



"We are what we repeatedly do. Excellence, then, is not an act but a habit." - Aristotle

# OPERATIONAL EFFECTIVENESS

## A COMPARISON OF IMPROVEMENT METHODS

**T**HIS ARTICLE IS INTENDED TO SERVE AS A TOOL FOR MANAGERS TO COMPARE A COMPANY'S OPTIONS WHEN IMPLEMENTING AN OPERATIONAL EFFECTIVENESS IMPROVEMENT INITIATIVE EITHER IN A SELF-DIRECTED MANNER OR WITH THE ASSISTANCE OF EXTERNAL CONSULTANTS. >>

The three models to be examined are Lean Enterprise, Six Sigma and Continuous Improvement.

### LEAN ENTERPRISE

Lean Enterprise is a broad term that applies to a whole suite of innovative business principles and organizational development tools. It is important to note a popular misconception: Lean Enterprise early stage design or re-engineering is not specifically intent on either downsizing or rightsizing an organization.

Lean Enterprise is highly specific in both culture and design. What determines supply-chain design is a Just-In-Time imperative. Here the 'push' style of rigid manufacturing for an unknown future customer is replaced by a 'pull' style of flexible manufacturing small batches of product for known customers on demand. To facilitate quick delivery, enterprise resources must be available for manufacture and delivery Just-In-Time and coordinated by electronic order information applications accessible to all delivery partners.

The cultural element of Lean Enterprise requires both trust and cooperation not only between tightly integrated supply-chain partners, but

also between the workforce and management. Within the specified operations design, personnel are grouped into cross-functional teams for the purpose of waste-reduction. Cooperation between the various roles is developed through open communication and a developed trust that ongoing quality and efficiency gains will not lead to significant job losses (see section on Continuous Improvement). Quality and efficiency gains result by applying the central philosophy of Continuous Improvement (Japanese: kaizen) with a commitment to ongoing training at all levels of the organization.

**Benefits:** good for supply-chain integration, useful for senior management level planning, suitable for radical change.

**Caveats:** high cost to implement, requires high trust and reliance on partners.

#### Further Reading:

*LEAN THINKING: Banish Waste and Create Wealth In Your Corporation*, Womack and Jones, Simon & Schuster, 1996

*OUT OF THE CRISIS*, Deming, Dr. W. Edwards, MIT Press, 1986

### SIX SIGMA

The Six Sigma quality improvement method was developed at Motorola and famously applied at GE. Six Sigma is a structured statistical analysis method to identify and reduce production defects to the target of 3.4 defects per million within a specific process. While traditional quality programs have focused on detecting and correcting defects, Six Sigma encompasses something broader: it provides methods to re-design the process so that defects are never produced in the first place.

Six Sigma quality improvement projects are assigned by management and sponsored by a high-level Champion. A specially trained 'Black Belt' practitioner may act alone or lead a team of lesser trained 'Green Belt' investigators on consignment from their regular duties. A highly trained 'Master Black Belt' may serve to supervise multiple Six Sigma projects and advise the Black Belt leader.

Whereas the Lean Enterprise focus is upstream to process efficiency, Six Sigma targets the end customer to tailor quality standards to customer value criteria. During a Six Sigma assessment, all process activities that do not contribute to end customer value are eliminated.

**Benefits:** value-chain process redesign, short duration projects, in-house specialists, rewards high achievers with training.

**Caveats:** not well suited to service or non-mass production, quality control by



## Operational Effectiveness: At a Glance

Issue	Lean Enterprise	Six Sigma	Continuous Improvement
Primary Performance Focus	Efficiency: the reduction of process waste	Quality: the reduction in process variability	Effectiveness: the adaptive alignment of strategic goals to operational execution
Environment	Flexible, Batch Flow, Assembly Line	Rigid, High Volume, Assembly Line, Continuous Flow	Applicable to all process types and operational environments
Expert Knowledge Type	Content/Analytic: content knowledge of integrated supply-chains and use of analytical/ conceptual models	Analytic: use of statistical and conceptual models for problem-solving	Behavioral/ Analytic: use of behavior theory/ team building and use of analytical/ conceptual models
Rate of Change	Rapid/Slow: Re-engineering followed by continual improvement	Slow: discrete, exhaustive projects that apply to the sum activities of a single deliverable	Moderate: Initial, discrete projects expand to instill employee initiated improvements
Employee Empowerment	Medium: workforce initiated improvements are bound within a specified process design	Low: workforce is not encouraged to take ownership of quality or efficiency gains	High: workforce and management cooperate to continually optimise performance

few, discourages employee empowerment, large time and cost commitment, savings may be less than cost to implement.

### Further Reading:

*THE SIX SIGMA WAY*, Pande Cavanagh and Neuman, McGraw-Hill Professional, 2000

*DESIGN FOR SIX SIGMA: A Roadmap for Product Development*, Yang and El-Haik, McGraw-Hill Professional, 2003

### CONTINUOUS IMPROVEMENT

Continuous Improvement develops a culture that encourages every employee to make incremental improvements in operations processes on an on-going basis. Empowered employees affect micro changes on their own initiative to realize the desired incremental improvements.

In practice, the subtle, long-term shift

of an organization's culture from the old military model of top-down command-and-control to a knowledge-based enterprise with multi-skilled, empowered employees working in an open dialogue with management is more art than science. In the evolutionary change of Continuous Improvement, managers are coached to develop leadership roles that provide resources to workers who pursue agreed upon goals.

New behaviours are typically developed over time during quality or efficiency improvement projects that display the benefits of team development and consensus in measurable, bottom-line terms. Initial projects establish the value of Continuous Improvement and may then cascade out to larger regions of the enterprise.

**Benefits:** lasting cultural change, emphasizes cooperation, all employees

empowered for improvement, reduces bureaucracy.

**Caveats:** limited analytical tools, requires management style change from top-down to coaching/facilitation, trust and cooperation is easily broken.

### Further Reading:

*THE GOAL: A Process of Ongoing Improvement*, Goldratt & Cox; North River Press; 1992

*GEMBA KAIZEN: A Commonsense, Low-Cost Approach to Management*, Imai, Masaaki; McGraw-Hill Trade; 1997

### CONCLUSION

In practice, few change initiatives use only one of the models described so far. A Lean Enterprise is rarely, if ever, realized in all its parts. Six Sigma, the most discrete model, varies in application from one firm to the next. Continuous Improvement cultural change initiatives often coach statistical analysis methods to measure the tangible results of employee empowerment to the bottom line.

It is important to identify the specific aspects of any model considered for implementation. Practitioners may well provide services that cross boundaries for a 'best of breed' solution. A sequential application of different models may also be appropriate.

The individual organization is the only reality. The further we move away from the organization toward abstract ideas about an ideal enterprise - without respect to past or present - the more likely we are to fall into error.

### ABOUT THE AUTHOR

William C. Pocock is an independent management consultant with an MBA from the University of British Columbia. He is an experienced implementer of operations control and improvement methods. His most recent operations consultation was for the Canadian Federal Government's Enterprise Architecture project. Mr. Pocock currently resides in Toronto, Canada.