyota Production System from developing the long term philosophy for your organization.  
Thank you very much