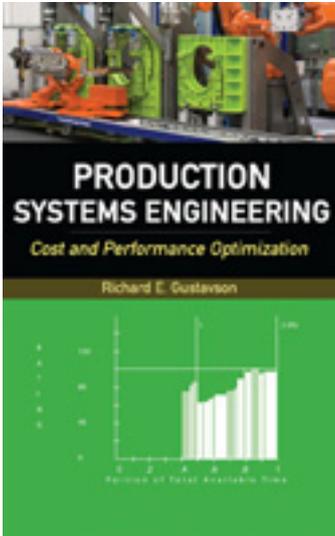


# Optimizing Your Production Systems Engineering

Amanda Earing, News Editor, Manufacturing.Net



*Why can't we do a better job of system design?*

*Isn't there some way to minimize design AND operating costs?*

*Can't we find a means to eliminate the need for piecemeal continuous improvement?*

If you find yourself asking these questions, then perhaps *Production Systems Engineering: Cost and Performance Optimization* is the answer you're looking for.

Author Richard Gustavson, president of Systems Synthesis, Inc., shows you how to optimize economic and technological requirements in production system designs, something he says has eluded many manufacturers for decades.

Manufacturing.net sat down with Gustavson to discuss how this book can help determine optimal resource allocation and cost-effective product system designs for today's any-volume manufacturing environment.

**Mnet: In your book, you mention cost-effective system optimization has eluded many manufacturers. Why is this such a challenge?**

**Gustavson:** Most companies have been structured over the years so that engineers have not been oriented towards optimizing costs as much as technical performance. From my experience, manufacturers have spent significant time and money optimizing manufacturing and assembly systems, but fail to build a system within budget.

More manufacturers need to be willing to combine the two ideas of system design and economic requirements. Some come close to achieving this, but after awhile,

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they find they have to make piecemeal improvements and additional changes. How much does it cost to do that? I emphasize in the book that if the design process is done right the first time, very few changes — if any — will need to be made in the future.

Plus, a lot of departments often don't really talk to each other until it is too late and that needs to change. The goal here is to design a system within the company's financial requirements, and this means both finance and design departments must interact with each other closely.

This book helps address these issues, and I would hope that manufacturers will recognize these new design methods that can optimize their manufacturing systems — regardless of past experience.

## **Mnet: What are the basics to an effective system design?**

**Gustavson:** Technologically, it has to meet the requirements of the job, and second you want to have the minimum possible costs.

That's what this whole process is about. The best and most effective system design is a combination of three guidelines — the total cost of the system — that includes not just hardware costs but engineering costs as well, unit costs, and the cost of available space.

In addition, there is the possibility that products will be redesigned and processes will have to change, but if a product has a reasonable life, an effective system design would not require any major changes. If you're constantly making improvements to your system, then the design isn't cost-effective.

## **Mnet: What other challenges should engineers be aware of when designing an effective production system?**

**Gustavson:** One of the biggest challenges will be determining the possible ways of assembling your product. You'll have to make decisions about possible alternatives and find ways to combine them to meet the cost and performance characteristics.

## **Mnet: Who in particular would benefit from this methodology?**

**Gustavson:** Mechanical and industrial engineers would certainly benefit, and given the economics covered and that cost is a driver in the industrial world, management should be interested in this book as well.

## **Mnet: What prompted you to write this book?**

**Gustavson:** I have more than 40 years of industrial experience in product design and manufacturing and this methodology is a result of that, as well as the need to fill a knowledge gap that exists in the industry. Given the current economic conditions, companies are looking to get rid of debt and struggling to stay afloat; this method will help them stay innovative, keep costs down and can be applied to

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both large and small manufacturers.

*Richard Gustavson has more than forty years of experience in electromechanical product design and manufacturing and is currently president of Systems Synthesis. For more information on Production Systems Engineering: Cost and Performance Optimization, visit Manufacturing.net's [Bookstore](#) [1].*

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