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How Six Sigma and Lean Can Ruin Your Career

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Successful execution of an operations strategy requires executives to have predictive control over their supply chain and manufacturing operations in order to make the right choices to meet their company's marketing and financial goals. That sounds straightforward, yet all too often executives risk their careers on a broad scope of project-based initiatives to improve operations performance—conducting organization-wide training and then implementing a large number of improvement projects. A research study, recently reported in the Wall Street Journal*, revealed that process-improvement programs almost inevitably show early progress, then stagnation and finally, failure. Executives, who embrace process-improvement programs without a fundamental, practical understanding of the science of manufacturing, are essentially playing Russian roulette with their careers.

As the WSJ article stated, nearly 60% of all Six Sigma initiatives fail to achieve the desired results. We would expect the same type of results to occur for almost any initiative where the strategy is to train a countless number of employees on new methods, and then initiate numerous projects, which will utilize those new methods. The study cited four main reasons why process-improvement projects fail to achieve sustainable impact:

1. Lack of extended involvement from improvement experts
2. Employee incentives not tied to successful implementation
3. Team members developing competing interests
4. Lack of direct participation from executives

While we agree with these reasons as causes of project failures, we can state unequivocally that the approach of widely deploying many projects using new methods such as Lean and Six Sigma is a fundamentally flawed strategy for operations performance improvement. The flaws of the approach do not prevent attaining good results occasionally, but they do prevent sustaining good results consistently; hence the Russian roulette quality for executives who choose to use this type of approach, which also provides pragmatic support for reason number 4 as cited above.

Lean and Six Sigma provide fundamentally sound tools and techniques for improving performance. Unfortunately, many executives insist on applying good tools repeatedly without an understanding of where the tools will provide the most benefit or whether the tools will provide any benefit for a given situation. The table below shows a few examples contrasting the difference between a broad-based approach and a practical, scientific approach.

Dr. Mark Spearman, the President of Factory Physics Inc., co-author of the award winning book, "Factory Physics," and a leading authority in manufacturing management, has spent over 25 years working with executives to implement profitable and sustainable operations performance. The book, "Factory Physics" has been widely adopted in industry and academia for teaching basic scientific principles to understand and to capitalize on the relationships between capacity, inventory, response time, variability and profitability. As Dr. Spearman says, "Because they are working *without* a comprehensive, scientific understanding of their operations, company executives cannot effectively: (1) consider all the conflicting objectives in play and (2) predict the effects of their operational changes. A COO will tell me that 'We completed more than 60 kaizen events last year.' And I will reply, 'Well, you must be perfect by now.' When they tell me they're not, they also tell me that many of the events didn't do much. No surprise—those successful events were the lucky ones. I have seen many other executives ruin their careers by launching broad-based efforts at continuous improvement without a scientific foundation."

Broad –based approach (Reduce waste)	Practical, Scientific approach (Improve profitability)
Reduce setup times by 50%	Reducing setup times on two machines by 20% will result in a 40% reduction in finished goods inventory.
Set inventory policy to two months of demand	Set inventory policy to achieve a 85% fill rate with a $2,000,000 investment. Since there will be an average backorder time of 3 days the 15% of the time inventory is not on-hand, we can promise a 5 day lead time and achieve a 100% service level to customers. We could also invest $4,000,000 in inventory and achieve a 98 % fill rate with a 1 day backorder time.
Implement a pull system to reduce cycle times by 50%	In the current environment, driving WIP low enough to get a 50% cycle time reduction will also cause throughput to drop by 10%. Machine availability has to be improved to 95% to allow the desired cycle time reduction and not impact throughput.
Improve forecast accuracy	On 50% of our products, improving forecast accuracy to 100% will only reduce inventory levels by 10%. The main driver of inventory level at our current demand levels is long lead times and high lead time variability caused by expediting.

Dr. Spearman and his team have repeatedly shown that tactics and technology are *not* effective substitutes for strategy and science. The fundamental goal is profitability, not zero defects, one piece flow or zero variability. "Perfection of means and confusion of goals seem to characterize our age." So said Einstein more than 60 years ago and it eerily describes today's focus on the perfect Six Sigma and Lean program. Continuous improvement approaches like Six Sigma and Lean will continue to be hit and miss until executives design and implement the programs within a scientific framework providing predictive guidance. Mr. Edward S. Pound, the COO of Factory Physics Inc., concludes: "Only a solid understanding of the practical science and key relationships that govern operations and logistics will ensure that companies use existing continuous improvement tools as effectively as possible to optimize performance and profitability."

In the end, it's not Six Sigma and Lean themselves that ruin careers, but all too often executives parade down the Six Sigma and Lean initiative paths because the initiatives are viewed as comprehensive, popular approaches to operations management. In fact, applying those tactics without a practical, scientific understanding of operations performance has repeatedly led to disappointment.

Strategies based on the Factory Physics framework provide lasting improvements. Just like it is difficult to argue with the law of gravity, it is difficult to argue with the science of Factory Physics laws. Understanding these laws enable organizations to deploy strategies in terms of operational polices that address the inherently conflicting objectives of inventory reduction, high capacity utilization, short lead times, and high customer service. Moreover, the framework directly addresses sustainability by requiring any improvements to become part of the existing management system, and not simply something done by the "CI group." The Factory Physics approach provides

predictive control for performance improvement. This predictive control provides executives with powerful guidance to improve both their company's performance and their own career progression.

If you would like to learn more about how to apply the Factory Physics framework to your operations, contact Sanjay Huprikar at 979.846.7828 ext. 152, or at sanjay@factoryphysics.com. You can also enroll in the Factory Physics U on-line course entitled "Factory Physics Framework Deployment Case Studies" at www.factoryphysicsu.com.

* "Where Process-Improvement Projects Go Wrong" – WSJ.com – January 25, 2010

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