Learning to create computer simulation models to capture dynamic feedback processes.

Modeling workshops available at the beginner and intermediate level. All workshops are hands-on and access to computers is required.

Learning materials created specifically for each participant group.

Addressing issues of systemic complexity involve feedback processes that are not always obvious. Using systems thinking followed by computer simulation provides an essential step in testing hypotheses that could be useful in mitigating some of the undesirable side effects core to the issues of sustainability and successful management of diverse systems.

Why we need to build models

"The deepest systemic insights are gained by either building or using computer simulations to test assumptions."

— Jay Forrester

"We cannot solve our problems with the same thinking we used when we created them."

— A. Einstein

System Dynamics Modeling can help build understanding about these problems:

spread of epidemics • backlog of hybrid car production • airport security systems • new product marketing • sustainability issues and non renewable resources • potable water shortage • population growth • pharmacokinetics • supply/demand/price and inventory control • predator/prey interactions • exposure of the human body to lead • blood alcohol concentration dynamics mathematical functions representing change over time • electrical capacitance • food chains • heroin addiction and its impact on a community • salmon and the fishing industry • pollution in a lake • maintaining appropriate workforce skill • competition among businesses • methane digesters for third world villages • heating and cooling systems • workload/stress/burnout • project schedules and needed rework • dams and electricity • climate change • buying locally vs. buying globally • insulin and glucose

CC MODELING SYSTEMS

modeling real world challenges

System Dynamics Modeling: A Different Way to Think

Dr. Diana M. Fisher, Owner/Educator • www.ccmodelingsystems.com

These workshops will allow those leaders, managers, and students who believe that systems thinking is truly a powerful problem solving paradigm to go the next step. The workshops will allow the participant to:

- gain insight into some of the different behaviors that can be produced from building models
- focus on the design, model building, and testing of some important system scenarios
- identify the feedback present in the model and use that feedback to explain the behavior produced by the model
- posit assumptions about the impact of delays on the behavior of the model, and test whether the assumptions are correct
- identify potential leverage points in the model, and test whether they are truly significant control points
- recommend policy intervention points in the model, and test whether recommended policies will actually improve the behavior of the system

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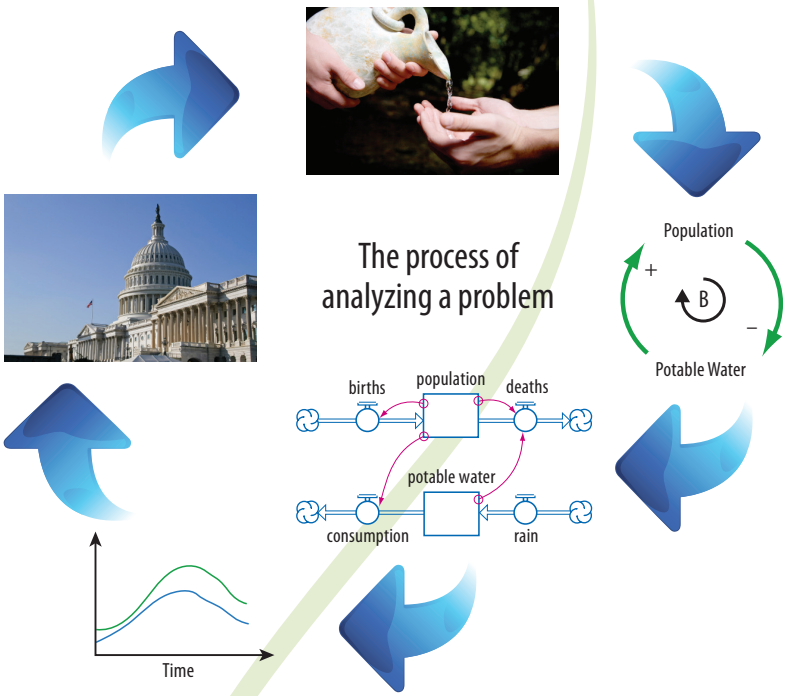
The modeling process requires a careful description of the problem, capturing critical feedback interactions, building and testing a model, recommending and testing policies, and interacting with stakeholders along the way.



Dr. Diana M. Fisher has taught system dynamics modeling courses at both the high school and university level for over 20 years. Her formal training in system dynamics modeling is through Worcester Polytechnic Institute. She has provided system dynamics workshops for math and science teachers, sponsored by NASA, as well as directing two National Science Foundation Projects where she taught system dynamics lessons for math, science, and social science teachers, serving as the lead principal investigator.

Her book "Modeling Dynamic Systems: Lessons for a First Course" is in its third edition and has been translated to Japanese. These hands-on materials have provided interested university professors, government officials, and business consultants opportunities to increase their understanding of the standard modeling structures needed to begin to model dynamic systems. Dr. Fisher was the recipient of the Lifetime Achievement Award, given by the System Dynamics Society, the Presidential Award for Excellence in Teaching, Intel's Innovation in Teaching Award, and the Barry Richmond Scholarship Award.