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**INsourcing Innovation:
How to transform business as usual into business as exceptional**

**David Silverstein,
Neil DeCarlo, and
Michael Slocum**

**Breakthrough
Performance Press, 2005.
\$24.95, 152 pages**

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Innovation is a hot word at the moment. Last month we reviewed *Innovation Happens Elsewhere*, which turned out to be a book on the importance of using open source software effectively. This month we review a new book by Silverstein, DeCarlo and Slocum, *INsourcing Innovation*, which turns out to be a book on TRIZ.

TRIZ (Teoriya Resheniya Izobretate Zadatch) is a Russian acronym for "Theory of Inventive Problems Solving." (It's usually pronounced "trees.") It's a methodology that helps people examine problems and develop a number of inventive solutions. A group of Russian researchers, led by Genrich Altshuller spent several years investigating how people develop breakthrough solutions and refined it into a series of concepts or steps. Just as Six Sigma has recently embraced Lean to extend its scope, many Six Sigma consultants are now incorporating TRIZ elements into their programs to help with the design of new products or new process solutions.

David Silverstein is the CEO of Breakthrough Management Group (BMG), one of the major Six Sigma consulting companies. Neil DeCarlo has written a number of books on Six Sigma, including *Six Sigma for Dummies*. Michael Slocum is a TRIZ expert, the editor of the *TRIZ Journal*, and several other articles on TREZ.

The basic premise of the book is two fold. First, it assumes that people can be more innovative -- that they can generate more and better solutions -- if they follow a methodology. Second, it assumes that businesses should put an effort in making their employees more innovative. This is entirely in keeping with the basic philosophy of Six Sigma that ongoing and incremental improvement ought to be built into all processes in an organization.

TRIZ can be a bit overwhelming. Altshuller and his co-workers in Russia defined 8 evolutionary patterns for guiding strategic decisions, 76 standard solutions for relating engineering elements in a system, 39 problem parameters for characterizing problems, and 40 inventive principles for solving technical contradictions. (These are all listed and explained in the appendices of this book, which can serve as a nice reference to TRIZ.)

Unlike some of the earlier books on TRIZ that tended to be rather technical, this book is clearly designed to introduce and sell the concept to a large audience. It has a gentle introduction, and lots of examples and success stories. The authors simplify access to TRIZ by defining step-by-step methodologies. There are actually two methodologies -- one for tactical problems and another for strategic problems. The Tactical TRIZ methodology includes the following steps: Define, Model, Abstract, Solve, Implement. Let's consider how the authors define each of these phases:

"DEFINE. The system and problem in question are defined and explored, and the Ideal Final Result (IFR) is formulated based on the contents of the Ideality Equation. A resource model is constructed as a reference for use throughout the DMASI process. Also, the various design challenges are framed in terms of a contradiction. Finally, a financial analysis is conducted to estimate the financial benefits expected from the project.



MODEL. The system is modeled using Function Modeling and Substance Filed Modeling. The Function Model enables further understanding of how the elements in the system interact to create contradictions, or to resolve them. In many cases, technical challenges are solved at this stage with some subset of TRIZ's 76 "standard solutions."

ABSTRACT. Using abstract thought, this is when the TRIZ practitioner moves the unsolvable output of the prior two stages into the realm of the solvable. Technical contradictions are converted into generic terms per Altshuller's algorithms, then referenced to the contradiction matrix to determine applicable inventive principles. The TRIZ practitioner also uses the Abstract phase to resolve any physical contradictions with the four separation principles.

SOLVE. The generic principles from the Abstract phase are combined with the work done in the Modeling phase to create specific solutions to the specific problem(s) under evaluation. Here, too, is where the powers of abstract thinking are important. Concept selection techniques may also be utilized to determine the ultimate feasibility of various solution pathways.

IMPLEMENT. After creating an implementation plan, the solution selected in the Solve phase is implemented so the problem is eliminated or new revenue is generated. Then the impact of the solution is compared with predicted values identified in the Define phase to confirm the demanded project ROI."

The Strategic TRIZ methodology steps include: Define, Map, Apply, Plot, Implement. In this case the emphasis is on the evolution of systems and one applies the evolutionary patterns defined by TRIZ to plot how product or processes will likely evolve and to plan accordingly.

When you look at the steps in the methodologies and consider what's involved in each, as described above, you realize that this isn't some an informal approach, like brainstorming, where everyone sits around a table trying to come up with new ideas. This is problem solving with a large engineering component and a series of precise models and templates to guide practitioners at each step along the way.

TRIZ isn't something that should be confined to Six Sigma. Any business manager would benefit from reading this book. The book describes several ways of approaching, decomposing and analyzing problems, and it suggests ways to synthesize the results in creative ways. Much of it is common sense, but the systematic approach, combined with the templates, guarantee that you'll think of more options than you would have otherwise. I have no doubt I'm going to be grabbing for this book when I run into complex problems in the future and recommending it to others in similar circumstances..

The examples the authors cite are impressive, and its hard to believe that most companies wouldn't benefit from training individuals in these techniques. In any case, this book is a well written and straightforward introduction to TRIZ and you, as a manager, owe it to yourself to read this small book, both to clarify your own approach to problem solving and to decide if your company will benefit from a more widespread use of these ideas.

