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INDUSTRIAL INNOVATION AND SUPPLY CHAIN

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BALANCE REQUIRED PEOPLE TO THE INTERVAL, NOT TO THE CYCLE TIME

One of the most persistent errors in Lean thinking is the idea that the process has to be perfect before a company can do Lean. But that thinking is circular: if a process IS perfect, then it contains no waste of resources, and all its activities add value! Lean would be unnecessary in this production nirvana.

On the contrary, a company perfects its processes by DOING Lean: by reducing waste progressively, one unit at a time, and by pulling not pushing flows of production and procurement.

Lean is not perfect process; it's perfecting existing processes. It's not zero inventory, it's less inventory. It's not about existing in a perfect state, but about attaining the perfect state. It's not fixed, it's progressive.

One company I know of sent in some Lean specialists from headquarters to implement Lean in a local factory—always a bad idea to start with. The Lean specialists, whose high costs were assigned to the factory's budget, calculated the number of people necessary according to the normal formula shown below. Then they called the local factory manager on the carpet and ordered him to get rid of the twenty-six 'extra' people.

In fact, the people were not really extra but were actually required to manage all the waste in the current process. Reduce the waste, and the number of people needed to run the process is reduced too. The 'liberated' people, valued and knowledgeable employees of the company in the eyes of Lean, can go work elsewhere in the company on other, more productive tasks.

To illustrate the concept that Lean-is-not-perfection-but-perfecting, Bill Kerber, member of World Wide Excellence Partners and an experienced Lean practitioner, one of whose client applications was reported in Technical Newsletter No. 38, offers a great insight.

Many companies have long setup times on heavy equipment requiring considerable manpower to change over. Normal logic says to calculate the number of people required based on cycle time, which is the (slightly smaller) interval required for a production process to meet its takt time.

For example, imagine that the ideal number of people calculated for a work station or cell, based on cycle time, is:

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How many people are required to produce ?

$$\text{No. of people} = \frac{\text{Unit hours / piece x Quantity to be produced}}{\text{Effective working time}}$$

$$\text{No. of people} = \frac{200\ \text{pcs/item/month x 40 items x 0.02 hrs/pc}}{\text{6 h/day/person x 20 days/month}}$$

$$\text{No. of people} = \frac{160\ \text{hours}}{120\ \text{hours/person}} = 1.3\ \text{rounded to 2 people}$$

Imagine now that the EPE I (Every Part Every…Interval) calculation shows that every part can be produced twice a week, or 8 times per month, instead of only once a month as is the current situation (see our Technical Newsletter No. 22 for EPE I).

How many people are required to meet the Interval ?

$$\text{No. people} = \frac{\text{No. changes/cycle x Unit change time x No. cycles/mo.}}{\text{Effective Work Time}}$$

$$\text{No. people} = \frac{\text{40 items x 1 hr/item x 8 cycles/month}}{\text{6h/person/day x 20 days/month}}$$

$$\text{No. people} = \frac{320\ \text{hours}}{120\ \text{hours / person}} = 2.7\ \text{people rounded to 3}$$

So Bill Kerber's insight is to balance to the Interval, not to the cycle time. The total number of people needed in our example is not just 2, but 2 + 3 = 5. Once things are measured correctly, then Lean improvements can be made on solid ground.

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