Understanding TEEP Versus OEE for Profitable Manufacturing

by Robert Hansen

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A simple definition would be: OEE is the amount of perfect production time relative to the actual scheduled time used, while TEEP is the amount of perfect production time relative to “Total Calendar Time”.
To ensure profitable manufacturing, two important aspects for developing a strategy for a long-term successful OEE program must be explored. These would be:

- Understanding Total Effective Equipment Performance (TEEP) versus OEE
- Speed to Proficiency

A simple definition would be: OEE is the amount of perfect production time relative to the actual scheduled time used, while TEEP is the amount of perfect production time relative to “Total Calendar Time”.

The importance of understanding your TEEP number is to emphasize the gap between current operations and the world-class future state.
Understanding OEE and TEEP

Another approach to understanding the TEEP value would be to compare the actual amount of good product produced relative to the amount of product that could have been produced if everything worked perfectly, with 100 percent first pass yield and at ideal rate for 365 days per year.

A simple “back of the envelope” calculation can be done, and usually the number is significantly lower than the current OEE value. TEEP measures the overall use of the asset, and world-class levels would be nearly equal to world-class levels for OEE in the pharmaceutical industry. It measures the performance of all planned work and pushes support services such as maintenance and process engineering towards excellence.

For instance, assume a work center has planned maintenance of one shift (eight hours) every seven weeks and an allowance for planned experiments of seven days a year. All other efforts are to maximize the use of the equipment for planned production.

Therefore, about 2.5 days are used for planned maintenance and seven days for experiments for a total of 9.5 days of planned downtime per year. Assume that world-class OEE is 75 percent for this pharmaceutical work center’s type of operation, which means that perfect production occurs for $0.75 \times (365 - 9.5) = 266.6$ days per year. World-class TEEP would be $266.6 \div 365 = 0.73$ or 73%. This is just 2% less than world-class OEE.

The importance of understanding your TEEP number is to emphasize the gap between current operations and the world-class future state. The business case for action should be developed with world-class TEEP as the target for the life cycle performance. Often when the overall benefits are computed, organizations “discover” that capital additions for capacity require $10.00 for every $1.00 invested in achieving capacity via world-class TEEP\(^1\).
Speed to Proficiency

The second understanding is epitomized by “Speed to Proficiency”, which comes from the book “Breakaway”. What this thrust brings to the table is the revelation that every day your operations are not performing at world-class OEE, (your) money is being lost. Picture your operation consuming raw materials and providing finished goods via a system that has many different conduits and pipelines that are constantly leaking. The gap between current state and world-class is the level of unnecessary leakage every day.

By eliminating the leaks, product can be provided on time, in full, without errors, and at the lowest cost; which is the promise to the customer that initiates Breakaway results (growing market share and refilling the factory).

World-class TEEP is the metric used to determine the full capability of the asset and helps to develop the financial business case between current state and “what could be”. When the total organization (including marketing and sales) understands the amount of income that is being lost daily, collaborative support and a complete strategy for quick action usually develops.
Certainly, the most important step is to improve fundamental OEE of the key product value streams. This allows the growth wheel to cycle by lowering prices; as demand increases and refills the factory, another cycle occurs. TEEP becomes the measure to expand availability and maximize income from operations. Speed to proficiency just means that the prize of survival and job security will go to those who are first to learn and put the tactical plans into action.
Sources


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