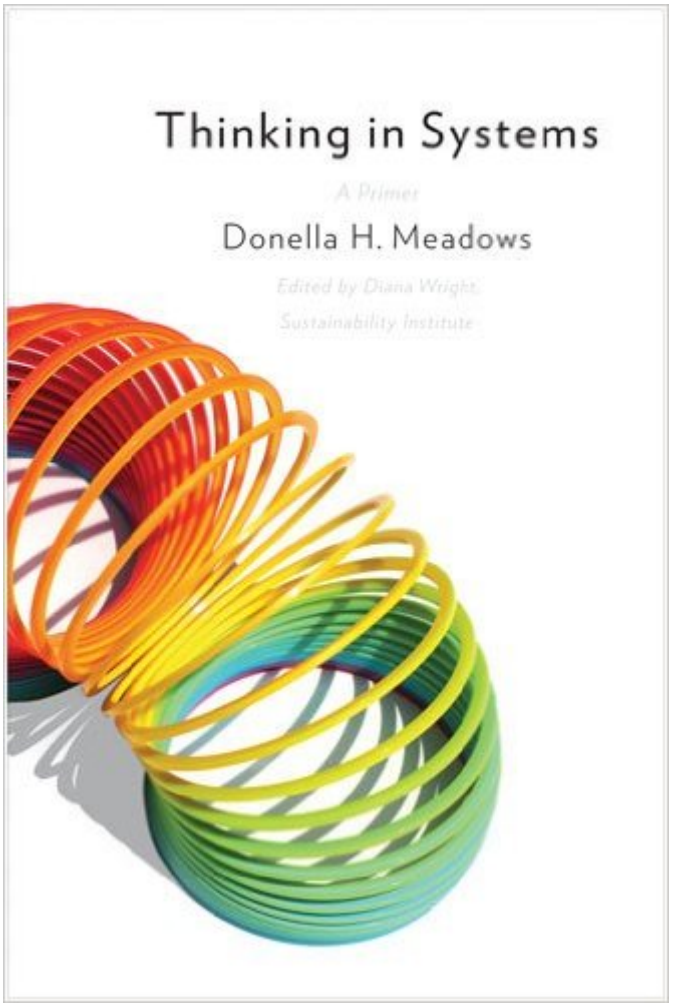
Thinking In Systems: A Primer



Synopsis

In the years following her role as the lead author of the international bestseller, Limits to Growthâ •the first book to show the consequences of unchecked growth on a finite planetâ • Donella Meadows remained a pioneer of environmental and social analysis until her untimely death in 2001. Thinking in Systems, is a concise and crucial book offering insight for problem solving on scales ranging from the personal to the global. Edited by the Sustainability Instituteâ ™s Diana Wright, this essential primer brings systems thinking out of the realm of computers and equations and into the tangible world, showing readers how to develop the systems-thinking skills that thought leaders across the globe consider critical for 21st-century life. Some of the biggest problems facing the worldâ •war, hunger, poverty, and environmental degradationâ •are essentially system failures. They cannot be solved by fixing one piece in isolation from the others, because even seemingly minor details have enormous power to undermine the best efforts of too-narrow thinking. While readers will learn the conceptual tools and methods of systems thinking, the heart of the book is grander than methodology. Donella Meadows was known as much for nurturing positive outcomes as she was for delving into the science behind global dilemmas. She reminds readers to pay attention to what is important, not just what is quantifiable, to stay humble, and to stay a learner. In a world growing ever more complicated, crowded, and interdependent, Thinking in Systems helps readers avoid confusion and helplessness, the first step toward finding proactive and effective solutions.

Book Information

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Customer Reviews

In a nutshell, this book is about systems. So much more than this, it is a journey into the meta-rules

of how the universe and everything in it comes and "plays" together. There is one thing to be understood that applies to physiology, businesses, economies, plants and puppies alike. Everything is a system. And all systems have behaviors and rules. As Donella Meadows writes: "The trick...is to recognize what structures contain which latent behaviors, and what conditions release those behaviors -- and where possible to arrange the structures and conditions to reduce the probability of destructive behaviors and to encourage the possibility of beneficial ones."Grasping "the whole universe" is certainly a momumental task. The book brilliantly presents concepts in very graspable units. She starts with picturing what a system is -- a stock with inflows and outflows that affect its stability and all of which are further affected by feedback loops and delays.So armed with this model, individuals may be better guided in their decisions and actions as it becomes clear that actions can beget other actions and reactions (or unintended consequences.) But there is even more complexity. For instance, policies are a way to control the stocks and flows within a system. However, one of several behavior archetypes is policy resistance which comes from the bounded rationality of the actors within a system, each with his or her own goal. Meadows takes the reader on a deep and thought-provoking journey through all the behavior archetypes of systems. The result is an empowering "forewarned is forearmed" knowledge.That is the ultimate goal of this book. When people affect positive change in the world -- and it just may be everyone’s duty to do that -- it is through smart and correct controls on a system. Ms. Meadows then gives the knowledge to do this. She lays out the leverage points in any system -- the opportunities for making things right or better. The coda is a legacy of thoughts to live by, the last and perhaps most important of which is "Don’t Erode the Goal of Goodness."With such profound applicability, this book is the handbook for living. Everyone on the planet should read it.

I first learned and practiced systems analysis back in the 1970s, and it’s a skill that seems neglected in the training of many young professionals I come in contact with."Thinking in Systems: A Primer" is a book I hoped would be informative and accessible for people who need to develop the skill or just refresh their own talents. It does present its subject systematically and without confusing jargon.While I found the writing clear and well-organized in its development and presentation of the subject, I found many of the illustrations less than helpful. I would have liked a less holistic and more concrete development of the analysis of the examples in the book.For use as a textbook, an appendix with a glossary of terms of art and sybols would be very helpful. Nonetheless, reading this will give the novice an appreciation of what systems analysis is, and why it is critical to problem solving. Its informal approach may be more suited for young people today than a more formal and

rigidly structured treatment.

In her "Note from the Editor," Diana Wright advises the reader that the manuscript for "Thinking in Systems" went unpublished for eight years before Dana Meadows' unfortunate death. Perhaps there was a reason for that: perhaps Dana Meadows recognized that the manuscript was not ready for publication. For the text is uncertain whether it is an introduction to systems analysis as a scientific endeavor, a tableau of counter-intuitive results "explained" by "systems thinking", or a pseudo-analytic basis for the usual policy preferences of the political left. In its raw form, it is a mish-mash of these and other incomplete themes, so by the end you're not sure what the point was.Were it an introductory text in systems analysis for freshman students of English literature, the first four chapters might be ok. Meadows introduces the notions of stocks, inputs, and outputs in a way that could persuade a non-technical reader that systems analysis was a quantitative science and that the relevant quantities might be computed so long as students from another department were available. She also introduces the notion of feedback and discusses the qualitatively different forms of output resulting from positive or negative feedback. She even discusses the effects on the output of varying feedback delay. This may be about as far as you can go without introducing any math, and as Meadows did not introduce any math, this also might have been a good place to stop.But sadly, the editors chose to publish what came next. Next was chapter 5, "Systems Traps...and Opportunities." Here we find discussions of a variety of very complicated systems--Romanian and Swedish abortion policy, for example--whose analysis is beyond most humans, let alone freshman literature students. From these discussions Meadows derives generalized "systems traps" and "ways out".Her first trap, for example, is called "policy resistance": "When various actors try to pull a system stock toward various goals, ...[it] just pulls the stock farther from the goals of the other actors and produces additional resistance...." Translation: people disagree. And here's the "way out": "Let go. Bring in all the actors and use the energy formerly expended on resistance to seek out mutually satisfactory ways for all goals to be realized...." Translation: can't we all just get along. And so on. The "traps" and "ways out" are of a nature so obtuse as to defy any sort of concrete analysis, and as insights they are the sort that cease to seem profound after sophomore year.And it gets worse. Chapter 6, "Leverage Points--Places to Intervene in a System," might have been a good place to discuss system sensitivity analysis--in a qualitative way, of course--but instead it leans heavily toward the justification of pet liberal causes like environmentalism, government regulation of industry ("The power of big industry calls for the power of big government...; a global economy makes global regulations necessary"), and high taxes on

anyone with more wealth than a Dartmouth professor. Chapter 7, "Living in a World of Systems," sets new standards for sentimental whole-earthism, recommending, on the strength of "the tool of systems thinking," that the future be "brought lovingly into being," that we learn to "dance with great powers" as the Eskimo "have turned snow into ... a system with which they can dance." Be caring, be good: these are the final admonishments before the book, thankfully, ends.In addition, there is economic illiteracy displayed throughout, as for example this, which follows an inept discussion of Adam Smith's "invisible hand": "Economic theory as derived from Adam Smith assumes first that 'homo economicus' acts with perfect optimality on complete information, and second that when many of the species 'homo economicus' do that, their actions add up to the best possible outcome for everybody." This is utter nonsense. Smith says nothing about perfection of optimality nor completeness of information. He merely observes that, in the aggregate, a collection of humans seeking their individual interests often advances the economic welfare of society as a whole. And he certainly does not assert that everybody will arrive at "the best possible outcome." The "invisible hand" operates even in the presence of individual failure and distress, and in some ways because of them.Winding up for the conclusion, Meadows admits that "[s]ystems thinking has taught me to trust my intuition more and my figuring-out rationality less...." If you've gotten this far in the book, you will certainly agree, for in writing it she gave intuition free rein while rationality was on the Costa del Sol. If you're a student of Dana Meadows, this book will give you considerable insight into her intuition and her prejudices. If you are simply interested in some qualitative discussion of systems, there are some not-bad introductory bits in the first four chapters. But if you're going to buy just one book on systems analysis, buy a different one.

Incredibly easy to understand, comprehensive summary of systems theory. The world looks very different after reading this book, and can help anyone who is looking to create or change systems.

I'm a systems thinker by nature, and this book is excellent. She first gives a broad description of what a system is and uses several examples so you can see the familiar pattern everywhere. I especially liked her analysis of leverage points and problem behaviors. It is hard to believe this was written in the 90's, her examples have modern day relevance, sadly in part do to our failure to recognize/change the given system(s). Excellent, excellent book! :)

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