Manufacturing & Service Operations Management

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Manufacturing & Service Operations Management: An Introduction

Leroy B. Schwarz
Editor-in-Chief

The End of the Beginning

The publication of Volume 1, Number 1 of *M&SOM* marks the end of a process that began more than three years ago: a process whose goal was to create the premier journal in Operations Management. I will leave it to you, the reader of 1:1, to decide whether or not we have been successful "right out of the blocks" or if more issues must be published before we can rightfully claim to have succeeded. But we will suceed. I am committed to it. So are the distinguished group of Senior Editors and the esteemed members of *M&SOM*'s Editorial Review Board, whose names are, and will remain, prominently featured in every issue. And most important, so are the authors who have submitted their manuscripts to us.

The Beginning of the End

M&SOM is committed not merely to providing high-quality reviews, but to providing high-quality, *short cycle-time* reviews to authors of submitted manuscripts. "They" said it couldn't be done. My reply was that if a journal in Operations Management couldn't do it, then frankly, we should be ashamed of ourselves. So, with lots of help from others, I constructed a review process with elements of both high technology and plain old tender loving care. Details are available at our website. See below.

The results are fairly astonishing. *M&SOM*'s *average* review cycle time for *all* manuscripts submitted to date is 38.3 working days. Our *maximum* review cycle time is 111 days (and this maximum will only be exceeded over my dead body).

And what about the quailty and thoroughness of our reviews? I can only echo what our counterparts in the real world of Operations Management report: *reducing cycle times improves quality*.

So, I believe that *M&SOM*'s high-quality, short cycle-time reviews are the beginning of the end of waiting "forever" to get reviews of submitted operations-management manuscripts. *M&SOM* is already providing high-quality, short cycle-time reviews. And our honorable competitors must follow suit or they will not survive.

The Beginning of the Beginning

But what excites me most about *M&SOM*'s high-quality, short cycle-time reviewing process is the prospect that *M&SOM* will begin to play an *active* role in the research process.

Given the very, very long times between the generation of a manuscript and its eventual publication, it's no surprise that our journals are mostly archival records of *past* research. Or, to put it another way, if one is up-to-date with respect to *published* research, but only published research, then one is probably 2-3 years behind *current* research. So, it is my hope that the publication of 1:1 is the beginning of that beginning. Let's begin . . . .

For More Information About *M&SOM*

For more information about *M&SOM*, please visit our website (http://ww3.mgmt.purdue.edu/msom/), which provides, among other things, a description of our editorial mission and philosophy, information for submitting authors, abstracts of accepted but not yet

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published manuscripts, and information about upcoming "focused" issues. One unique feature of our website is a page that allows the author of a submitted manuscript to track it through our review process.

Special Thanks

This introduction is too short to thank everyone who has contributed to *M&SOM*. Special thanks to the MSOM Society of INFORMS for its intellectual and financial support. Special thanks, too, to the "Sponsors" of the journal, whose names precede this introduction. Finally, very special thanks to the Dean of the Krannert School, Dennis Weidenaar, who has provided great support, and to my colleagues in the Krannert Operations Management group, who have helped in dozens of ways.

An Overview of the Articles in This Issue

Since this introduction is already long, I will comment just briefly on each of the articles to follow.

It's fitting that our lead article is "Industry Clockspeed: Measurement and Operational Implications." Using data from the electronics industry, Mendelson and Pillai develop and validate an integrated metric for "clockspeed," a concept introduced by Charles Fine to describe the velocity of change in external business environments and the corresponding pace of a firm's internal operations. Mendelson and Pillai's findings on the effects of clockspeed can help researchers studying other industries and practitioners looking for benchmarks against which they can compare and classify their own organizations.

"Allocating Fibers in Cable Manufacturing" examines the problem of allocating stocked fibers in a make-to-order cable production. Adelman, Nemhauser, Padron, Stubbs, and Pandit formulate an integer-programming model that captures the complexities of the problem, and develop an economic mechanism for decision making. Solution times are small when using a commercial solver. *This work has been implemented and has improved practice.*

"Improving Quality via Matching: A Case Study Integrating Supplier and Manufacturer Quality Performance," by Plante, Moskowitz, Tang, and Duffy, proposes and tests a novel quality-improvement strategy, based on combinatorial optimization, for matching raw-material batches from suppliers with process-variable parameters of the manufacturer. Using data from a pharmaceutical company, the authors demonstrate that matching can yield significant increases in process yield.

In "A Single-Item Inventory Model for a Nonstationary Demand Process," Steve Graves develops an adaptive base-stock policy for a single item that experiences nonstationary demand in order to determine its safety-stock requirements. Graves demonstrates that this required safety stock in both absolute terms and in how it depends on its replenishment leadtime, behaves much differently from the corresponding policy with stationary demand. Practical implications are discussed.

"Fill-Rate Bottlenecks in Production-Inventory Networks," by Glasserman and Wang, examines bottleneck facilities in a serial network. Traditionally, bottlenecks are defined to be the most highly-utilized facility. However, Glasserman and Wang demonstrate that other definitions are more relevant given a customer-oriented service measure like fill rate. In particular, as noted by the consulting Senior Editor, "variability matters."

Finally, Gallego and Zipkin examine "Stock Positioning and Performance Estimation in Serial Production-Transportation Systems." In order to gain insight into these issues, the authors develop and analyze several heuristics, one of which yields a bound on optimal average cost.