V-1

<speak>

<prosody rate="110%"><break time="0.30s"/>Hello, <break time="0.20s"/>Welcome, to video series of week 1.<break time="0.10s"/> In this video, we will understand the wastes of manufacturing processes. <break time="0.10s"/>We will understand type of wastes and introduction of these wastes.

<break time="0.10s"/>You might have observed your manufacturing process and any manufacturing process. Like how it works, how people do their assigned job in the process. While observing you might have noticed some abnormalities and some you could not noticed. The abnormalities you could notice are common abnormalities which anyone can notice. But the abnormalities which you could not notice are quite serious and important and need to be corrected as early as possible. <break time="0.10s"/>So, let us go in details of these abnormalities.

V-2

<break time="0.40s"/>

In lean manufacturing, “waste” is defined as, anything that doesn’t add value to a product.<break time="0.10s"/> “Value” in manufacturing is defined as, anything that a customer would be willing to pay for. So, waste is any cost incurred in a process that does not benefit the customer. <break time="0.10s"/>Lean manufacturing is centered around eliminating waste from manufacturing processes.

<break time="0.10s"/>The business activities can be classified in three categories. Value added, Non Value added but necessary and Non value added and totally wastes.

<break time="0.10s"/>“Value” in manufacturing is defined as, anything that a customer would be willing to pay , so the activities which add values to product is called value added activities. The activities which do not add value to product, but are essential to run the process like legal requirement, or process requirement etc. are called Necessary Non value added activities. Customer will not pay for these activities but will not object also. And the activities which are not at all adding value to product and not required to carry out also are called Waste. Customer will not pay for these type of activities as well but can object.

<break time="0.10s"/>So, we need to optimize the value added activities, minimize non value added but necessary activities and eliminate non value added <break time="0.10s"/>Waste activities as far as possible.

V-3

<break time="0.40s"/>

Let us understand, the difference between Value added, and, non value added with example.

<break time="0.10s"/>Value added activities for which customer is willing to pay.<break time="0.10s"/> Value added activities actually transform the product. All the value added activities are done right at first time. No second chance is value added to that product. Now we will see non value added activities. <break time="0.10s"/>Non value added activities consumes the resources but they do not add any value to product and customer do not want to pay for them. The % of work complete is lower and the accuracy of work is also very low in these activities. Non value added activities require extra resources, time and efforts to transform the product which directly reduces our profit margin. You can see in the pie chart the % of non value added activities is much higher than Value added activities. So it is very important to eliminate these activities as early as possible.

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V-4

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<prosody rate="110%"><break time="0.30s"/>One more way, to understand the value added activities. Look at this picture. <break time="0.10s"/>The green color shows the value added activities and orange color shows non value added activities. <break time="0.10s"/>The value added activities are only 10% of the total activities, and non value added activities are more than 70%, because only 30% of the total process task, add value to product and customer will pay for it. The non value added tasks are necessarily waste, consumes resources and customer will not pay for it. This will affect directly the profit of organization.<break time="0.10s"/> If we eliminate, or, reduce the non value added activities, then the process will be more efficient.

V-5

<break time="0.40s"/>

When people think of waste in manufacturing, they usually only think about all of the scrap material, that gets thrown away, they often forget about all of the other actions that waste our time, our resources and our MONEY.

Japanese companies talk about waste they usually talk about the three Ms, Mura, Muri, and Muda.

<break time="0.10s"/>Toyota has developed its production system around eliminating three enemies of Lean: Muda,that is, waste, Muri, that is, overburden, and, Mura, that is,unevenness.

<break time="0.10s"/>Muda, is the non value adding actions within your processes, Muri, is to overburden or, be unreasonable while Mura, is unevenness.

V-6

<break time="0.40s"/>

In this picture, there are three types of wastes explained. In first picture the truck capacity is 1000 kg, but it is carrying only 200 kg of material and 800 kg of capacity is unused. Though the resources like fuel or driver is used at its capacity. So this is Muda, capacity is available but resources and other things are waste.

<break time="0.10s"/>In second picture, the truck is having container with capacity of 250,250 and 1000 kg respectively, but the material is loaded in different weight. Like in 250 kg capacity container 150 kg is loaded and in another 250 kg container 350 kg is loaded. This is imbalance or unevenness. <break time="0.10s"/>This is Mura.

<break time="0.20s"/>In third picture,<break time="0.10s"/> the truck have load capacity of 750 kg but, it is loaded with 1000 kg load which is beyond its capacity. This is overloaded hence it is Muri.

<break time="0.20s"/>This means, the three enemies of Lean are interrelated and should therefore be taken into account simultaneously. <break time="0.10s"/>The three enemies of lean can be found in both production and office processes.

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