



System Dynamics NEWSLETTER

Volume 15 - Number 1 June 2002

Message from the President

Boldly Go Lowly

Before getting to the news in the System Dynamics Newsletter, a bit of reflection:

Lowliness. Lincoln School is a private, K-12 girls' school, founded in 1882 and named for John Larken Lincoln (not Abraham). You probably think I am about to discuss system dynamics in the schools. That's a worthy topic, but it's not mine. What interests me at the moment is Lincoln School's motto, "Love, Loyalty, and Lowliness."

Parents don't appreciate the slogan. Oh, Love and Loyalty are OK, but parents think their children could aim higher than lowliness. Aversion to the motto is partly misunderstanding. "Lowliness" might suggest that Lincoln School prepares students for low positions in life. However, to nineteenth century educators, "Lowliness" meant "humility." In 1882 the good teachers at Lincoln School believed they could help children become fine adults ... and, that fine adults were humble adults.

I love the motto because it's so unfashionable. No one brags about being humble anymore. But, humility opens the door of learning. If you think the person you're talking to might know more than you about something – then you are in learning mode. If, on the other hand, you believe you are the master of your discipline, you have just slammed the learning door shut.

Far from being lowly, we sometimes seem to be arrogant toward one another and toward the dynamics of systems. I sat with one promising newcomer at the conference in Atlanta. She (I'm using that pronoun in its general sense to mean either he or she) ... As I was saying, she confided to me that the "best practices initiative" was demoralizing. It suggested that the book on system dynamics was closed and all that remained was to read it. The idea that "giants of SD" would be surveyed to determine this best practice seemed to cut off all debate. As one of the people involved in the "best" practice initiative, it seems to me in retrospect that the word "current" would have been better than "best" and "experienced" (or "old") practitioner would have been better than "giant."

"Best practice" is still a distant hope. Most problems have yet to be considered from an SD perspective. Very few general principles of system dynamics have been uncovered. A huge amount of exploring remains to be done, filled with importance, drama and fun. Exploration will require tools, tools that are much better than our current ones, and some of the fun will be inventing the tools to let us go exploring. In the meantime we have much to be lowly about.



***INSIDE... NEWS and NOTES, page 4... NOTABLE PROJECTS AROUND THE WORLD, page 5
ON OUR WEBSITE, page 6... NEWS FROM OUR SPONSORS, page 7
PRODUCTS OFFERED BY THE SOCIETY, page 11... CONFERENCE IN PALERMO, page 12***

Boldness. Being lowly is not the same as being timid. You can be bold and lowly at the same time. For example, consider this passage:

As the next step, we can hope that the dynamics of growth and equilibrium will be investigated by more people and the propositions presented here will be confirmed or altered until a consensus begins to form. After the consensus will still lie the task of implementing the necessary changes in world goals, values, and actions.

This lowly statement concludes the penultimate chapter of Jay Forrester's *World Dynamics*, one of the boldest books ever written.

Saying what you think is true, even though others may be shocked and dismayed, is being bold. Listening with an open mind to the shocked and dismayed outcry that follows is being lowly. Jay Forrester was bold to publish *World Dynamics* without first checking to see if anyone would be offended. Dana Meadows and her coauthors were, perhaps, being lowly when they listened carefully and then published *Groping in the Dark*. System dynamics is most wonderful when it is both lowly and bold.

Unfortunately, recent examples of lowliness and boldness in our field are difficult to find. Some might nominate Peter Senge's *The Fifth Discipline* as being bold and lowly, and I would agree. But, after a decade on the bookshelf, it probably no longer qualifies as recent. I'm afraid that perhaps our field is slipping into a state where we are at the same time insufficiently lowly and insufficiently bold.

It has become fashionable in the last fifteen years or so to be kind to other disciplines so that system dynamics might become acceptable to them. By being meek with respect to other fields – psychology, organizational behavior, economics, operations management – system dynamics will spread and become ever more influential. The fashion is to learn what these other fields consider appropriate to investigate and to investigate these things in “constructive” ways.

This approach has paid dividends, no question: System dynamics and its scholars have reached new levels of respectability in academia (SD never suffered from low prestige in business), since we stopped being so quick to tread on the territory of other fields without first doing our homework.

I like the new respectability. At the same time, though, I do miss the days when system dynamics had a raw edge to it, when people from other disciplines became sputtering mad at our writings and at the fact that these writings were having an impact on the world. And as happy as I am about the field's respectability, I'm also a bit worried that system dynamics is not also controversial.

Jay Forrester has said that you can measure the worth of your work by the stature of the people whom you challenge. Whom have we challenged recently? Using the Forresterian yardstick, we are not currently measuring up.

The lack of controversy makes me think we're shying away from the big challenges. And most of the big challenges in our field are still out there, just as they were forty years ago. We have yet to discover most of what you and I will one day consider to be the “real” field of system dynamics. Discovery is thrilling, but hard. We can make our work easier and even more thrilling by being lowly and bold.

And now for the news. Enough reflection. This is, after all, the Newsletter. There are many wonderful items in these pages. You can learn who has recently been awarded a Ph.D., who has published what book, and who has won what honors. I'd like to call your attention to Laura Black's and Don Greer's reporting on notable system dynamics projects. Out of many, they've chosen three that illustrate how system dynamics can be used for learning while also illustrating how system dynamics is used to tackle big problems. The pages listing activities of our sponsors are also quite noteworthy. Among many interesting tidbits, I was happy to hear about Accenture's work building SD skills within their clients and also of High Performance Systems' new product for simulating over the net. Academic sponsors are also up to interesting things. Nijmegen University has created a group of 14 people all working in the area of system dynamics, broadly construed – making it one of the largest SD groups. University at Albany's report mentions an exciting initiative to establish a consortium of organizations to address national public policy. Read on for the rest of our news.

Jim Hines
President, System Dynamics Society

HOW TO CONTACT US

By mail: System Dynamics Society
Milne 300, Rockefeller College
University at Albany, SUNY
Albany NY 12222 USA

By telephone: +1 518 442 3865
By fax: +1 518 442 3398
By email: system.dynamics@albany.edu
www.systemdynamics.org

2002 SOCIETY OFFICERS

James H. Hines, Jr.
President

Pål I. Davidsen
President Elect

Ali Mashayekhi
Past President

Jay W. Forrester
Founding President

David W. Packer
Secretary

David F. Andersen
V.P. Finance

Eric F. Wolstenholme
V.P. Publications

Nan Lux
V.P. Chapter Activities

Michiya Morita
V.P. At Large

Robert L. Eberlein
V.P. Meetings

Brian C. Dangerfield
*System Dynamics
Review*

Policy Council

Celine Bak
John Barton
Jonathan Coyle
John Heinbokel
2000-2002

Carol Frances
Mohammad
Mojtahedzadeh

David Peterson
Habib Sedehi
2001-2003

Andreas Groessler
Taehoon Moon
Kevin O'Neill
Qing Rui Xu
2002-2004

Chapter Representatives

Bob Cavana-*Australasia*
Qifan Wang-*China*
Habib Sedehi-*Italy*
Hironori Kurono-*Japan*
Myoung Ho Lee-*Korea*
Jonathan M. Coyle-*UK*



The Membership Directory Online

The Society is working with MemberClicks to develop an online directory site for members. Members will be able to view and update their contact information at any time, as well as perform searches by name, location, or interest area. The office will inform you by email when the site is ready.

Please try it out and give us your feedback!

Volume 15, Number 1: June 2002

This edition of the newsletter was edited by Jim Hines, Roberta Spencer, and Jen Rowe.

Photos were contributed by Vedat Diker.

The newsletter is published twice a year by the Society office.

News and Notes

Awards

Prof. **Edward G. Anderson**, Assistant Professor of Management at The McCombs School of Business, University of Texas at Austin, has won the “Wick Skinner Early Career Award” given by the Production and Operations Management Society (POMS). The Skinner Award is given by POMS to the most outstanding young (untenured) scholar working in the field of operations management. Ed was the unanimous choice of the award selection committee. Ed received his Ph.D. in system dynamics with a focus on operations management at the MIT Sloan School; the research for which he was cited applies system dynamics to important problems in operations, including the management of service supply chains and knowledge-intensive industries such as machine tools and semiconductor equipment suppliers.

The UK Chapter presented a System Dynamics Society Lifetime Achievement Award to **R. Geoffrey Coyle** in February 2002. Geoff’s contributions to system dynamics include the development of software tools for simulation and model analysis, including the first instances of dimensional analysis and optimization, which are now ubiquitous. He pioneered in the use of discrete, event-oriented formulations to capture sudden shifts in structure and behavior, a development we now see mirrored in several of the main simulation environments in common use around the world. He has published two texts in the field: *Management System Dynamics* published in 1977, and *System Dynamics Modelling, a Practical Approach* in 1996. He has published some thirty eight peer-reviewed papers in at least fifteen different journals, most on applications of system dynamics, some on contributions to the methodology of the field. He pioneered the use of system dynamics in military and defense analyses, an area in which he is still active. But Geoff’s

contributions go well beyond his own work. The system dynamics group at Bradford University was in the vanguard of the spread of system dynamics around the world. Geoff created the group and led it with great dedication for thirteen years. A whole generation of system dynamicists was introduced to the field there, developed their skills there, or were later taught by people who studied there. Thus Geoff’s influence on the field through the people he touched has been enormous. Throughout this extensive record of applications, scholarship, teaching, and contacts, Geoff has been a staunch advocate of the system dynamics approach and a creative innovator in the practices and tools of the field.

The UK System Dynamics Chapter student prize was awarded to **Lazaros Petrides** of Salford University. This prize is sponsored by Cognitus and HVR Consulting Services and is awarded every year for the best piece of work undertaken by a student at a UK university. Lazaros’ work looked at the economic impact of the implementation of a minimum wage. He was able to demonstrate that there were in fact positive impacts of this strategy and that the best time to implement such a policy was as an economy was emerging from a recession.

Nelson Repenning and **John Sterman** are winners of the 2001 Accenture Award, given to the authors of the best article published in the California Management Review in the prior year. Their article, “Nobody Ever Gets Credit for Fixing Problems that Never Happened: Creating and Sustaining Process Improvement” (Vol. 43, No. 4), describes a system dynamics approach to understanding success and failure of improvement programs. This article was one of four comprising a special symposium on system dynamics published in that issue of CMR.

Recently Completed PhD’s

Laura Black, “Collaborating Across Boundaries: Theoretical, Empirical, and Simulated Explorations,” Massachusetts Institute of Technology, Massachusetts, USA, June 2002

Rod MacDonald, “The Dynamics of Federal Deposit Insurance: A Feedback View of System Behavior,” Rockefeller College of Public Affairs and Policy, University at Albany, New York, USA, March 2002

Alan McLucas, “An Investigation into the Integration of Qualitative and Quantitative Techniques for Addressing Systemic Complexity in the Context of Organisational Strategic Decision-Making,” University of New South Wales, Australia, December 2001

Peter Otto, “Understanding the Misbehavior of Brand Strategies: A Dynamic Modeling Approach,” Rockefeller College of Public Affairs and Policy, University at Albany, New York, USA, May 2002

Hans J. (Jochen) Scholl, “Firm Survival Dynamics, A Theory Integration Study,” Rockefeller College of Public Affairs and Policy, University at Albany, New York, USA, May 2002

Member Publications

Andy Ford, *Modeling the Environment: An Introduction to System Dynamics Modeling of Environmental Systems*, Island Press (Covelo, California): 1999.

Corey Lofdahl, *Environmental Impacts of Globalization and Trade: A Systems Study*, MIT Press (Cambridge, Massachusetts): 2002. <http://mitpress.mit.edu>

J. L. Ritchie-Dunham and **H. T. Rabbino**, *Managing from Clarity: Identifying, Aligning and Leveraging Strategic Resources*, John Wiley & Sons, Ltd. (Chichester, England): 2001. <http://www.managingfromclarity.com/>

Linda Booth Sweeney and **Dennis Meadows**, *The Systems Thinking Playbook: Volume III*, Turning Point/Pegasus Communications (Waltham, Massachusetts): 2001. <http://www.unh.edu/ipssr/Lab/playbook.html>

Roger I. Hall, “Gaining understanding in a complex cause-effect policy domain,” pages 89-111 in Huff, Anne Sigismund and Mark Jenkins (eds.), *Mapping Strategic Knowledge*. London: Sage Publications, 2002. (ISBN 0 7619 6948 9)

Notable Projects Around the World

By Laura Black and Don Greer

When we first step into a project, we usually can't foresee where it will end. We scope deliverables and trust the system dynamics method, but we seldom imagine the bumps that jar our initial problem conceptualization, turns in client rapport, twists in the road to recommendations and—we hope—implementation. While projects can become notable for many reasons (and they don't need to be "perfect" to be notable), this article highlights a few efforts unfolding in exceptionally generative ways.

These three stood out from a dozen projects, which we learned about by emailing various members of the Society and asking for recommendations for recent notable work. While all the efforts we heard about succeeded in various ways, a

common refrain accompanied descriptions of many of them: Project managers expressed concerns that clients didn't go through the process of developing the models but instead became acquainted with recommendations as they emerged from the "backroom" of consulting / research work. R.W. Beck consultant Raymond Randall, working on solid waste collection issues, for example, said that the clients "bought into the causal-loop diagrams...and the findings of the model, but I suspect that they would have benefited *more* if they would have taken each step with us rather than just had us report back to them.... The consequence...is that the client is not able to elaborate on why the recommendations are valid." How to engage clients in the nitty-gritty of learning-by-modeling

remains a challenge for system dynamicists. The truism that the one who models learns the most seems to hold.

The three projects described below make some headway in the learning-sharing process by using system dynamics models as objects to engage parties with diverse interests and different understandings of the problem at hand in discussion. This approach allows clients to go through "change of mind" processes that emerge during simulated explorations of dynamic consequences of proposed actions. In the course of addressing problem-specific concerns, clients also learn something about system dynamics. The approach generates more active involvement from stakeholders, who then contribute to the problem-solving process taking on a life of its own.

Sturgeon Bay, Wisconsin

In Sturgeon Bay, Wisconsin, several individuals teamed up with a vision to teach system dynamics in secondary schools, so that modeling and simulation skills could be used to provide guidance in local governance issues. Door County, which contains Sturgeon Bay and several other communities, lies on the western shore of Lake Michigan, and its beauty attracts the benefits and problems of recreational tourism and luxury home development. As various people with abiding concerns for encouraging the area's economy while preserving its natural beauty found each other, a plan for system dynamics education and practice unfolded. From interest generated by an after-hours system dynamics course taught by Paul Newton (who studies system dynamics in Bergen's master's program) to high school students and teachers, a consultant, a university professor, and several community members interested in community sustainability, the Sturgeon Bay school board approved a system dynamics elective for the high school curriculum. In two years 30 students have completed the course, which provides an introduction to systems thinking and system dynamics sufficient to have students constructing their own models in STELLA by course completion. Don Ziegelbauer, who teaches the high school elective, reports that the most successful project has been a modeling effort undertaken with the local office of the state's Department of Natural Resources to explore why populations of perch have been falling so precipitously. "Even the experts are baffled," Don said. Representatives from the Department of Natural Resources have been impressed by the students' knowledge. While sources of the problem and its solution have not yet been pinpointed, Don said that the modeling exploration has helped state experts consider new sources of data to understand what is happening to the fish. Don and the students, with the support of key community members, hope to build on their relationship with the state Department of Natural Resources to obtain additional assignments relevant to Door County's ecological and economic health.

Leon, Mexico

The SAPAL water resource governing board in Leon, Mexico, is charged to provide potable water to residential areas and industry. Since Leon's population of 2 million is growing at about 5 percent per year, the city expects that its water supply will prove inadequate within 5 years and has established six initiatives to explore bringing in water from outside the region, deepening local wells, and the costs of these programs. Consultants from Strategic Clarity were invited by SAPAL's director to model one initiative to enable other constituents, such as other governmental groups, union representatives, and an industrial consortium, understand the issues facing SAPAL. The situation was complicated and tense, with industry demanding water "no matter what but at the same price," according to consultants Annabel Membrillo and Conrado García Madrid, the public generally unaware of impending problems, and SAPAL leaders needing to maintain governmental and industrial support as well as public popularity to accomplish any of the initiatives successfully. Using Strategic Clarity's method for identifying key organizational resources and relating them to one another through causal loops, the consultants worked with a team of eight people from SAPAL's management to construct small stock-flow models to explore the dynamics governing each resource. Among the deliverables was a single large page showing simulation runs portraying crucial dynamics for each resource, along with a causal map depicting how each can affect the initiative's success and SAPAL's overarching goal of sufficient water at a fair price. SAPAL's management team used the maps and models to communicate with unions, government representatives, and industry councils. Annabel and Conrado reported that the causal maps especially helped people focus on the problem of water management, rather than on resenting other users of water, and to see interconnections among parts of the community they had assumed were separate or at odds with each other of necessity. It created a collaborative environment, they said, and influenced as

many as 50 people in various factions, who are now more willing to work together to think out of the box and explore options for water resources internal to the region that had previously been overlooked. This successful effort paved the way for assessing the integration potential and complementary aspects of the other initiatives already undertaken.

Las Vegas, Nevada

Another water resource project has unfolded in Las Vegas, Nevada, where the Water Authority projects water demand will exceed supply by 2025. In one of the U.S.'s most arid climates, Las Vegas contains a population of 1.4 million that grows by about 5,000 per month and draws most of its water from the Colorado River at Lake Mead. Krys Stave, a professor of environmental studies at the University of Las Vegas at Nevada, and two graduate students constructed a small system dynamics model to help water consumers explore points of leverage in the water usage and recovery system that could move the point at which demand exceeds supply beyond 2025. The model was then used in facilitated workshops with water system stakeholders to test various policies for increasing the supply or reducing demand. "The purpose of creating and simulating a model in this case," Krys said, "was not to make predictions about supply and

demand, but rather to provide an interactive tool for increasing public understanding of the water system and management options." Krys reported that the major insight workshop participants gained from working with the model was that the water issue was not a supply problem or overuse by suspected culprits, the hotel and casino industries. Rather, the most powerful point of intervention lies in changing residential consumption patterns. Because the model captured a critical feedback—that the city receives credits for each acre-foot of water purified and returned to the lake, which in turn increase the amount it is permitted to withdraw from Lake Mead—the model showed clearly that reducing outdoor residential use, which yields unrecoverable water, is a significant lever in reducing water demand. Krys and other facilitators noted that using the model to simulate proposed policies for water management during the public sessions seemed a great improvement over traditional information presentations and question-and-answer sessions. One participant said she "liked how all present [in the session] had the opportunity to share ideas and then see the outcome of their ideas." Another appreciated "how the diagrams helped explain our ideas" and "how participants coming together can bring simple solutions."

Spread good words about good work

System dynamics projects can be notable for many reasons. For this article, we developed an affinity model composed of 30 possible project dimensions that could make a project notable, such as the nature of the presenting problem; stakeholder composition, involvement, or roles;

change management characteristics; and benefits or results. (A copy of the full affinity model is available by email at drgreer@mindspring.com). The affinity model was then used as an interview guide to sift for notable characteristics. We found that many projects are remarkable in some way, and perhaps you are working on one now. If

you discover you are working on a notable project or know of one underway and would like to write an article for the Society newsletter, contact Roberta Spencer (sds@csc.albany.edu). The system dynamics community wants to hear about great work.

On Our Website

Webmaster's Report

By **Jack Pugh**

Our society's web site now contains over 1000 pages (not counting the papers submitted to the conference, which are not publicly available yet), and its pages are viewed about 2,500 times per month. The Webmaster, who is not paid, is assisted by two graduate students at Albany. Our web is key to the process of reviewing papers submitted for delivery at our annual conference. Reviewed papers are essential to insure a quality conference that draws people year after year. Vedat Diker, PhD candidate at Albany, has organized and maintains the conference site. While we have achieved much, there is still more to be done. And Society members can help. An important audience of our web is the novices who are trying to learn about system dynamics from the web. While there are several paragraphs on our home page, I would like more material at the entry level (either to include or to link to). I am moving forward on our short bibliography page, which will include suggestions at all levels. (If you feel that an important reference is missing please tell me.) Another area that we need to develop is a list of descriptions of successful projects (again either the descriptions proper or links to them). Closely related to this is a pool of models that may be downloaded and explored. I am reorganizing our governance material so that one can find his/her way around it more easily.

Japan Chapter Website Update: The Japan Chapter has made the Japanese Journal of System Dynamics, No. 2, available on their website. The journal was prepared by Chapter president Hidenori Kobayashi and secretary Motonori Matusita. <http://wwwsoc.nii.ac.jp/jsd/>

Web Site Career Link to Be Expanded and More Frequently Updated

By **Jim Lyneis**

The SD Career Link is about to undergo some changes. First, the Career Link section will be more regularly updated. Job postings and resumes will be monitored to assure that they remain current. Organizations will be regularly reminded of the Career Link section as a place to post their open positions. I will be managing this portion of the website. And second, the format of the Career Links section will be reorganized to include three subsections: career information; job postings; and resumes. In the career information section, employers will be able to provide general descriptive information about how system dynamics fits into the organization, typical jobs, career paths, and other aspects of employment with the company. This subsection will allow employers to provide information about system dynamics

opportunities within their firms, to supplement the more general information contained on their or academic websites. The subsection on job postings will allow employers to advertise specific and active openings. The listings will be organized into Academic/Research and Consulting/Industry sections. Finally, a subsection where those seeking employment may post their resumes will be provided. Information to populate the revised Career Links section will be solicited from Society sponsors over the next few months. Anyone with ideas, suggestions, job openings, or resumes please contact me at jmlyneis@wpi.edu.

Report on Development of a Skills Inventory and Assessment Method

By **Gordon Kubanek**

A draft report on the development of a skills inventory and assessment method has been written and presented by Gordon Kubanek at the February Policy Council Meeting held in Providence, Rhode Island. President Jim Hines encourages members and other interested people to read this and to carry on discussion of its content via email. Specific comments should be sent to Gordon Kubanek (chust@monisys.ca). Jack Pugh will explore establishing web capability for carrying the report and supporting discussion. This will be a topic at the July Policy Council meeting. The report can be found at: <http://www.albany.edu/cpr/sds/SDS%20PC%20Web/PCmin020213.htm>

2002 Winter Policy Council Minutes: Minutes can be found on our website by clicking the "Governance" button on the Society website: <http://www.systemdynamics.org/>

News From Our Sponsors

Accenture is the world's leading management and technology services organization. Through its network of businesses approach Accenture delivers innovations that help clients across all industries quickly realize their visions. The use of system dynamics modeling and simulations at Accenture continues to be innovative. In addition to the use of system dynamics in learning simulations coupled with virtual coach engines, Accenture has lately developed a number of strategic dynamic business models for its utility clients. These system dynamics based models and simulations helped key decision makers from different divisions within utility companies explore and understand the impacts their decisions have on their own performance, as well as the performance of others. In addition to insight building these models also directly supported our clients in making their asset investment and maintenance decisions, thus helping them balance and deliver their financial and service level targets. To ensure the sustainability of the value delivered by dynamic business modeling, Accenture also helped build the modeling and simulation capability within the client organizations. Combining these innovative simulation approaches with its proven industry knowledge makes Accenture one of the leaders in the business simulation arena. For information contact Denny Park (e-mail: denny.j.park@accenture.com, tel: +44 20 7844 5637, fax: +44 20 7844 4444) or Ivo Wenzler (e-mail: ivo.wenzler@accenture.com, tel: +31 20 4938383, fax: + 31 20 6748208).

Cognitus are pleased to continue their sponsorship of the System Dynamics Society. Cognitus is an independent company based in Harrogate UK, providing training and consulting in system dynamics to a variety of business clients in the UK and Europe. Cognitus supports the itthink software exclusively in the UK and Ireland. The development philosophy behind itthink is intrinsic to Cognitus' philosophy of working direct with management groups to communicate system dynamics to a range of business audiences. Cognitus provides introductory and advanced training programmes in systems thinking and system dynamics. Consultancy work is interesting and diverse. In addition to the regular private sector consultancy, we have recently been focusing on health in the UK and in particular why patients waiting for treatment is such a persistent and deep-seated problem. The company has strong links with the UK Chapter of the Society. The annual meeting of the Chapter has been held in Harrogate for the past three years. Professor Wolstenholme (Director) was President of the UK Chapter in 2001/2002 and Cognitus (jointly with HVR) sponsor the Chapter's student prize. For further information visit the Cognitus website (www.cognitus.co.uk).

Decision Dynamics, Inc., founded in 1979, has grown from an R&D focused company developing advanced modeling methodologies, to a commercial software application and consulting company providing advanced program analysis tools to a broad spectrum of U.S. Department of Defense programs and

major contractors, including United Defense, Northrop Grumman, and Lockheed Martin. The tools, called "FleetSight" and "Workflow," utilize advanced, proprietary techniques to bring the capabilities of system dynamics to the program analysis world. FleetSight, a program cost and analysis decision tool, replicates the causal logic of real-world relationships and captures a wealth of data, both hard and soft. FleetSight users define "what-if?" scenarios to include alternative management decisions, alternative assumptions about system relationships and/or alternative data points from different sources. WorkFlow™, our other tool, is an application that offers a unique approach to the management and execution of business and production processes. WorkFlow offers users the ability to plan and manage large, complex projects and realistically simulate their performance over time. With the simulation capability, users can determine the state of the project at any point in time for a project's duration. Unlike conventional tools, WorkFlow incorporates the management processes that control the complex interactions among many interrelated production activities. By simulating the production process and tracing out the consequences of alternative courses of action, managers gain invaluable insight into how a system behaves, why it responds as it does to different decisions, and why some tradeoffs are forced while others yield to well-intentioned compromise. For information on Decision Dynamics, Inc., or our products, visit our website, www.decisiondynamics.com, or call Victor Thombs, at +1 301-638-1800.

At **General Motors**, Phil Keenan and Nick Pudar have been building two large Business Dynamics models with the help of Mark Paich and Lyle Wallis of Decisio LLP. The "Enterprise Model" takes a broad but relatively shallow look at the entire corporation and its marketplace, bringing together such diverse pieces as investment in the development of new vehicles, their manufacture, dealer inventory, incentives and price wars, advertising, and consumer perception, as well as leasing, the used marketplace, and a very detailed representation of consumer choice. Seven manufacturers compete in 18 vehicle segments against the background of macro-economic fluctuations and changing consumer tastes. Finally, a detailed accounting sub-model combines the costs and revenue impacts of all the activities to help decision-makers make tradeoffs between the short- and long-term impacts on market share, net income and cash flow. In contrast, the "Vehicle Development System Model" takes a deeper and more focused look at the interactions between competing projects in the vehicle development pipeline, to assess how best to avoid resource contention and maximize throughput across the portfolio. We represent the development process as a network of phases, each with its own internal structure, resource requirements, and potential for generating rework.

High Performance Systems, Inc. (HPS) is in business to improve the way the world works, by creating systems thinking-based products and services that enable people to increase their capacity to think, learn, communicate, and act more systemically. HPS is the developer of the *ithink* and *STELLA* software. HPS product releases for Spring & Summer 2002: *NetSim Creator v2.0*: A point-and-click wizard makes it easy to transform your *STELLA* or *ithink* model and interface into a *NetSim*. Run your models over the web! *A STELLA-based Learning Laboratory in Biology... Food Chain Dynamics*: This *STELLA*-based Learning Lab is a "virtual laboratory" in which students can build their understanding of the interdependencies that comprise a food chain. Suitable for biology and environmental science classes in middle school, high school and introductory college classes.

STELLA-based Curriculum Solutions: These curriculum units provide all you need to productively use the *STELLA* software in a variety of disciplines. Units include lesson plans, interactive lecture/discussions, "virtual laboratories," and exercises in a variety of disciplines. *STELLA and ithink v8.0*: Tools for building, simulating and communicating insights about dynamics. HPS also offers public workshops on systems thinking for both the business and education markets. For more information about our products and services please visit <http://www.hps-inc.com> or call 1 800-332-1202 or +1 603-643-9636.

HVR's System Dynamics team continues to go from strength to strength. Now 20 people strong, we work for a broad range of clients in both the public and private sectors. In the past year we have completed a broad range of high profile assignments including modelling the probability of catching New Variant CJD from surgical instruments for the UK government and our first contract with the US Air Force. Our approach emphasises the need for rigour and discipline in the development of client models. All consultants are put through our own training in the methodology to ensure that they understand this approach and the tools that we use to support it. This training is also available to clients. We have also developed our own approach to validating system dynamics models which we apply on all our projects. Our innovative approach is demonstrated by the fact that we have developed a number of tools which allow us to deliver models to clients with enhanced functionality such as sophisticated user interfaces and faster run times. For more information contact Jonathan Coyle on +44 (0)1420 87977 or jonathan.coyle@hvr-csl.co.uk or visit www.hvrgroup.com or www.oscamtools.com.

KBS and our Italian colleague Alessandro Rossi will be showing an English and an Italian version of our most developed model on the Dynamics of Motivation (MODERE) at the Palermo conference.

Mohaseboon Financial and Business Consultants launched its first step toward creating an Egypt Chapter of the Society on March 14th, 2002. We are

proud of being one of the pioneers in our area who are taking the lead in the system dynamics field. On that date the interested were called to participate in order to place the cornerstone of this project. Mohaseboon System Dynamics, being an official System Dynamics Society sponsor in Egypt, started to facilitate providing membership in the society to all interested, especially to the team who will work to create the chapter. We knew from the beginning that our mission is not easy. Increasing awareness and spreading system dynamics culture in our communities will need extraordinary effort, skill, patience, and resources. Because of that we are looking for the support of academic bodies, research centers, software companies and individuals, aiming finally for achieving a real outcome leading to establishing and developing system dynamics culture in this part of the world. Contact us at www.mohasboon.com.

In the methodology department at the **Nijmegen University School of Management**, we now have a group of about 14 persons all working in the area of system dynamics, scenarios and gaming simulation. Recently we have started to offer two new postgraduate courses, one on "systems thinking /system dynamics" and one on "group model building." Together with Albany we are now working towards a kind of a standard score sheet to record important information on systems thinking interventions / group model-building. This score sheet will be posted on the web with the request to all system dynamicists to fill out that sheet for every project. That way we can compile a structured database of our interventions and make more thorough analyses on their effectiveness in the future. Contact information: j.vennix@nsm.kun.nl

Pegasus Communications provides leading-edge management resources that strengthen leadership, strategic thinking, and collaboration across the spectrum of vital institutions. Our comprehensive web site, <http://www.pegasuscom.com>, features over 400 products and includes a secure shopping cart and search functions by author, title, level, media, and subject area. Most system dynamics titles previously available through Productivity Press are now published by Pegasus and can be easily ordered through the site, as well as other system dynamics and

systems thinking titles, videos and audios. Pegasus can boast of a number of other recent innovations. Most notable is the launch of a second web site dedicated to *The Systems Thinker*® newsletter, <http://www.thesystemsthinker.com>, which coincides with our first-ever offering of organization-wide newsletter site licenses. And—we are introducing our first electronic, theme-based mini-catalog, which can be accessed at: <http://www.pegasus.com/sp02cat.html>. Our 2002 Pegasus Conference, "Leading in a Complex World: Systems Thinking in Action," will be held in San Diego September 30-October 2. Since 1989, Pegasus has worked to build a worldwide community of practitioners through the annual conference, newsletters, books and other products. For more information or to place an order, visit <http://www.pegasus.com> or call 1 800-272-0945. Pegasus Communications Inc., One Moody Street, Waltham, MA 02453-5339 USA.

Powersim Solutions, Inc. was established in January 2002 after Powersim Corporation stopped trading in the Americas, in order to continue providing business simulation solutions and modeling services to the customers in that market. Powersim's mission is to become the leading provider of simulation-based strategic planning and management training technology and solutions to the corporate enterprise market as well as government organizations. Powersim Solutions focuses on providing the answer to the growing need from businesses for *how to use* simulation models to solve their business problems. Powersim provides the technology solutions that enable companies to use simulation models specifically for either strategic planning (ExPlan®) or management training (ExTrain®). These proprietary systems provide companies with a risk-free environment in which to run sophisticated and dynamic business models for planning purposes or for building the essential business skills that can enhance their strategic perspectives. These tools enable collaborative strategic planning across the entire organization. In addition to delivering value to its customers through customized solutions and being the sole reseller of Powersim Corporation's software products in the Americas, Powersim Solutions also licenses its

strategic planning (ExPlan®) and management training (ExTrain®) platforms to enable its partners and software vendors to deliver web-based simulation solutions to their customers. Visit us at www.powersimsolutions.com or call +1-703-467-0910 for more information.

Project Performance Corporation, McLean, Virginia, USA, specializes in applications for the public sector. PPC develops custom decision support tools for complex projects and programs in the areas of policy analysis, environmental analysis, program management, and national security. In the past year, PPC has responded to defense initiatives in the areas of critical infrastructure protection. Other applications include dynamic modeling of salmon species in parts of the Columbia River in the Pacific Northwest. And PPC is continuing research into innovative solutions for supply chain dynamics using hybrid-modeling techniques. In the coming year, we hope to transfer some of this technology to the private sector. PPC was founded in 1991 and has grown steadily to more than 100 employees located across the USA. The company is located in Northern Virginia, just outside Washington, DC. For information, please visit our website at www.ppc.com or contact Greg Love at glove@ppc.com.

The **Rockefeller College of Public Affairs and Policy of the University at Albany** will soon celebrate the one-year anniversary of its establishment of the Initiative for System Dynamics in the Public Sector. The goal of the Initiative is to establish a framework within which systems thinking and system dynamics modeling can be used to successfully address the problems and challenges facing today's agencies and organizations in the public and not-for-profit sectors. Through a network of skilled system dynamics professionals, faculty, and students, the Initiative can provide a broad array of services and products to accomplish its goal. During its first year, the Initiative has conducted a series of workshops at various locations throughout New York State for the Office of the State Comptroller. The two-day workshops were designed to introduce senior management to system dynamics and its usefulness as a strategic planning tool. The Initiative is currently working with senior staff at the New

York State Department of Transportation's Design Bureau to develop a concept model that addresses problems related to resource allocation. The model will be used to educate senior management as to how system dynamics models can be used to examine problems faced by their agency and explore potential solutions. Over the past year, the Initiative has also been instrumental in establishing a consortium of universities and colleges and private sector partners to address national public policy issues. The Initiative hosted the first formal meeting of Consortium members in late April. The primary focus of the two-day meeting will be on developing and refining grant proposals in response to a recently released federal RFP on national security issues.

The Centre for OR & Applied Statistics (CORAS) at the University of Salford was awarded a grade of 5A in the 2001 UK-wide Research Assessment Exercise (RAE). The results were announced in December. The RAE is conducted by the Higher Education Funding Councils and is held every 4 years. CORAS is returned under the Unit of Assessment No. 24, which is Statistics & Operational Research. Academic staff in each Unit returned are required to submit their four best pieces of work over the preceding four years and these submissions are then assessed by the various panels, along with other indicators of esteem and data such as research contracts obtained and research students graduated. The purpose of the exercise is to determine the quality and volume of research conducted at each UK University. Funding for research over the next four years follows from the gradings awarded and the results are keenly anticipated and widely scrutinized both here and abroad. The grades currently follow a seven-point scale from 1 - 5*, where 5 and 5* gradings reflect research work of international quality. The 'A' signifies that all or virtually all eligible academic staff were submitted and are therefore "research active." CORAS is particularly pleased with the outcome, which reflects a progressive increase in the grade awarded on each occasion since we first submitted in 1989.

Strategic Clarity is excited to announce that we are moving our US operations to the Boston area this summer! We look forward to being in closer contact with many of our friends and colleagues in the Boston area, while maintaining our office in Mexico City. James Ritchie-Dunham will remain active in this consulting group while he takes on the new role of Executive Director of the Institute for Strategic Clarity, which will focus on applied research and development. Hal Rabbino will assume the role of Managing Partner for Strategic Clarity. It also gives us great pleasure to publicly announce the promotion to Partner of Annabel Membrillo and Conrado Garcia.

The **System Dynamics Group at MIT** is pleased to announce that Nelson Repenning has been promoted to Associate Professor and that Anjali Sastry, formerly with the University of Michigan Business School, has joined the faculty at MIT teaching system dynamics. In early April, about twenty PhD students participated in the Albany/MIT 4th SD Colloquium. This symposium is completely organized by students from both universities and the location of the event alternates between

Albany, NY and Cambridge, MA. Faculty and PhD students use the occasion to present current research and receive input and feedback from colleagues and peers. It is a great learning opportunity. Recent visitors to



Students at the Albany/MIT 4th SD Colloquium



MIT have included Dr. Andy Ford from Washington State University and PhD students Özge Pala, University of Nijmegen, and Florian Kapmeier, University of Stuttgart.

Ventana Systems, Inc. is pleased to announce the availability of Vensim version 5 with SyntheSim. This new technology brings structure and behavior together allowing you to instantly see the results of changes to model assumptions. SyntheSim will work with any model, automatically providing you with sliders and showing you how model behavior changes as you move them. You can also effortlessly cut feedback loops by overriding the behavior of different model variables to localize the sources of dynamics. In addition to SyntheSim, Vensim 5

includes a number of new built-in functions and improvements to the model development and analysis interface. A new model comparison feature makes it easy to see the changes you have made to the model you are working with. More details are available from our product website, www.vensim.com. Ventana also provides consulting services and has deep experience in a number of areas including corporate strategy, supply chain control, project management and production control. For more information visit our corporate website, www.ventanasystemsinc.com.

Ventana Systems UK was formed in early 2001. We undertake consultancy projects and provide various levels of training in system dynamics and Vensim. As UK distributor for Vensim, we support the sale and maintenance of the software in the UK and have developed the complementary interface application Sable. A new product, Sable Lite, is now available. All features are active, and you can save your work. Sable Lite is free for personal and educational use and is shareware for commercial use. Sable enables Vensim developers to create attractive interfaces and flight simulators for their models. We continue to offer courses in the use of Vensim, ranging from a two-day introduction to a weeklong intensive tuition. Ventana Systems UK have signed a Joint Venture agreement with DDA Systems to deliver high quality simulation services to the construction industry. Central to this venture is the COPE (Construction Operations Performance Evaluator) simulation model. COPE can be used to evaluate the impact of delay & disruption events on a construction project in order to assess the *real* impact on the progress of the works.



Professors David Andersen and John Sterman

Additional Sponsors of the System Dynamics Society Adirondack Oral & Maxillofacial Surgery PC Clifton Park, NY, USA ; Amber Blocks Ltd. New York, NY, USA; Arthur Andersen Global Locations; Frank Davidson Lexington, MA, USA; Jay W. Forrester Cambridge, MA, USA; Georgia-Pacific Corporation Atlanta, GA, USA; Hall, Vasil & Dowd, CPA's Belmont, MA, USA; Hewlett-Packard Company Palo Alto, CA, USA; Intel Corporation Global Locations; ITP Consultores Caracas, Venezuela; PA Consulting Group Cambridge, MA, USA Powersim Norway, and UK; Proyectos Comerciales de México, S.A. de C.V. una empresa de Grupo Proyectos, Querétaro, México; and PricewaterhouseCoopers Global Locations.

The **System Dynamics Society** is a non-profit, 501(c) (3) corporation and accepts sponsorship donations. If you are, or your organization is, interested in becoming a sponsor of the System Dynamics Society or our annual conference, please contact us.



OFFERED BY THE SOCIETY

System Dynamics Review, back issues \$30 each; Complete set, Vols. 1-17 (48 issues) \$750, full-time student price \$325.

International Conference Proceedings

1986 Seville, Spain	\$50 ___	1997 Istanbul, Turkey (with CD)	\$50 ___
1987 Shanghai, China	\$50 ___	1998 Quebec City, Canada (with CD)	\$50 ___
1988 La Jolla, California, USA	\$50 ___	1999 Wellington, New Zealand (with CD)	\$50 ___
1989 Stuttgart, Germany	\$50 ___	2000 Bergen, Norway (with CD)	\$50 ___
1991 Bangkok, Thailand	\$50 ___	2001 Atlanta, Georgia, USA (with CD)	\$50 ___
1996 Cambridge, MA, USA	\$50 ___		

Indexes only are available for conference years 1985, 1990, 1992, 1993, 1994*, and 1995 for \$2 each.

* Full proceedings available directly through the University of Stirling, Stirling FK9 4LA Scotland.

PhD Seminar Series with Jay Forrester on Videotape

Full set (NTSC Format only)	\$500 ___
Per session (A-K)	\$50 ___
(Shipping additional; please call)	\$ ___

We hope to offer the seminar series in PAL tape format and on DVD in the future. Please watch for availability on our website.

System Dynamics Bibliography \$35 ___ (on disk) \$25 ___ (downloadable from our website)

Atlanta Conference Fireside Chat with Jay Forrester on Videotape...coming soon!

The Beer Game

Complete Game Set \$125 ___
 (one video, instructions, one board, customer order cards, order slips, plastic game chips, pencils)

Board Set \$105 ___
 (one board, customer order cards, order slips, plastic game chips, pencils)

Individual Game Items

Board	\$85 ___	Order Slips (10 sets)	\$10 ___
Customer Order Cards	\$10 ___	Instructions	\$10 ___
Plastic Game Chips (600)	\$10 ___	Video (circle PAL or NTSC format)	\$25 ___
Postage (please see website)	\$ ___		

*All local duties and taxes (customs) are paid by the recipient upon delivery.

We accept orders by phone, fax, mail or e-mail. Acceptable methods of payment include credit card, wire transfer, money order or a check in US dollars, payable to System Dynamics Society.

Provide the following information with your order: name, title, institution, address, telephone, fax, e-mail.

Credit card number: _____
 Expiration date/Card type: _____

Check or money order in US\$, payable to **System Dynamics Society**, drawn on a US bank

Wire transfer (call for bank information)

Return with your payment to the Society office.

Venue: The Renowned Grand Hotel Villa Igiea, **Palermo, Italy**

On Site Accommodations: Contact Liboria Ganci by Fax +39 091 637 5903 or email <villaigiea-ganci@thi.it>

Other Accommodations: (1) Sicilia Dreams - phone +39 091 612 4526, Fax +39 091 609 1282 or email <systemdynamics@siciliadreams.com> and (2) Residence D'Aragona - phone + 39 091 6622222, Fax + 39 091 6622273 or email <csrdaniela@virgilio.it>

Program: The main theme of this year's conference is *Organizational Change Dynamics - Understanding Systems, Managing Transformation*.

Special Sessions: Russell L. Ackoff and Peter M. Senge will speak on *The Dynamic Concept of an Enterprise and Managing and Leading Organizations as Communities* respectively, sponsored by IBM. George P. Richardson and Ignacio J. Martinez will present *An Expert View of the System Dynamics Modeling Process: Concurrences and Divergences Searching for Best Practices in System Dynamics Modeling*. HVR Consulting is the sponsor for this session.

Convened Sessions topics may include: Mediterranean Energy & Environment; Finance; Petroleum; Electricity Based Energy; Optimization; Competing and Strategizing in Network Economies; Business Strategy and Small- to Medium-sized Enterprises (SME's). The program will also include hands-on workshops and tutorial sessions led by senior people in the field, panel discussions, special interest group sessions, vendor displays, exhibits, demonstrations and the second annual Modeling Assistance Workshop.

Thursday Workshops: (parallel sessions running between 8 am and 1 pm). •How To Inject System Dynamics Successfully Into Your Curriculum •Fast Track Strategic Modelling •Digest Workshop: Automatic Detection Of Most Influential Structure In System Dynamics Models •Introduction To The Feedback Phenomenological Method (FP) •Starting A System Dynamics Program In Your School For Students In Grades K-12 •Developing Causal Loop Diagrams Using Group Model Building Methods •Where The Model Meets the User: An Interface Design Workshop For Creative Learning Environments •Modelling Complex Enterprises: Combining The Strengths Of Cybernetics And System Dynamics •Introducing/Using System Dynamics In Six Sigma Programs •Creativity Workshop: Introducing The Method Of 'Unlearning' •New Technologies and Techniques for Building Web Simulations •Matching SD with Accounting Models to Enhance Performance Evaluation in Companies Coping with Major Change

Note: The conference organizing committee reserves the right to change the program without notice.

Other Events: The **PhD Student Colloquium** is scheduled to meet on Sunday (see: <http://www.albany.edu/~potto/palermo/>). The **Consultants' Roundtable** hosted by PA Consulting Group is scheduled for Monday. The **Military Roundtable** will be facilitated by Keith Linard and Alan McLucas. Both the **SD Career Link** Bulletin Board and the **Coursework in System Dynamics** Display Table will be available daily. A **Post Conference Workshop**, offered by Strategy Dynamics, is scheduled for Thursday afternoon and Friday until 2 pm. (July 31 - August 1). For information and reservations for this event contact Andrea Albertson by email <andrea@strategydynamics.com>, phone +44-01844-275518, or fax +44-01844-275507. The **Jay W. Forrester Award** and the **Dana Meadows Student Paper Prize** will be presented. See the conference website for details.

The **Social Program** includes daily tours of the Historic Palazzo Steri, now the headquarters of the University of Palermo, an Informal Gathering on Sunday, a Wine Tasting Welcome Reception at the Palazzo Steri on Monday, and the Conference Banquet on Tuesday.

Conference Sponsors to date: •Ackoff Center for Advancement of Systems Approaches (ACASA) •Adirondack Oral & Maxillofacial Surgery •Alitalia •Amber Blocks Ltd. •Amia (Waste Management Company of Palermo) •Assindustria •Banca Nuova •Banco di Sicilia •Business Dynamics •Cantine Settesoli Scarl •Center for Technology in Government (CTG) Univ. at Albany/SUNY •CUSA-System Dynamics Group •Comune di Palermo (Municipality of Palermo) •Forio Business Simulations •Georgia-Pacific Corporation •Global Strategy Dynamics Ltd. •High Performance Systems Inc. •HVR Consulting Services Ltd. •IBM •John Wiley & Sons Ltd. •KBS (Knowledge Based Simulation) •PA Consulting Group •Pegasus Communications Inc. •Powersim Solutions •Sicilia Dreams Travel Agency •SoL (Society for Organizational Learning) •SYDIC •Università Bocconi •University of Palermo •Ventana Systems Inc.

For details and updates, visit the conference website: <http://www.systemdynamics.org/>

Deadlines and Key Dates

June 26, 2002

Conference pre-registration due.

June 28, 2002

Deadline for hotel reservation.

July 28, 2001

Attend the conference

Conference Chair:

Habib Sedehi, Chairman
System Dynamics Italian Chapter
Rome, Italy
Email: sedehi@help.it

Program Chair:

Pål I. Davidsen, Professor
University of Bergen, Norway
Email: davidsen@ifi.uib.no

Conference Co-Chair:

Carmine Bianchi, Professor
University of Palermo &
CUSA-System Dynamics Group
Palermo, Italy
Email: bianchi@unipa.it

Program Co-Chair:

Edoardo Mollona, Professor
Bocconi University
(Istituto di Economia Aziendale)
Milan, Italy
Email: edoardo.mollona@uni-bocconi.it

Program Vice-Chair:

Vedat G. Diker
University at Albany SUNY
Albany, New York 12222 USA
Email: vd7606@albany.edu

Conference Manager:

Roberta L. Spencer
Executive Director
System Dynamics Society
Milne 300 - Rockefeller College
University at Albany SUNY
Albany, New York 12222 USA
Phone: +1 (518) 442-3865
Fax: +1 (518) 442-3398
Email:
system.dynamics@albany.edu

Local Planning Team:

Enzo Bivona
Gianliborio Marrone
Giovambattista Montemaggiore

Volunteer Coordinator:

Ignacio Martinez

Coursework Coordinator:

Patricia Quinn

Session Conveners:

Angelo Alessandri
Mila Getmanský
Nicholas C. Georgantzas
Andreas Groessler
Scott Johnson
Morten Ruud
Kim Warren
Graham Winch