Optimizing Financial OEE:

Overall Equipment Effectiveness / System Performance Analysis

A Report From:

TAG Associate, Bob Hansen, author of **'Overall Equipment Effectiveness: A Powerful Production/Maintenance Tool for Increased Profits'** has taken OEE to a new dimension by developing a methodology to computer simulate plant profit performance relative to individual process step OEE. This analysis method is called:

OVERALL EQUIPMENT EFFECTIVENESS / SYSTEM PERFORMANCE ANALYSIS
(OEE/SPA) to
OPTIMIZE* FINANCIAL OEE

How is this beneficial?

Leadership teams can **Confidently, Scientifically, *MAXIMIZE* Profits!!!** Visualize having a 'simulation model' of your Plant that links each *specific* process step OEE with plant or corporate line of business *profits*. Think how valuable this could this be! **It's like a crystal ball for predicting Plant profits.**

How is this Possible?

Understanding OEE in depth** and recognizing that OEE links directly to volume produced, which mathematically links to EBIT, forms the basis to generate a *computer model* of most manufacturing systems at the plant level.

Imagine the ability to investigate designated improvement goals for specific target areas AND instantaneously compute the change in profits for the Plant by product line!

Most importantly, a new metric designated as ***Financial OEE*** allows Plant leadership teams to *comprehend* the vast amount of profits (often 50 to >100 percent) being 'left on the table' when less than optimum targets are selected.

Leadership teams could scientifically select the vital few (≈20%) that drive the majority of profit increases. Better yet, leadership could *proactively* guide all plant departments (maintenance, engineering, quality control, operations, HR, etc.) to support the vital few projects and *subordinate* the 'activity traps'.

Resources (people and money) could purposefully be re-allocated to *accelerate* profit improvement. Remember, in today's world the big do not eat the little, rather the fast eat the slow.

Knowing what targets are critical AND the tools to make improvements allows plants to become synergistically focused on rapid *financial* improvement.

See the Charts on the following page that show the difference between three alternate implementation strategies for a simulated plant with an annual Cost of Product of $37 MM and a current EBIT of $4.7 MM.

The study determined the financial impact of a 10% OEE improvement for each work center. Understanding the targets to improve first, made a $442,618 difference, resulting in an ***87% increase*** over 'Usual Strategy' and a 9% increase *in year one Plant EBIT*. Imagine your Plant with 9% higher annual profits as you move to world class.

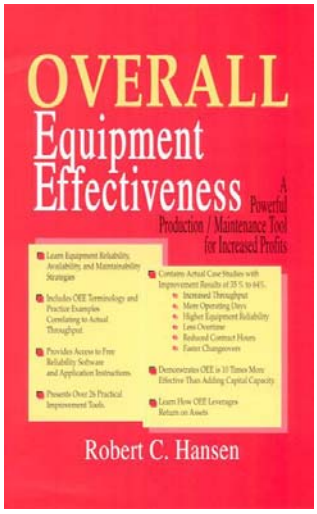
Without this analysis, plant leadership would not recognize how much money was 'left on the profit table'.

Bob Hansen has developed the OEE/SPA methodology to accurately model manufacturing systems and ***OPTIMIZE* Financial OEE**. The 'How to' for both micro and macro OEE workshops are available from TAG.

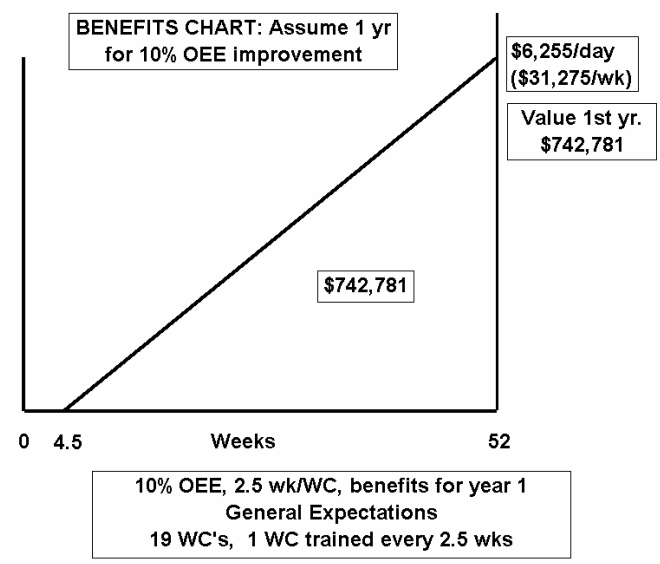
If your plant is vital to your corporation and you need to improve your financial scorecard, **register here** for more information on an OEE/SPA study that can be your crystal ball to higher Plant/Corporate profits.

* Define *Financial OEE* as being:
'**Current Plant Profits divided by Projected Plant Profits at *World Class OEE*'**, and clarify that plant profits are 'Earnings Before Interest and Taxes', (EBIT).

Bob Hansen, PE, CMRP, and Author of **'Overall Equipment Effectiveness: A Powerful Production/Maintenance Tool for Increased Profits'



Bob Hansen's Book can be purchased today at www.Amazon.com

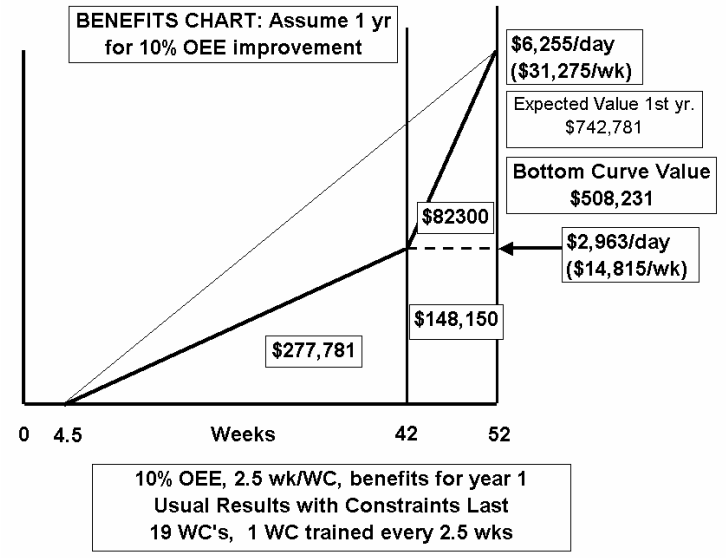


Results from OEE/SPA Plant Model Simulation:

Average improvement results for 10 Plants with 19 work centers making an annual Cost of Goods of $37.3MM (with a Current EBIT = $4.68 MM) assuming all work centers increase OEE by 10%. Assume a one year implementation plan. *After completion*, Operating Income (EBIT) increases by $31,275/week.
The second year results would be + $1.63MM (35% increase in EBIT over a do nothing alternative.)

Top Chart shows the expected implementation program benefits if all areas contribute equally. Assume each area requires 2.5 weeks of focused training and all 19 are done in series. An initial 4.5 week delay has been assumed for training the first area and before getting results.

(Note that Pareto principle implies that ~4 of the 19 workcenters will be constraints, and this model uses actual income dollars to confirm this principle.)

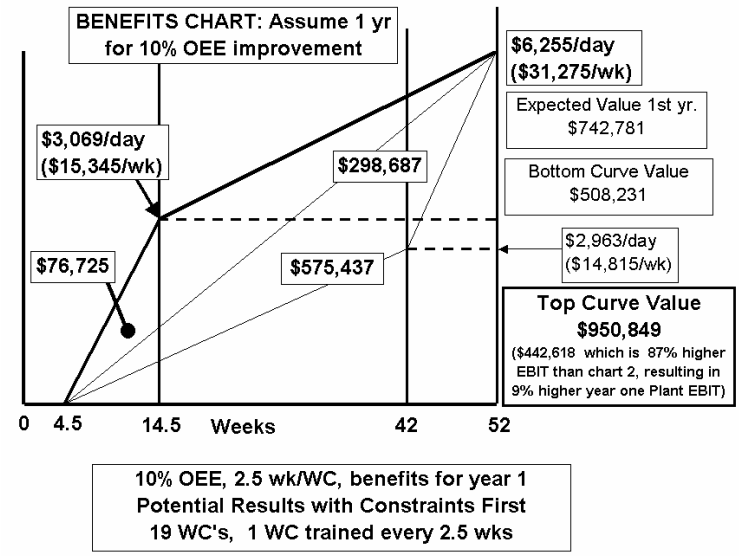


Non-strategic Implementation.

Without attention to plant constraints, implementation usually is initiated in areas that have some discretionary time for projects and then proceed to the next available area.

Because constraints are already critical points of production, operations are usually on overtime and schedules are behind. Operation managers are reluctant to take time for training or extra projects. Without understanding, the four constraints will be done last (or at least one of the four, causing nearly the same curve.)

A plant OEE/SPA model and analysis using process diagrams of each major product flow through the plant steps can identify the specific constraints and compute the dollar contribution of each area for a given OEE improvement. Increasing OEE by 10% in all areas *except* the constraints increases EBIT by $14,815/wk.



Strategic OEE Implementation.

With a completed OEE/SPA model and analysis of the Plant, the key constraint targets are identified using good data. (No Guessing!)

Using the model of the Plant, the dollar contribution of each constraint is determined for a given OEE improvement. This allows an objective way of determining the rank order for work center OEE implementation to maximize Plant profits. Increasing OEE by 10% in the four constraint areas only, increases EBIT by $15,750/wk for the Plant.

By completing training and projects in the 4 constraints *first*, the Plant will realize nearly *twice* the benefits of doing the other 15 areas!

Understanding the application of OEE/SPA is critical to *rapid* Manufacturing Excellence!

About The ACCESS Group (TAG):

Founded and led by seasoned experts, TAG has become known as an industry leader in Maintenance Reliability Services. TAG is focused on delivering measurable value to your company's bottom line with the application of modern maintenance tools, procedures and strategies. TAG works to generate value through the lowering of overall maintenance costs and the improvement of equipment reliability. Using practical applications of Lean Maintenance principles, TAG has performed numerous assessments to identify opportunities and provided solutions with outstanding results. TAG has the expertise and the total project support to give companies a cost effective solution that delivers these critical services on-time and within budget. In addition to these services, TAG, also provides Lean Enterprise Services, Plant Relocation Services, and Contract Resources to clients all over the world, including many Fortune 100 companies.

This unique blend of services offers our clients a solution that is not only cost effective but a single source solution as well. By providing these services we help our clients to 'CHANGE THEIR BUSINESS WHILE THEY RUN THEIR BUSINESS'.

About the Author:

Bob Hansen, PE, CMRP, Author, is a Consulting Associate of The Access Group, LLC. Bob graduated from the University of Wyoming in 1966. He had a successful 29 year career with Eastman Kodak company primarily at Kodak's Colorado Division at Windsor, CO. In 1980 he became Maintenance and Engineering Department manager supporting a major production area and subsequent assignments followed in four other manufacturing areas. From 1989 to 1998 Bob was a member of various Worldwide Management Teams completing best practices audits and internal benchmarking with sister plants in England, France, Brazil, Australia, and the USA. From 1993 to 1998 he championed Equipment Reliability and OEE at Kodak Colorado Division, Windsor, CO.

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