

Factory Physics® Principles for Managers - First in a Series

Introduction

This is the first in a series of articles designed to help managers learn and apply Factory Physics principles and applications.

The Challenge to Improve Productivity

Managers are always motivated to find better, more profitable ways to conduct business. Profits can be increased by increasing sales or reducing costs or both. In tight economic times, the increased sales option has often limited potential. When the economy is good, increased sales combined with reduced costs provides the best of both worlds. In all cases, increased productivity is a positive contributor to both company profitability and your personal success and career.

Typically, a productivity initiative is implemented as a response to the constant pressure on managers to increase productivity; though there are about as many variations of productivity initiatives as there are companies (and consultants). But wait a minute, we can put a man on the moon, we can split the atom and we can “Google” anything in the world. But just try and get agreement on the best approach to operations improvement. One quickly runs into a number of different camps of productivity improvement proponents. In fact even within many companies in the world, there is intense and often counterproductive discussion about the drivers of productivity. So what is a manager to do?

The Solution for Improving Productivity

There is no magic solution but there certainly is **a scientific framework for controlling and optimizing operations**. The framework is based on the award-winning book “Factory Physics.”

Much of the science behind Factory Physics has been well researched for a long time. To name a few areas of interest covered :

- how to set **inventory levels or batch sizes**
- determining **whether push works better than pull** or what that each actually means
- understanding the fundamental drivers of **cycle time**
- understanding **how variability affects cycle time and capacity**

These are topics that managers deal with on a daily basis but have never been pulled together well in one book. A primary goal of the book was to provide a single source for the applicable science behind a comprehensive, scientific framework for controlling and optimizing operations.

Additionally, some of the developments in Factory Physics were new to science. Another goal of authors Hopp and Spearman was to add to existing knowledge about how to best control and optimize operations (or value streams, or supply chains or whatever you call your process).

For most successful executives though, the working day is a series of constant interruptions and taking the time to go through the 600+ page textbook that is “Factory Physics” requires more time than most can spare. To get increased profitability as quickly as possible, some executives just pick up the phone and call us at Factory Physics, Inc. Other managers do not have the budget to engage Factory Physics, Inc. or the time to read a college textbook. For those managers, we will provide a series of articles in 2006 intended to provide a primer on the Factory Physics framework and some basic explanation about the science behind the framework to help managers apply the principles in practice.

Content of the Series of articles

In working with managers in industries, from Semiconductor to Automotive to Pharmaceutical to Health Care, we frequently encounter the following issues :

1. People in all levels of organizations constantly struggle with trying to determine where to best focus existing productivity efforts and tools.
2. Determining how well a process is performing versus its best possible performance is generally not well understood. The bottlenecks are always shifting.

Factory Physics principles and tools have provided great value in helping companies address these issues, among others, to improve productivity. Factory Physics principles are not intended to replace Lean Manufacturing or Six Sigma, those tools have proven very effective! At the same time though, there are a number of gaps in the Lean Manufacturing and Six Sigma (and Lean Six Sigma) approaches that can well be addressed using a comprehensive scientific approach. The Lean mantra of “Eliminate Waste” is pretty comprehensive but its not particularly scientific. The Six Sigma tools of Design of Experiments (DOE) or Failure Modes and Effects Analysis (FMEA) are scientific but they do not provide a comprehensive description of operations behavior. Time after time, we have seen productivity improvement efforts vastly accelerated through the clarity of focus and improved control and optimization provided through application of Factory Physics principles. The ability of Factory Physics applications to define the boundaries of performance and accurately predict the results of changes to a value stream provides a powerful performance advantage to managers.

In the end, we find that most managers are not really motivated by having the most Lean operation or by having the operation with the least amount of variability. Managers are primarily motivated by their monthly or quarterly or yearly performance objectives and by the direction given by their managers.

The following set of articles will be published on a monthly basis to provide useful information to help managers in their day to day pursuit of performance goals:

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| <ol style="list-style-type: none">1. The Problem with Productivity Initiatives2. How to Understand Your Process in a Hurry3. Understanding Variability4. Inventory5. Batching6. IT Systems in Operations |
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| 7. Analytic Modeling |
| 8. Measures Alignment |
| 9. Pulling it All Together: Managing for Success |

In the meantime, if you have questions about Factory Physics applications or have other topics you would like to have discussed, drop us a line at info@factoryphysics.com

If you like to speak to someone directly, contact:

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