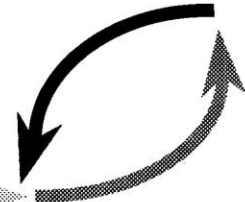


The

Systems Thinker



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Productivity Press: Integrating System Dynamics and Japanese Management

In recent years, Japanese management practices have been applied to U.S. companies with varying degrees of success. Although in principle such practices should work, the lack of systemic insight into organizations has often led to unsatisfactory results. Integrating the tools and principles of systems thinking with traditional Japanese management practices promises greater success in improving organizational learning and performance. Productivity Press, recognizing that potential synergy, has recently expanded their line of books on Japanese management to include a new series on system dynamics.

Productivity Press began about 10 years ago with a mission to Japan to study their management practices, explains acquisitions manager Diane Asay. Since then, it has published works on continuous improvement, quality control, employee involvement,

just-in-time manufacturing, and other Japanese manufacturing tools. "The mission of Productivity Press has been to help American companies rethink their manufacturing strategies and to introduce methods that will allow them to be cost competitive," says Asay.

But while the interest in Japanese management tools continues to grow,

Need for Systems Thinking

Over the past ten years, Productivity Press has witnessed the development of second-generation American management ideas that have evolved from the Japanese influence. "American managers have been coming up with a lot of questions, needs, and innovations," Asay notes. Systems

"Just-in-time doesn't work, total quality doesn't work, continuous improvement doesn't work unless you are able to look at your whole organization..."

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managers are finding it difficult to integrate these ideas into American companies. The reason, Asay feels, is that American managers don't understand how these tools relate to the whole company. "Just-in-time doesn't work, total quality doesn't work, continuous improvement doesn't work unless you are able to look at your whole organization and understand the impact of a change in one area to all other areas of the organization," she explains. "It's not possible to change your whole approach to 'the manufacturing world' or to inventory control without suddenly needing different accounting and marketing systems."

Japanese managers, Asay believes, have long understood the need to look at their companies systemically. "The Japanese didn't ever think just-in-time was an inventory 'solution.' It's always been understood as an organizational solution, a strategic solution."

thinking addresses those needs by extending continuous improvement principles to the entire company, helping managers better understand and manage the system they work in.

"In a short-term crisis it's difficult for managers to justify to themselves why they should hang onto their long-term goals," Asay explains. "That's why it's important to have tools that give managers insight into long-term benefits. Systems thinking can show them how to manage short-term crises and how to make trade-offs, giving up a little of the long-term vision so they can give themselves some space in the short-term. That's important, because when fundamental change starts to happen, things get worse first" (see *Systems Thinking in Action*, page 8).

Asay adds that the companies that are prospering today—both Japanese

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and American—are committed to understanding the whole system. “Organizations that understand if you invest for the short-run you could be setting

yourselves up for bankruptcy and organizations that understand how to manage the trade-offs between short-term and long-term are the ones that are succeeding,” she asserts. “Japanese and American organizations that are

applying continuous improvement successfully are the ones that understand the system as a whole and are functioning intelligently in that integrated organization. So I think from a very practical dollars and cents point of view, systems thinking is a needed perspective.”

Reintroducing “The Classics” of System Dynamics

“It was a pretty obvious match” says Diane Asay about Productivity Press’ decision to reprint the line of system dynamic books. MIT Press carried the books for 30 years, where they were especially well-received as textbooks in the United States and Europe. But when the stock ran out, MIT Press opted not to reprint the books and Jay Forrester began searching for a publisher. Asay credits Jim Hines of the consulting firm LeapTec for bringing Forrester and Productivity Press together. “I think Jay Forrester liked us because we are committed to reprinting and marketing the books. For our part, we see system dynamics as one way Productivity Press can expand its market from manufacturing—its primary focus—into a broad range of corporate environments,” says Asay. The series currently includes:

Foundation of System Dynamics

- *Industrial Dynamics*, Jay W. Forrester
- *Principles of Systems*, Jay W. Forrester

Business and Management

- *Corporate Planning and Policy Design: A System Dynamics Approach*, James M. Lyneis
- *Collected Papers of Jay W. Forrester*, Foreword by Gordon S. Brown
- *Elements of the System Dynamics Method*, Edited by Jørgen Randers
- *Managerial Applications of System Dynamics*, Edited by Edward B. Roberts

Economics

- *Economic Cycles: An Analysis of Underlying Causes*, Nathaniel J. Mass
- *Dynamics of Commodity Production Cycles*, Dennis L. Meadows
- *The Life Cycle of Economic Development (Second Edition)*, Nathan B. Forrester

Global Dynamics

- *World Dynamics (Second Edition)*, Jay W. Forrester

- *Toward Global Equilibrium: Collected Papers*, Edited by Dennis L. Meadows and Donella H. Meadows
- *Dynamics of Growth in a Finite World*, Dennis L. Meadows et. al.
- *Ecosystem Succession: A General Hypothesis and a Test Model of a Grassland*, Luis T. Gutierrez and Willard R. Fey

Urban Planning

- *Urban Dynamics*, Jay W. Forrester
- *Introduction to Urban Dynamics*, Louis Alfeld and Alan Graham
- *Readings in Urban Dynamics Volume 1*, Edited by Nathaniel J. Mass
- *Readings in Urban Dynamics Volume 2*, Edited by Walter Schroeder III, Robert Sweeney, and Louis Alfeld

Software

- *STELLA for Business*, Barry Richmond and Steve Peterson
- *Introduction to System Dynamics Modeling with DYNAMO*, George P. Richardson and Alexander L. Pugh
- *DYNAMO User’s Manual (Sixth Edition)*, Alexander L. Pugh

Bridging the Gap

For now the system dynamics series consists of the seminal texts of the field, which give a general overview of its principles. Productivity Press is currently developing other publications that will bridge the gap between the origins of the field and current applications to corporate problems. “What we’ve got now are advanced books in terms of technical knowledge, with applications that are quite broad. Economic structures and the basic generic mechanisms of supply and demand clearly have implications for businesses, but they are not the specific issues managers deal with every day.”

The real challenge, Asay believes, is linking the concepts of systems thinking to managers’ daily work: “How do we make the long-term results tangible enough and the complexities of system dynamics accessible enough for managers who are living in short-term crises worlds?” For a start, Productivity’s newer system dynamics offerings will focus more on specific management applications and will be “short booklets, rather than tomes.” They will include several books and articles already in the works, as well as computer simulation models and interactive software that will allow managers to work with simulations in a simple, straightforward way.

The goal is to extend the usefulness of Japanese management tools and ideas for American managers by looking at them through the lens of systems thinking. “We subtitled the

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Systems Sleuth...



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Detroit carmakers, for example, operated on the assumption that consumers cared about styling, not quality. Their quality goals eroded over time until Japanese manufacturers made them realize that consumers wanted styling and quality. In the case of Tater Tots (see *From the Headlines*, April/May 1990), a combination of cost-cutting initiatives and a belief that

consumer habits had changed led to a gradual decline in quality. Over a decade, the once-chunky insides of Tater Tots had turned to mush.

One safeguard against succumbing to the Drifting Goals dynamic is to avoid systems that have built-in incremental adjustments which simply extrapolate based on the past. For example, a typical budgeting process usually starts with the previous year's budget as the basis from which adjustments are made. Implicit in this process is the assumption that everything that was appropriate the previous year will also be appropriate in the current year. Zero-based budgeting makes no such assumption. It starts with a

base of zero, assesses the requirements of the coming year, and allocates the necessary resources. The zero-based concept can be applied to other areas, such as product design, where the "carryover" mentality can stifle improvements.

In general, whenever existing conditions are used as the basis for future decisions, we run the risk of falling into the Drifting Goals structure. Like the boiled frog (see *Toolbox*, page 5), we may have difficulty sensing small incremental changes in our environment, especially since we have enough daily "crises" that demand our attention. That's why plots of behavior spanning long periods of time (several years) are invaluable in highlighting dynamics that have been unfolding slowly, but steadily. ↻

Further Reading: "A Tip for the Postman," *Fortune*, March 12, 1990.

Calendar

- October 17-19. **Business Thinking: A Systems Perspective**, Framingham, MA. This two-and-a-half day working session teaches managers how to apply systems thinking to their own work issues. No prior understanding of systems thinking is required. Contact: Stephanie Ryan, *Innovation Associates*—(508) 879-8301.

- October 23. **The Art and Practice of Learning Organizations—A Conversation with Peter Senge**, Cincinnati, OH. Co-hosted by Innovation Associates and Doubleday, publisher of Peter's new book *The Fifth Discipline: The Art and Practice of Learning Organizations*. Informal dialogue will revolve around the issues raised in the book and their applications within organizations. Copies of the book will be available. Contact: Sheryl Erickson, *Innovation Associates*—(508) 879-8301.

- November 7-9. **Leadership and Mastery**, Toronto, Ontario. This three-day workshop offers executives, senior managers, and middle managers insights into how people and organizations can be led and structured for inspired performance. Contact:

Stephanie Ryan, *Innovation Associates*—(508) 879-8301.

- December 4-7. **Leadership and Mastery**, Santa Monica, CA. Co-sponsored by The Healthcare Forum and Innovation Associates.

- December 5-7. **Leadership and Mastery**, Boston, MA.

- January 14-16. **Introduction to Systems Thinking**, Cambridge, MA. This three-day course will introduce managers to the basic principles of systems thinking. Managers will also gain hands-on experience in system dynamics modeling using STELLA and other modeling languages. Contact: *Gould-Kreutzer Associates*—(617) 497-2926.

- January 16-18. **Leadership and Mastery**, Boston, MA.

- February 13-15. **Leadership and Mastery**, San Diego, CA.

- February 20-22. **Leadership and Mastery**, Toronto, Ontario.

- March 5-8. **Leadership and Mastery**, Boston, MA.

Productivity Press

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series "The Field of Insight" because that's the advantage system dynamics brings—insight into the system," explains Asay. "In continuous improvement, you have to be able to look at causes without blame, and I think systems thinking offers a way to do that. Once we have made that transition, we are in a world that no longer has anything to do with blame—it has to do with learning." ↻

To receive a catalogue or for more information about the system dynamics line of books, contact Diane Asay, acquisitions manager, Productivity Press, P.O. Box 3007, Cambridge, MA 02140. Telephone: (617) 497-5146.

Further reading: Daniel H. Kim, "Toward Learning Organizations: Integrating Total Quality Control and Systems Thinking," MIT Sloan School of Management Working Paper WP-3037-89-BPS. "Peter F. Drucker. "New Theory of Manufacturing," *Harvard Business Review*, Summer 1990.