



# SYSTEM DYNAMICS SOCIETY NEWS

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FALL 2019

**SYSTEM DYNAMICS SOCIETY**  
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## The 2019 Presidential Address to Society Membership

By Martin FG Schaffernicht

"I don't know half of you half as well as I should like; and I like less than half of you half as well as you deserve." In the story of The Lord of the Rings, Bilbo Baggins was 111 when he said this. I'm only little more than half that age, so I still remember my first conferences and years as a member.

I've remained a member because I found that system dynamics frees my mind, my ability to inquire, to understand and to know where my knowledge ends. The language of feedback loops and of stocks & flows has allowed me to look at problems and research in application domains other than mine and grasp at least some of the themes and insights to be found there. At the same time, it was a humbling realization that many situations and problems which appear obvious at first sight are actually far from obvious and that I cannot assert I understand sufficiently to suggest a sound solution. I believe that wherever you live, however young or old you are and whatever language you speak, this is good for you.

So, this year I became the "president" - I had half a year to get ready for this speech, and will have the other half to recover from it. However, I'm not the first and won't be the last president, and I'm lucky to be part of a wider group of people who invest time and effort into the SDS as volunteers. To take but those members who



have served as presidents before me, consider this list:

- Jay Forrester;
- David Andersen;
- Jorgen Randers;
- Dennis Meadows;
- Nathan Forrester;
- Eric Wolstenholme;
- Erich Zahn;
- John Sterman;
- Peter Milling;
- Andrew Ford;
- Khalid Saeed;
- John Morecroft;
- George Richardson;

*Continued on page 17*

38th International Conference of the System Dynamics Society  
**July 19-23, 2020**  
**BERGEN, NORWAY**



# THE 2020 MEMBERSHIP RENEWAL AND NEW MEMBER DRIVE HAS BEGUN

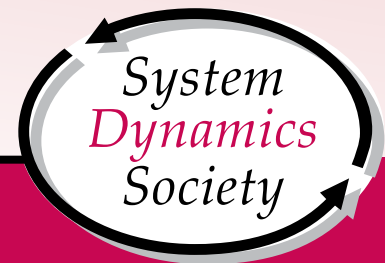
Before the end-of-year rush, the Society is encouraging all members to renew for the 2020 Membership Year. We are also asking current members to invite a colleague to learn more about the System Dynamics Society—and consider joining our ranks.

## NEW MEMBERSHIP DUES STRUCTURE FOR 2020

The System Dynamics Society has adopted a new dues structure beginning with the 2020 Membership Year. This change will make for easier administration and tracking of members and providing overall membership services.

The dues providing for Electronic access to the System Dynamics Review have not changed. **New this year;** to receive the Print version of the System Dynamics Review, you will simply add US\$15.00 to your renewal order.

To review these changes and renew or join for 2020, please go to <https://www.systemdynamics.org/join-the-society>.



## Take Advantage of Your Membership Benefits!

Now is the time to take advantage of the resources you need to stay informed, advance your career, and make a difference.

Your SDS membership benefits surpass the cost of annual dues, and include:

- Access through a membership key to the System Dynamics Review online, all current and past issues;
- E-toc (electronic table of contents) email alerts for new Review publications;
- Discounted registration fee at the annual research conference;
- Preference given to members for conference scholarship and conference volunteer positions;
- Enhanced networking with access to our exclusive searchable online Membership Directory;
- Eligibility to purchase hard-copy back issues of the Review;
- 10% discount on books sold by System Dynamics Society
- Special 35% discount on books published by John Wiley & Sons;
- Eligibility to borrow Beer Game boards through the Society's loaner board program;
- Contact with others in the field through occasional mailings, and through the electronic System Dynamics Newsletter;
- Member support from the Society office;
- And the privilege of voting in all elections, standing as an officer or as a member of the Policy Council, and nominating members for office or for service as a member of the Policy Council.

We always enjoy serving the members of the System Dynamics Society throughout the year!



# 37TH INTERNATIONAL CONFERENCE OF THE SYSTEM DYNAMICS SOCIETY IN ALBUQUERQUE

Society Members and Supporters from around the world convened at the Hotel Albuquerque in Albuquerque, New Mexico, USA for the 2019 Annual Conference. These photographs represent the scholarship, professional development, networking, advancement of the field, and enjoyment found by attendees. If you have a photo you would like to share with us, please send to [conference@systemdynamics.org](mailto:conference@systemdynamics.org).





# 2019 SUMMER SCHOOL A SUCCESS

By Len Malczynski, Vice President Meetings

The 2019 Summer School was a great success. Participants in the introductory track learned SD modeling fundamentals while those in the intermediate track developed their modeling skills. The two tracks came together to hear a set of excellent presentations on applications of system dynamics by Mark Paich, Ignacio Martinez-Moyano, and Jack Homer. An important contribution this year was developing a curriculum that can serve as a reference and be refined in future years. This can be the start of developing a steady stream of new and maturing members in the system dynamics community. To continue and improve upon this success the Society needs to institutionalize the School as a part of every conference. Many commented on the value of being able to get training and then attending the conference the following week. This process has already started with the formation of a committee to manage the School. Support for the School (e.g. by volunteering) will be needed. Let's keep this good thing going!

To volunteer, please email [conference@systemdynamics.org](mailto:conference@systemdynamics.org).



# After the conference is before the conference...Looking Ahead to 2020

By Birgit Kopainsky, President-Elect

As one of the organizing chairs of next year's conference, I did not just attend the Albuquerque conference for the usual reasons. I constantly caught myself literally and figuratively peeking behind the scenes. I wanted to learn everything that can be learned in terms of long-term conference planning and short-term firefighting so that we are in the best possible shape next year. Because we, the System Dynamics Group at the University of Bergen, are already counting down the days. We are so excited to be hosting the 38th International Conference of the System Dynamics Society in Bergen, Norway.

Bergen has been my adopted home for 13 years. On average, it rains 240 days per year. I am still there. And I will stay there. Because of the System Dynamics Group at the University of Bergen. The System Dynamics Group originated from education and research conducted at the Department of Information Science.

In recognition of the significance of the field and of its prominence at the University of Bergen, the university conferred upon the founder of the field of System Dynamics, prof. Jay W. Forrester, an Honorary Doctorate Degree as early as in 1990. In 1995, an international master and PhD program in system dynamics was established at the initiative of the university leadership.

Currently, the System Dynamics Group is furnished with 3 full professors and 16 PhD candidates. Over the past 25 years, more than 300 students have graduated from one of our master and PhD programs and many of them will return to Bergen for the 2020 System Dynamics Conference. We would all be thrilled to welcome you to Bergen, the place that has been home to so many system dynamicists.

38th International Conference of the System Dynamics Society

July 19-23, 2020

**BERGEN, NORWAY**



# PRESENTING THE 2019 SDS ANNUAL AWARD RECIPIENTS

At the 37th International Conference of the System Dynamics Society in Albuquerque, the Society presented its Annual Awards to a distinguished group of professionals.

## The Jay Wright Forrester Award

### Rogelio Oliva

The Jay Wright Forrester Award is presented as often as once annually for the best contribution to the field of System Dynamics during the preceding five years. The recipient receives a commemorative plaque and US\$5,000. Papers, articles, books, research or consulting reports, theses or other written material that have been published or are in publishable form in the English language, in the original or after translation, are eligible for consideration.



From left to right: John Sterman (Forrester Award Committee member), Rogelio Oliva (Recipient), Khalid Saeed (Forrester Award Committee Chair), Jack Homer (Forrester Award Committee member).

## The Dana Meadows Award

### Raquel Froese Buzogany

“Policy Analysis of Material Convergence Challenges During Disasters.”

The Society’s Dana Meadows Award symbolizes the Society’s commitment to students in two ways. It brings recognition to the very best student work. It also honors, in an enduring way, the life and work of Dana Meadows.

Dana Meadows is remembered as an eloquent sustainability advocate and environmental writer. But she was also, and arguably foremost, a teacher — one exceptionally committed to her students and their development not only intellectually but in all ways. Honoring Dana through this Award recognizes her work as an inspiring teacher and mentor of young people, and sets a standard for what good modeling is. The Award will help develop the next generation of systems thinkers and modelers according to her ideals. Her unusually high level of integrity in all things extended to high standards for modeling, for documentation, and for exposing assumptions.



From left to right: Tom Fiddaman (Dana Meadows Award Committee Chair), Raquel Froese Buzogany (Recipient), Danielle Currie (Honorable Mention), William Schoenberg (Honorable Mention), Aklilu Tilahun Tadesse (Honorable Mention).

## The Barry Richmond Award

### Rachel Matsumoto

The Barry Richmond Scholarship Award was established in 2007 by iSee Systems to honor and continue the legacy of its founder, Barry Richmond. Barry was devoted to helping others become better “Systems Citizens”. It was his mission to make Systems Thinking and System Dynamics accessible to people in all fields and professions.



The award is presented annually to a deserving Systems Thinking/ System Dynamics practitioner whose work demonstrates a desire to expand the field or to apply it to current social issues. Applicants are considered based on quality of work as well as financial need. The recipient receives a \$1,000 cash scholarship to help offset the cost of attending the Annual International System Dynamics Conference.

## The Lupina Young Researcher Award

### Danielle Currie

The Lupina Young Researchers Award is given to outstanding papers dealing with health-related topics, authored by students or recent (past 5 years) graduates and presenting at the conference.



# By-Laws Update

## Members: Have You Exercised Your Right to Vote?

Society Members, have you exercised your right to vote to approve the change to the System Dynamics Society's By-Laws?

The Policy Council of the System Dynamics Society has recommended an update to the By-Laws of the Society and according to proper procedure has made a motion to revise the By-laws. During the General Business Meeting at the 2019 Conference, open to all members, the motion was opened for discussion and comments on the proposed changes. During the meeting, members present agreed on a suggested amendment to the original motion, and the Policy Council has subsequently approved the amendment. The amended motion to update the By-Laws is shown below, is now posted, and voting is open.

### By-Laws Motion:

Moved: That, following the recommendation of the Policy Council, we adopt the amended by-laws dated July 31, 2019 which modernize language, improve consistency with current non-profit law, include compliance and indemnification by-laws, establish Finance, Audit and Stewardship committees and streamline the by-law amendment process.

You may review the amended By-Laws at the following link:

[By-Laws Document](#)

If approved, the new By-Laws will take effect on January 1, 2020.

### Vote Today!

Please use this link to cast your vote (if you can't click, copy and paste the entire link into your browser):

<https://sds.memberclicks.net/2019-bylaws-vote>

*This vote is for current members in good standing only. The voting window will close on Tuesday, November 26, 2019 at 11:59 p.m., Eastern US Time.*

## Save the Date for the 3rd Asia Pacific System Dynamics Conference



The University of Queensland Business School, in collaboration with the System Dynamics Society's Oceania Chapter, is delighted to host the 3rd Asia Pacific System Dynamics Conference in Brisbane, from Sunday 2 - Tuesday 4 February 2020.

<https://apsdc.business.uq.edu.au/call-for-papers>. Check out the pre-conference workshops on offer: <https://apsdc.business.uq.edu.au/pre-conference-workshops>. Conference registrations are due to open in early October 2019.



## CALL FOR PAPERS, WORKSHOPS & SESSIONS

The 38th International Conference of  
the System Dynamics Society

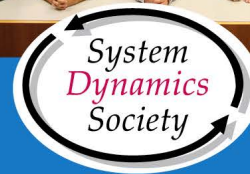
**HINDSIGHT IN 2020:**  
Learning from the Past  
to Inspire the Future

JULY 19 - 23, 2020  
**BERGEN,  
NORWAY**

CONFERENCE SPONSOR  
UNIVERSITY OF BERGEN

## DEADLINES AND KEY DATES

- January 27, 2020 ..... Opening for submissions
- March 2, 2020 ..... Submission deadline Note Earlier Date
- May 4, 2020 ..... Notification of acceptance
- May 18, 2020 ..... Presenter registration deadline
- May 26, 2020 ..... Tentative program schedule available
- June 9, 2020 ..... Registration fee increases
- July 14-17, 2020 ..... System Dynamics Summer School
- July 19, 2020 ..... System Dynamics Colloquium Policy Council Meeting
- July 20, 2020 ..... Conference Opening!



For updated details, please visit:  
[systemdynamics.org/conference](http://systemdynamics.org/conference)

## SOCIETY SPONSORS

Help support the important work and mission of the System Dynamics Society. To view and learn more about the companies, institutions, and individuals who support the Society, please visit: [systemdynamics.org/sponsors](http://systemdynamics.org/sponsors)

To learn more about becoming a Society Sponsor or to support the 2020 conference, please contact the Society Office at +1(518) 580-4071 or [office@systemdynamics.org](mailto:office@systemdynamics.org).



## CONFERENCE VENUE

Bergen is the second largest city in Norway. It is an international city with a small-town charm and atmosphere. As a World Heritage City and as The Gateway to the Fjords of Norway it has a wide selection of activities and excursions to offer.

The University of Bergen as the local conference organizer is a medium-sized European university with six faculties covering most of the traditional university disciplines. What differentiates it from other European universities in our context is that it established an international master degree program in system dynamics in 1995 and today hosts a system dynamics group with three permanent faculty. Currently, the System Dynamics Group has a PhD program in SD and two overlapping master programs, the Bergen Master and the Joint European Master Program in System Dynamics (EMSD).

The conference will be held in Scandic Bergen City, a modern hotel in the centre of Bergen situated in easy walking distance to a wide range of hotels and close to all the cultural activities.



## CONFERENCE TEAM

### PROGRAM CHAIRS

**E-mail:** [progchair@systemdynamics.org](mailto:progchair@systemdynamics.org)

- Sara Metcalf, University at Buffalo
- Brad Morrison, Brandeis University and MIT
- Étienne Rouwette, Radboud University, Nijmegen

### WORKSHOP CHAIRS

- Jack Homer, Homer Consulting
- Hazhir Rahmandad, MIT

### ORGANIZING CHAIRS

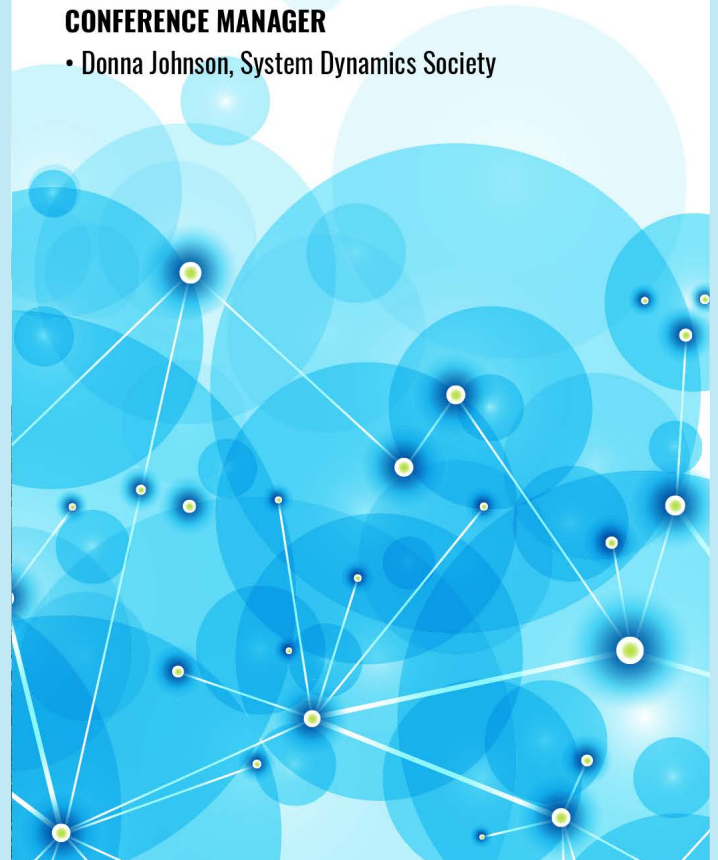
- Birgit Kopainsky, University of Bergen
- Pål I. Davidsen, University of Bergen
- Erling Moxnes, University of Bergen

### VP MEETINGS

- Leonard Malczynski, University of New Mexico

### CONFERENCE MANAGER

- Donna Johnson, System Dynamics Society



## OVERVIEW

We invite you to join us in Bergen, Norway for the 38th International Conference of the System Dynamics Society. Our 2020 conference will honor the 20th anniversary of the 2000 Bergen conference and the long history of system dynamics in Norway, including as host of the inaugural 1976 conference. Whether you are new to the practice of system dynamics or already an expert, we welcome you to Bergen in 2020, where you may contribute your original work and learn from leaders in the field about the state of the art in system dynamics. Submissions are encouraged on all topics relating to the theory and practical application of system dynamics modeling.

## PROGRAM

The annual System Dynamics conference brings together people from around the world to share important research and application results. The conference program consists of plenary presentations that showcase important work in the field, parallel and poster sessions that present advanced research and applications, and a full day of skill-building workshops covering topics from basic software use to advanced analysis techniques. Panel discussions, special interest group sessions, student colloquia, a modeling assistance workshop, vendor exhibits, and demonstrations round out the program. The conference schedule provides time for social and professional interaction. An innovation for the 2020 conference is that we will pilot a virtual conference feature for plenary sessions to promote engagement for those who are interested in the conference but unable to attend in person.

## CONFERENCE THEME

The conference theme is “Hindsight in 2020: learning from the past to inspire the future.” The saying that “hindsight is 20/20” implies that it’s easy in retrospect to “see” why events unfolded as they did, but it’s much harder to accurately anticipate the outcome in advance. In the scientific practice of system dynamics, concern about such “hindsight bias” compels us to formalize behavioral expectations a priori, before testing dynamic hypotheses of feedback mechanisms, so that the value of a model for producing new insights can be established relative to these expectations. But after building models, subjecting them to rigorous analysis, and discovering robust model-based policies, a different and deeper kind of hindsight can develop over time. It is this kind of hindsight that we wish to hone in 2020, by asking how what we know now could inform the practice of system dynamics and inspire alternative models that address the challenges our society must face today and tomorrow.

In the spirit of this theme, the 2020 conference provides an opportunity to look back at prior models and their evolution in light of recent developments to see how they may inspire future directions for the next generation of models. We particularly encourage reflections on methodological developments related to system dynamics that have arisen thus far in the new millennium. Submissions oriented to the conference theme may offer fresh perspectives on contributors’ own prior work or other computational models that have been developed in system dynamics and related fields. Original contributions may be made by conducting new experiments with existing models, modifying those models to leverage advances in computational methods that have emerged in recent years, or demonstrating innovative model applications that address adaptability and robustness to context. By taking stock of the rich legacy of system dynamics, hindsight can help to build the collective memory of our system dynamics community and thereby inspire strategic directions for the field going forward.

## ORGANIZED SESSIONS

The 2020 conference program will include invited as well as contributed sessions. Special proposals for plenary or parallel sessions, panel discussions, roundtables, and other pre- or post-conference activities are encouraged. Proposals for workshops and tutorials are also welcome. If you have ideas for sessions and workshops focused on addressing practical issues in specific commercial or scientific fields, please contact us. Proposals should be sent to [progchair@systemdynamics.org](mailto:progchair@systemdynamics.org).

## SUBMISSIONS

We welcome all research and documented consulting activities in system dynamics, including applications of the methodology to solve real-world problems, new technical and software developments, and productive integration of complementary methodologies. The conference schedule is organized by thread to create coherent topics for presentation. Planned threads for 2020 include:

- Artificial Intelligence and Data Analytics (new)
- Business
- Economics
- Environment
- Health
- Human Behavior
- Information and Knowledge
- Learning and Teaching
- Methodology
- Operations
- Public Policy
- Resources
- Security
- Stakeholder Engagement
- Strategy



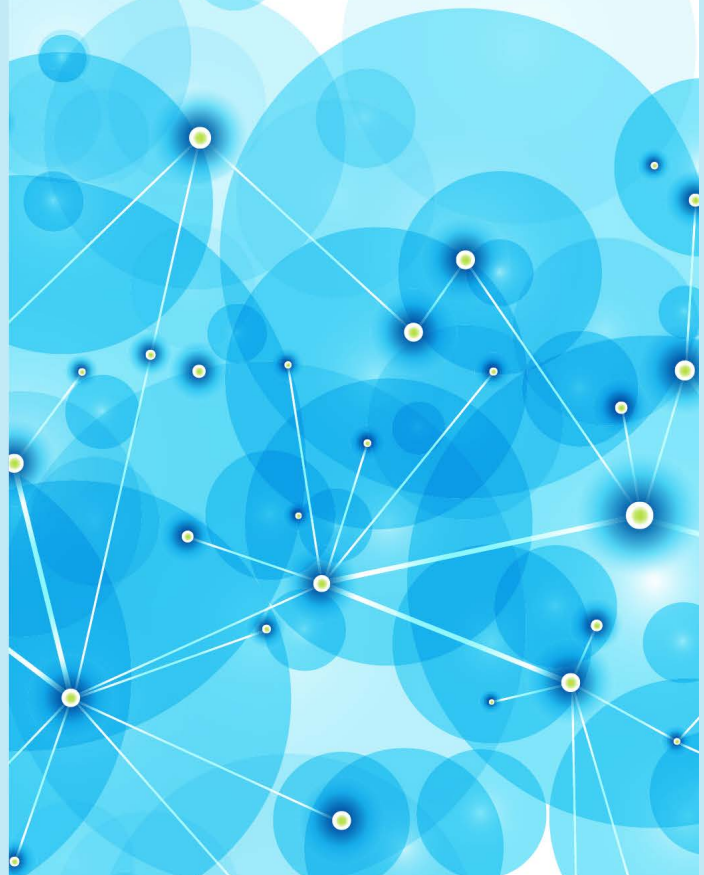
Submissions are welcomed on all topics pertaining to system dynamics, regardless of whether they easily fit within one or more of these threads. Questions about submissions may be directed to [progchair@systemdynamics.org](mailto:progchair@systemdynamics.org). Authors should visit the conference website for full submission instructions and details: [systemdynamics.org/conference](http://systemdynamics.org/conference)

## SUMMER SCHOOL

Held the week prior to the conference, the System Dynamics Summer School provides a unique opportunity to learn (or review) the basics of system dynamics, get exposed to real-world applications of the method, and delve into advanced topics. The 2020 Summer School will include group activities with all attendees as well as sessions specifically designed for beginners and intermediate/advanced practitioners.

## COLLOQUIUM

The System Dynamics Colloquium is a one-day opportunity for students to present and discuss their research with peers and other interested colloquium attendees. The colloquium consists of dynamic presentations, a poster session, and interaction with experts. Participants will benefit from meeting others with shared research interests. The colloquium provides a wonderful chance to get feedback from peers, experienced practitioners, and educators in the field.



# System Dynamics Review Updates

By Yaman Barlas, Executive Editor

## The Aims and Scope of the Journal

System Dynamics Review exists to communicate to a wide audience advances in the application and methods/tools of the system dynamics approach. In its broadest sense, the system dynamics approach encompasses model-based analysis of dynamic problems with a systems approach, focusing on endogenous, structural sources of the dynamics of interest. Depending on the characteristics of a given problem, different modeling tools, methods and software can be used with this endogenous dynamic perspective. Applications include social, technical, managerial, business, economic, health, biological, ecological and environmental problems, among others.

The publication goals of the Review include but are not limited to: Advances in modelling and simulation methods for dynamic feedback problems; advances in policy analysis methods based on feedback causality; modeling applications in diverse domains; generic structures (feedback structures that support widely applicable behavioural insights); system dynamics contributions to theory building in the social and natural sciences; contributions to the analysis, and applications of complex nonlinear dynamics; policy studies and debate emphasizing the role of feedback causality in dynamic problems of concern; developments in strategies for simulation-based consulting and implementation of model-based policy suggestions; advances in methods and applications of systems thinking relevant to dynamic feedback problems; contributions to system dynamics education and teaching.

## System Dynamics Review Evolving: Myths and Facts

**Myth:** SDR does not anymore welcome traditional SD papers (based on SF and Causal-loop diagrams, using classical methodology developed by JWF).

**Fact:** There is absolutely no such inclination in the new editorial policy of SDR. As always we publish and will continue to publish papers using 'traditional SD methodology'. These papers will continue to be central for SDR and the SD field (together with other modeling methods that properly implement the principles and philosophy of SD).

**Myth:** SDR categorically rejects papers that do not use extensive data and quantitative tools in model testing and parameter calibration.

**Fact:** There is no editorial policy that puts such a weight on quantitative data and measures. The policy is: The model (and/or other hypotheses in the paper) must be justified by a scientific approach and 'some sort of evidence'. The evidence can be quantitative or qualitative; it can be summarized in formulas, or shown in graphs and charts; it can consist of expert opinions, or can be demonstrated by real life success... What we don't publish are papers that just 'tell us' how good the model is and how valid the results are, without providing any justification and evidence of any kind.

**Myth:** SDR publishes only methodology papers, it does not welcome application or education/training papers.

**Fact:** There is absolutely no such policy. We indeed actively solicit application and educational papers. These papers are still peer-reviewed and must fit the relevant scientific standards, but for various reasons the review criteria can be quite different than those for methodology papers and modeling papers of 'academic' (and non-confidential) nature.

The fundamental challenge SDR faces is about increasing the number, diversity and quality of papers published. To this end, SDR strives to publish papers based on not just traditional stock-flow models, but also models using other modeling tools and methods, as long as the paper tackles a dynamic problem with an endogenous feedback (i.e. system dynamics) perspective and it is well-written. SDR invites not just methodology papers, but also application and educational papers that have this 'endogenous system dynamics' perspective. Authors with any further questions are encouraged to read the Author Guide of SDR, or contact the Executive Editor.



# System Dynamics Review

System Dynamics Review

Volume 35, Issue 3

Pages: 183-282

July/September 2019

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## Issue Information

Pages: 183-186 | First Published: 30 September 2019

Main Articles

### **Building a bridge to behavioral economics: countervailing cognitive biases in lifetime saving decisions**

Babak Bahaddin, Stephen Weinberg, Luis F. Luna-Reyes, David Andersen

Pages: 187-207 | First Published: 19 June 2019

### **Math matters: mathematical knowledge plays an essential role in Chinese undergraduates' stock-and-flow task performance**

Liang Qi, Cleotilde Gonzalez

Pages: 208-231 | First Published: 10 September 2019

### **Aging effects in public policy making**

J. Pedro Mendes, Miguel Aleluia

Pages: 232-254 | First Published: 30 September 2019

Notes and Insights

### **Using R libraries to facilitate sensitivity analysis and to calibrate system dynamics models**

Jim Duggan

Pages: 255-282 | First Published: 11 September 2019

Here is an example of a recent posting:

## Why we do not always simulate

Vincent de Gooyert, Inge Bleijenbergh, Hubert Korzilius, Brigit Fokkinga, Monic Lansu, Stephan Raaijmakers, Etiënne Rouwette, Merel van der Wal  
2 October 2019

With great interest we have been following and participating in discussions on what 'good' and 'appropriate' system dynamics modeling is. The system dynamics society, including its conferences and the wiSDom blog provide a stimulating environment for such discussions. However, we noticed with growing discomfort over the last few years a more and more vocal expression of two axioms in these discussions: the idea that every system dynamics project should be accompanied by the collection of quantitative data, and the idea that every system dynamics project should be accompanied by a quantified computer simulation model. The main argument being that not including these two elements is detrimental for the project's rigor. We fully support the continuous strive for rigor, but we contend that system dynamics projects without quantitative data and quantified computer simulation models can be just as rigorous. In this memo we explain why, in an attempt to advance the debate.

Our main argument is that the answer to the question what 'appropriate' system dynamics modeling is, depends on the research question being asked. For some research questions, quantitative data and models are indispensable. However, for other research questions they are not relevant at all, let alone that they would increase rigor. We think that the call for data and models comes from overlooking this latter category of research questions. We are hesitant to use terms as ontology and epistemology, as these terms often come with a wealth of obfuscating language, but we believe this is exactly where the views differ. We see a group of system dynamicists with a positivistic stance striving for rigor in terms of quantitative data and models, and a (smaller) group of system dynamicists with a constructivist approach working on a research agenda that is substantially different.

In the positivist research tradition, different methods are used to get ever closer to an objective reality. Triangulation is an important means to increase validity and computer models and quantitative data provide great ways to check the validity of mental models of

decision makers. After all, there is a myriad of biases and heuristics that distort mental models, and the human brain is notoriously incapable of calculating the implications of feedback, delays and non-linearities. In the constructivist tradition there is less interest in the 'essence' of objective reality. Rather, it focuses on the meanings that people ascribe to their environment, and how this socially constructed meaning continuously is both the cause and consequence of their behavior. While system dynamicists with a positivist stance triangulate to decrease subjectivity, system dynamicists with a constructivist approach are interested in exactly that subjectivity that positivists try to avoid. Perceptions are valuable, not as a distorted image of reality, but as a complete answer to a research question as for example 'what meaning do members of an organization ascribe to a particular problem?' Collecting quantitative data and running computer models are not helpful to answer such questions, it is even completely irrelevant as this would take us further away from an answer to our question how people perceive their environment. Group model building can be a very exciting part of SD research with a constructivist approach, as it allows researchers to witness the social construction of reality first-hand. Mapping the structure of a system is a great way of sharing worldviews, surfacing and resolving conflicting worldviews, and collaboratively making sense of an equivocal environment. Critical studies, a subgroup of constructivist research, explicitly give voice to worldviews from minority groups. An important aspect of understanding social reality as socially constructed is that not all worldviews get equal space and attention. Powerful actors tend to dominate the social construction of reality. Group model building is one way to challenge the hegemony of dominant worldviews by being inclusive in terms of the stakeholders that are heard and the space each stakeholder gets to contribute to the discussion. This may help to challenge taken for granted assumptions. Sometimes collecting quantitative data supports putting dominant worldviews under discussion, but it is good to be aware that these dominant worldviews affect how qualitative data is translated into quantitative data.

Some suggest that deciding whether to translate a qualitative model into a quantitative model is a trade-off between additional resources and additional insights: is the added value of the quantitative model worth the additional investment? We find it important to note that our objection against the call for quantitative data and models is of a different nature. As stated, for us the difference is in the research questions. (Continued)

Some research questions require data and model runs, but if the research question is about the perception of reality itself, these tools add rigor nor relevance. The terms rigor and validity get a different meaning when used in constructivist research. For us, validity is not about 'is this model a good representation of objective reality', but about 'is this model a good representation of how these participants give meaning to their reality'. There are various ways of increasing confidence in the validity of our models in this sense, including giving participants ample room to adjust the model, and regularly asking the question whether the participants see their own worldview represented in the way it is visualized.

A positivist system dynamicist may respond to our argumentation above by saying: I agree that the confusion stems from a difference in the kind of questions that we try to answer, and to avoid that confusion I would like you to refrain from using the labels 'system dynamics' and 'group model building' when doing research in the constructivist tradition, let's confine the use of those labels to 'proper' positivistic

system dynamics. To those we say: no can do. After all, we are interested in the dynamics of systems, and we build models with groups. We are educated, motivated, inspired by and emotionally engaged with the rich past and future of system dynamics and use these terms to connect to it. We would find it worrisome if dogmas would prevent researchers from answering new types of questions, and from creatively using parts of our body of knowledge for their ends. It might be confusing to have both positivist and constructionist flavors of system dynamics, yet it is also enriching. After all, system dynamics is a field in which we all work with and for people who are primarily meaning giving creatures. The language of system dynamicists with a constructivist approach is still evolving and we are discovering what it is that we do while we do it, we welcome any reflections that readers might have. To all system dynamicists with a constructivist approach we say: let's work together and collaboratively improve our understanding of the opportunities and challenges of qualitative and quantitative system dynamics, and become more proficient in describing and justifying our approach.

## NEWS FROM THE FIELD: UPDATES FROM MEMBERS, CHAPTERS AND SIGS



**Claire Granum**, Quantitative Engineer I, Strategic Modeling & Analytics at Fannie Mae shares this: The system dynamics team at Fannie Mae in Washington DC will be hosting a DC-area System Dynamics Users Group in November. It will be held on 11/22/2019, from 1-3 pm, and lunch will be provided. Anyone who near the area who would like to join is welcome! We will be getting to know one another and discussing our experience with system dynamics modeling. If you're interested in attending, please contact Claire Granum at [claire\\_granum@fanniemaecom](mailto:claire_granum@fanniemaecom).

**Krishna Mohan TV**, Department of Management Studies, Indian Institute of Technology Madras: I recently defended my Ph.D. Thesis (on July 3, 2019) from the Department of Management Studies, Indian Institute of Technology Madras, India. My thesis title: "Understanding the Dynamics of End-of-Life Vehicle Recycling Markets." My thesis focused on the dynamics of End-of-Life Vehicle (ELV) recycling in unregulated markets. In my thesis, I have developed system dynamics models to analyze two situations of an unregulated ELV recycling market: a market where only informal ELV dismantlers exist and a market where a formal ELV dismantler competes with informal ELV dismantlers. The thesis provides policy insights for ELV recycling in unregulated markets.

I would like to thank my Doctoral Advisor Dr. R K Amit for his constant support and encouragement. Based on my thesis I have a publication in the journal Annals of Operations Research.

Paper title: Dismantlers' dilemma in end-of-life vehicle recycling markets: a system dynamics model DOI: <https://doi.org/10.1007/s10479-018-2930-z>

**Carl Smith**, Senior Lecturer, UQ Business School, The University of Queensland, Australia shared this:

Only one month to go until the call for papers and posters closes for the 3rd Asia Pacific System Dynamics Conference: <https://apsdc.business.uq.edu.au/call-for-papers>. Check out the pre-conference workshops on offer: <https://apsdc.business.uq.edu.au/pre-conference-workshops>. Conference registrations are due to open in early October 2019.

**Takuro Uehara**, Ph.D., Professor, College of Policy Science, Ritsumeikan University, Osaka, Japan

[http://research-db.ritsumeik.ac.jp/Profiles/105/0010420/prof\\_e.html](http://research-db.ritsumeik.ac.jp/Profiles/105/0010420/prof_e.html)

A paper I co-authored using system dynamics has been published in Sustainability at <https://www.mdpi.com/2071-1050/11/17/4609>. The lead author is my master's student.



Continued.

# NEWS FROM THE FIELD

**John J. Voyer**, Ph.D., Professor of Business Administration, Emeritus, School of Business, University of Southern Maine: After thirty-two years at the University of Southern Maine, John Voyer is retiring as Professor of Business Administration, Emeritus. He hopes to continue working with system dynamics and to attend future SD conferences. He will continue doing historic walking tours in Portland and hopes to start doing some creative writing.

**Saeed Langarudi and his colleagues from New Mexico State University** have published their article in *Ecological Economics*. Their paper had previously been awarded for the Best Paper in the Computational Social Science Conference in October 2018. Bibliographic information: Langarudi, Saeed P, Connie M. Maxwell, Yining Bai, Austin Hanson, and Alexander Fernald. 2019. "Does Socioeconomic Feedback Matter for Water Models?" *Ecological Economics* 159 (May): 35–45. <https://doi.org/10.1016/j.ecolecon.2019.01.009>.

**Saeed Langarudi** has also developed a new graduate level system dynamics course at New Mexico State University (NMSU). The course was offered for the first time as a special topic in Spring 2019. The focus of the course was on Development Economics and Natural Resources Management. The course has now been approved by NMSU's Curriculum Committee and listed under two different programs (Water Science and Management and Range Sciences) in the College of Agricultural, Consumer, and Environmental Sciences. The new course has received NMSU's Quality Matters Certificate and will be offered as a regular course in online format in Spring 2020. You can download the course syllabus from this link: <http://web.nmsu.edu/~lang/syllabus.pdf>

## From the Iran Chapter:

Here is a photo of the second conference of the Society of Dynamics in Iran, April 2019.



## China Chapter Update:

The China Chapter meeting was held in Albuquerque, New Mexico on July 23, 2019, on the third day of International Conference of System Dynamics Society (ISDC 2019). Nearly 30 attendees from 20 Chinese universities attended this conference. Nearly 20 scholars, such as Prof. Chen Jian from Tsinghua University, Prof. Cai Lin from Renming University, Prof. Hu Bo from Bundeswehr University Munich, Prof. Leng Bibin from Jiangxi Science and Technology Normal University, Prof. Qiu Peiyuan from Sichuan University, Prof. Gou Huitian from Gansu Agricultural University, Mr. Ge Zhou and Mr. Qian Xin from Nanjing Foreign

Language School, Steven Cheng from Castleside consulting, Ying Zhang from Fannie Mae, shared their research and consulting experiences on the conference. The research topics cover system dynamics method and its application to innovation management, public management, economics, public health, K12 education and etc.



## Korean Chapter News:

- The Korean System Dynamics Society held the 20th anniversary and annual summer conference at Seoul Business School in Seoul on 31st August 2019. The theme of the event was "Resilience and Sustainability in Korea." There are 16 parallel and two poster presentations plus keynote speech, "My SD modeling" by Dr. Sang-Man Kwak. The most noticeable feature of the event is showing the consolidation with the System Dynamics Society. The president of SDS, Prof. Martin F. Schaffernicht gave a celebrating speech at the beginning of the conference and the president-elect Prof. Birgit Kopainsky gave a celebrating speech of the event and welcoming speech to the next year's System Dynamics Conference in Bergen, Norway at the end of the conference. The president of the UK chapter, Dr. Siôn Cave, gave a celebrating speech in person, saying the hope for the collaboration between two chapters. (see the full story of presidential address at [http://bit.ly/presidential\\_speech](http://bit.ly/presidential_speech)) You can also see the warm, welcoming, and cheerful atmosphere with the photo album: [http://bit.ly/2019\\_KSDS\\_Summer\\_Conference](http://bit.ly/2019_KSDS_Summer_Conference).

- The Korean version of "The Climate Change Playbook" by Dennis Meadows, Linda Booth Sweeney, and Gillian Martin Mehers has just published on 31st August. The translator, Dr. Benjamin C.K. Chung, said that this book could play a boosting role of SD/ST in Korea, including environmental education. I hope the book will attract the interest of all the environment practitioners and pre-college students and teachers.

- Transition of Chief Editor of the Korean System Dynamics Review: Following Prof. Dong-Hwan Kim, the incumbent Chief Editor, Dr. Byeong-Seok Kim working for Kyunggi Research Institute, becomes the successor of the Chief Editor. He served as the Editor Member for more than ten years. His service will begin with the fourth publication of this year.



# PRESIDENT'S MESSAGE CONTINUED

Continued.

Yaman Barlas;	Rogelio Oliva;
Jack Pugh;	David C. Lane;
Jac Vennix;	David Ford;
Ali Mashayekhi;	Kim Warren;
James Hines;	Edward Anderson;
Pål Davidsen;	Jürgen Strohhecker;
Robert Eberlein;	Etiënne Rouwette;
Graham Winch;	Leonard Malczynski;
Michael Radzicki;	Ignacio Martinez-Moyano.
James Lyneis;	
Erling Moxnes;	

And let us keep in mind that a president is one of a wider group of members serving in the board of directors which we call the Policy Council and in one of several committees. You'll hear more about this in a moment.

The presidential address is the best opportunity for me to directly address you as the Society's membership:



Figure 1: The member-ship

Consider this metaphor and visualization for a moment: The System Dynamics Society is certainly represented by a group of volunteer officers and other Policy Council members, but it basically exists through you, its members. What is it that makes us stand together as the System Dynamics Society, if each of us lives and works in a different place with different problems and outlooks? You may recall that the system stems from the Greek word *sunistanai*, which means "cause to stand together". So, what causes us to stand together, what is our *sunistanai*?

Let us step back a little to gain a historical perspective. This year, now, we are at the present moment of a process that can be dated back to the late 1970s. After an initial conference followed by a break, the System Dynamics Society was founded shortly after the System Dynamics Review came into being:



Figure 2: Timeline of the System Dynamics Society

The fact that we are celebrating our international conference number 37 also means that we have survived thanks to the efforts of many volunteers and intellectual contributions of countless authors. Even though this is a great achievement, it is good to remember that system dynamics is not the only methodology dealing with systems. dealing with systems.

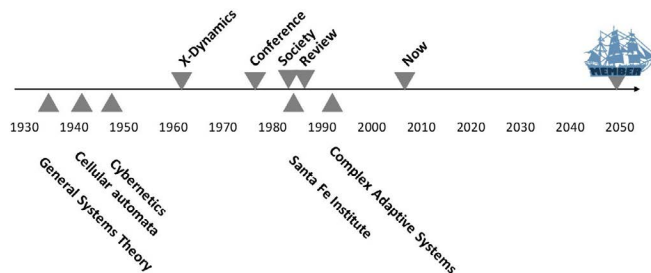


Figure 3: Timeline of systems threads since 1930

The time arrow in figure 3 reaches back until the 1930s. We have seen several threads of systemic thought and research surging over time. I have only included General Systems Theory, cellular automata (precursors of agent-based modeling), cybernetics, the appearance of "complex systems" in the form of the Santa Fe Institute and complex adaptive systems. Of course, the idea of systems and feedback loops can be traced back way beyond the 1930s (please refer to George Richardson's book on feedback thought that the social sciences to read about that), but I am sure you already got the point: We may think of industrial dynamics, urban dynamics, world dynamics and eventually system dynamics as a field in its own right, but we ought to recognize that we are not alone in our interest for feedback-rich systems.

My time arrow here advances until 2020. But of course, time will go on; so, think of 2050: What would have become of climate change, migrations, retirement systems, healthcare, the global economy and, last but not least, education? Will your children or grandchildren learn about systems at school? Thinking back from 2050, what will the contribution and impact of system dynamics have been? And, back from the future, how shall we look at the present situation in order to discover the contribution we can make?

Inside this wider time window, let us now consider what the purposes of the System Dynamics Society are.

- Promote:
  - The *development* of the field of **system dynamics** and the free *interchange* of **information about systems** as they are found in all fields of endeavor;
  - The *design* of **structures** and **policies** to improve the behavior of such systems;

<sup>1</sup> How the System Dynamics Society Came to Be: A Collective Memoir; <https://www.systemdynamics.org/assets/conferences/2007/proceed/papers/ANDER283.pdf>

- The *dissemination* of **information** on such topics to the general public;

- *Encourage and develop* **educational programs** in the behavior of systems.

I have edited the action words in italics and the objects of our activities in boldface, to make the scope of our purpose salient. The System Dynamics Review and the international conference have been and continue to be the flagship products of the Society, and you will agree that they are about the interchange of information (among specialists) as well as the dissemination of information to the general public. This is what the so-called home office and the volunteers have kept up over the decades. The development of the field and the design of structures and policies have been undertaken by many members as part of the work they carry out as academics or as professional practitioners, and without these contributions neither the Journal nor the conference would be meaningful. And this; the Society must acknowledge the relevance of others in the field. Also, the encouragement and development of educational programs is an area where we will enhance our engagement.

Let me say some words concerning the field. In my mind, this word is strongly connected to agriculture, and for this reason I visualize the field as something a certain number of farmers are working on, as shown in figure 4:

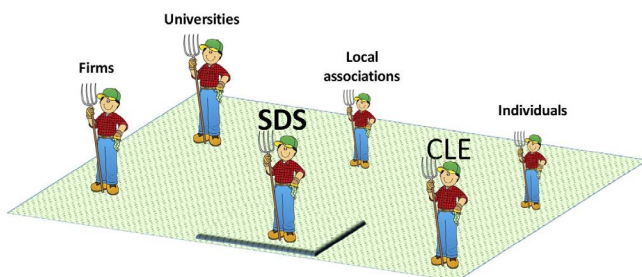


Figure 4: The field of system dynamics

This metaphor may seem strange at first sight, but consider it: each of the “farmers” you can see on the fields depicted in figure 4 is actually making a contribution that the other farmers depend on. Universities carry out academic research and train people in system dynamics. Firms face situations and problems where system dynamics can make useful contributions, and where system dynamicists can find an occupation. Individuals, for example consultants, can help firms. Local associations, where system dynamicists live in a certain country can join, are frequently recognized by the System Dynamics Society as chapters, even though not all local members are actually members of the System Dynamics Society. The Creative Learning Exchange (CLE) has brought together teachers in planning, developing and using system dynamics learning activities in K-12 for decades, and who could doubt that a pupil having learned about systems at school has a good chance to act systemically as a grown-up?

So yes, the System Dynamics Society serves the field and the other farmers working on it. But this is not all that matters. All of you who have ever looked out of an airplane flying to a conference site or somewhere else have seen that the country is made up of many fields. The field of system dynamics is not an exception in this regard. Consider the following figure 5:

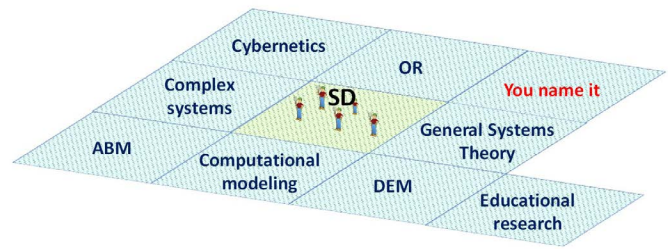


Figure 5 shows the field of system dynamics as belonging to a wider landscape with a number of nearby fields. I have only mentioned some of these fields that come to my mind, like operations research, cybernetics, complex systems, agent-based modeling, discrete event modeling, computational modeling, General Systems Theory and educational research. Educational research is only mentioned because I firmly believe that in the long run, teaching some system dynamics concepts and methods to children at school will prove to be essential for system dynamics to thrive. Please note that Jay Forrester believed that only when a large proportion of citizens have basic system understanding, will policymakers be steered to more systemic policies by their voters. Otherwise, you are invited to name the DEM fields you believe to be nearby!

So, here we are, the membership of the System Dynamics Society, one farmer on the field of system dynamics, which belongs to a wider field of fields. We can look at where we came from and where we are now, and now the question becomes: where shall we navigate to?

In agriculture, each farmer may choose what he actually produces in his field. In the 6 to 7 decades since system dynamics was originally developed, many other fields have changed, and so did the world and its challenges. What is this supposed to mean for the field of system dynamics? We asked: Does the System Dynamics Society need to have an answer to this question in order to fulfill our purpose? However, there is no ready-made answer, and different participants in the field may have diverging statements to make. Keeping science current is one contribution to that discussion - like John Sterman's article for the 60 years of system dynamics, the comments made by others and his reply to these comments, but not limited to these statements - take a minute to reflect on what you believe is the essence of system dynamics and what is only instrumental (so it can evolve over time without compromising the essence). The following list suggests some statements, but feel free to take other items into account (multiple choices are possible):

- Endogenous approach
- Dynamic approach
- Causal approach
- Feedback loops
- Accumulation
- State and Flow variables
- Delays
- Non linearity

- Computational modeling
- Simulation
- Measurement uncertainty
- Aggregation

Please note that, as we stand here, there is no certainty about which of these aspects will turn out to be part of the “correct” answer - which will probably only emerge with hindsight. There is a diversity of points of view, and we need to deal with this diversity.

Keeping in mind the fact that an association like the System Dynamics Society would be useless and meaningless if it were not for the work of its members, it is very important that you, the members, keep in mind the diverse possibilities of participation in the Society when we talk about this question.

It is therefore useful for you to know the different stocks one can find oneself in as a member. The following figure 6 shows a simplified stock and flow diagram of membership:

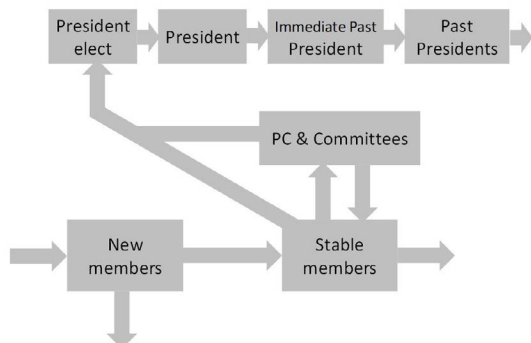


Figure 6: The members pipeline

Unsurprisingly, when you first sign up, you become a new member. As such, either you quit (for whatever reason) or you develop into a stable member. You can stay there all your life (sooner or later you will necessarily quit), enjoying whatever being a member means to you - and this is okay. Whatever your work is and wherever you do it: the special interest groups (SIGs) and chapters will be of interest to you. SIGs bring together members of specific application domains, making it easier to collaborate and exchange information, even across the boundary of the SDS. Chapters are mostly built according to the language spoken and diverse regions of the planet, but there is also a student chapter uniting SD students in general and an economics chapter:

Look at table 1, which lists the currently existing Sigs and Chapters:

Table 1: SIGs and Chapters

SIG	Chapter
Agriculture & Food	ASEAN
Asset Dynamics	Australasia
Biomedical	Africa Regional
Business	Benelux
Conflict, Defense and Security	Brazil
Education	China
Energy	Economics
Environmental	German
Health Policy	India

Information Science and Information Systems	Iran
Model Analysis	Italian
Pre-College Education	Japan
Psychology and Human Behavior	Korea
Social Impact	Latin America
Transportation	Norway
	Pakistan
	Russian
	South Africa
	Student
	Swiss
	United Kingdom

Please note that the Norwegian chapter has only recently been recognized at the 2019 Summer Meeting of the Policy Council. It is entirely possible to launch new SIGs (<https://www.systemdynamics.org/society-sigs>) and new Chapters (<https://www.systemdynamics.org/chapters>). Note also that the Society has a specially dedicated field development fund to financially support original useful initiatives proposed by a Chapter or a SIG.

You can also choose to engage in the Policy Council (PC) and/or one of its committees; you can even be nominated to become a president elect, which will automatically push you through the stocks of President, immediate past president and then past president (for the rest of your life). Volunteers invest an average of 3 to 10 weekly hours - depending on if you are a regular member of the PC, an officer or a president - developing the Society's rules and policies as well as its strategy and the services it chooses to provide. If you feel that you have important ideas and concerns, and that you wish to participate in the setting of these rules, policies, directions and services: please get in touch with the home office or any of the Policy Council members: Your efforts and contributions are wanted and welcome!

To give an idea of how many people are actively participating in the PC, and to make very clear that I am only presenting the collective work of quite a group, let me list the individuals who are currently serving (<https://www.systemdynamics.org/officers-and-policy-council-members>):

#### Policy Council

- President Elect: Birgit Kopainsky
- Past President: I. Martínez-Moyano
- Secretary: J. Bradley Morrison
- Vice President Chapter Activities: Stefano Armenia
- Vice President Electronic Presence: Robert L. Eberlein
- Vice President Finance: Eliot Rich
- Vice President Marketing & Communications: Warren Farr
- Vice President Meetings: Leonard Malczynski
- Vice President Membership: Asmeret Bier Naugle
- Vice President Pre-College Education: Diana Fisher
- Vice President Professional Practice: Jack Homer
- Vice President Publications: Krystyna A. Stave
- Policy Council: John Pastor-Ansah, Nancy Hayden, Florian Kapmeier,

Nuno Videira, Shayne Gary, Hilde Martinussen, Josephine Kaviti Musango, Raafat Zaini, Sharon Els, Elke Husemann, Sara Metcalf, Lees Stuntz

System Dynamics Review Executive Editor: Yaman Barlas

Executive Director: Mark R. Nelson

Assistant Vice Presidents (AVP – not members of the PC)

AVP Chapter Activities: Natalia Ciobanu

AVP Electronic Presence: Onur Özgün

AVP Finance: David Andersen

AVP Marketing & Communications: Raafat Zaini

AVP Membership: Burak Gunalp

AVP Pre-College Education: Anne LaVigne

Thanks to all of them! They are (together with me) the ones in charge to steer this membership. So, after outlining how this ship is steered, back to the question of where it navigates to.

That depends on how you look upon it. Everybody knows that maps are devices made to help us navigating - so observe the following map and try to see the part of the world it represents:



Figure 7: A navigation map

Do you recognize this part of the planet? You don't need to rotate your head, the following figure 9 shows the same map rotated 90° to the left:



Figure 8: The same map with the North "up"

Now you have probably recognized the Southern Cone of Latin America. I have made you look at this because we can draw an

insight from the fact that the North was not always "up" on maps. Maps served navigation purposes, and when the Spaniards set sail towards the New World, they figured the coast was in front of them – not to the left. To borrow a piece of wisdom, all maps are wrong but some are useful. For the Spaniards, it was useful to put the West on top of that maps because they were sailing from East to West.

How about us as members of the field of system dynamics? Are we clear about where we stand now and about where we want to navigate to? Remember the list of potentially essential features of system dynamics above. Are we even sure that we want to sail to somewhere else?

I cannot answer this question - neither as the president of the SDS nor as an individual member of the field of system dynamics. But as the president, I must remind you that there are different streams of thought inside our field and we are in the face not only of diversity, but also of divergence and discrepancies.

This turns out to be an obstacle or a resource we depend on our way to deal with it.

As avid reader of Asterix, I think of such discrepancies in terms of the inhabitants of that small French village, where one of the inhabitants is offering to sell fish which he claims to be fresh, whereas other inhabitants find it's stinking:



Figure 9: Two diverging standpoints

Those of you who share my enjoyment of Asterix' adventures know what happens next: the whole village gets entangled in a fight; and even though they return to be friends afterwards, we know that these fights have never served to settle the question that started the fight in the first place.



Figure 10: One way to resolve divergent standpoints

Luckily, there is a different way we can choose. If we have divergent views of what system dynamics is, let me exploit the "view" to show what I mean. Look at the upper half of Figure 11: it shows the moon as it appears when you look at it from somewhere on the northern hemisphere of our planet. But: if you observe from a place on the southern hemisphere, you will see the moon as shown in the lower half of Figure 11. Remember: we all feel that our heads are "up" and that we look "up" when we observe the moon. However, the moon is always the same – it cannot turn upside down so that those looking from the southern hemisphere actually see the same image as those standing on the northern hemisphere.

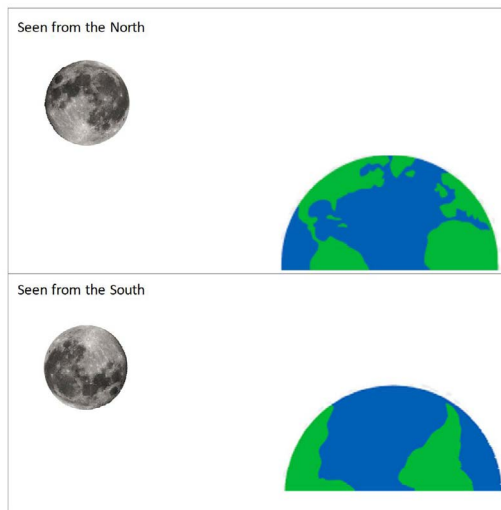


Figure 11: Standpoints and what one sees from them

Just like the moon, the universe does not have an “up” and a “down”. When we look at “a thing” and see something different from what others see, it is because our viewpoint is different. And this makes our mental models different. Schoolkids in the southern hemisphere will not draw the moon with a face, and the story of the “man in the moon” must sound weird to them. Still, it is the same moon – so it would be wise to keep in mind that it’s just mental models!

And in system dynamics, we are familiar with mental models, that they are partial and imperfect, that they can be articulated, compared and worked on.

So, we would not have terribly good excuses if we did not strive to apply what we teach and preach: let us make our mental models explicit, make their logic and the underlying evidences visible and open to constructive critique! This is time-consuming, it requires the willingness to be wrong and the willingness to learn from it.

In the first half of 2019, the members of the PC and several Committees have invested time and effort into just that. We have inherited volumes of analysis and propositions from past years, and decomposed the whole thing into five interdependent themes:

- B:** Broaden educational offerings
- L:** Leverage program opportunities
- I:** Improve new member retention
- S:** Stabilize operations
- S:** Strengthen governance

At the Winter PC Meeting, BLISS was used to organize thematic discussions that have allowed to launch several work groups (we call them ad-hoc committees):

- Governance renewal
- Membership engagement & retention
- New products & revenues
- Publications
- Conference

The Governance renewal was mainly carried out by the Organization & Bylaws Standing Committee and our Executive Director. A comprehensive revision of the articles of organization and the bylaws has been carried out. The articles of organization are the documents where our purpose as Society is established; the bylaws contain the structure of the organization and the fundamental rules we gave ourselves. Both the articles of organization and the bylaws are meant to be stable over time, and this is the reason why changes to them require a vote by the whole membership. In contrast, the policies - which regulate how we fulfill our purpose and how we translate the bylaws into processes and activities - are defined by the Policy Council. Policies and processes are meant to be a guidance, but they must also be flexible enough to be quickly adjusted in case unforeseen problems require such adjustments. This is why Policy Council members can move such adjustments, which can be approved (or not) by a vote of the Policy Council. For a long time, the Policy Council has convened two meetings per year – the Winter Meeting in February and the Summer Meeting the day before the international conference. In 2019, we have started using a video conferencing platform to have intermediate meetings: meeting five or six times per year allows for a more continuous decision-making process (and for shorter meetings).

The revision has assured that the Society complies with all legal and ethical requirements which a modern nonprofit association is expected to comply. At the same time, the organizational structure – in our case the committees - has been modified to achieve the ability to make decisions in a flexible and agile manner. In particular, the new organizational structure contains an Executive Committee which is empowered to make decisions on behalf of the Policy Council and between the regular PC meetings. A Finance Committee is dedicated to planning the Society’s budget and supervising its execution, whereas the Audit Committee is in charge to assure compliance.

These Committees – Executive, Finance and Audit - are committees of the board: only PC members can participate in them because they legally act on behalf of the PC. Another committee is the Stewardship Committee, whose function will be

- to propose essential initiatives,
- to stimulate, receive and select proposed initiatives and
- to direct funding towards new initiatives.

The Stewardship Committee is a committee of the corporation: any member of the Society can in principle be part of it. This allows experienced and innovative members to help the Society engaging in the programs (the L in BLISS). The Stewardship Committee will propose such programs and initiatives to the Finance Committee, which is entitled to engage financial resources on behalf of the PC.

These changes are now being introduced to you in the framework of the annual business meeting, and we will hold an electronic ballot in order to allow the entire membership of the Society to participate in this important vote.

The membership engagement and retention ad-hoc committee has analyzed different experiences and points of view of members of the SDS. A fundamental realization was that they are - at least - two important groups of members:

1. experienced dynamicists oriented at high quality and high impact research, and

2. general interest members who want to learn about system dynamics and improve their modeling skills.

Unsurprisingly, these two groups have quite different needs and wants. Experienced dynamicists wish to exchange experiences and engage with other experienced dynamicists to explore collaboration opportunities. Learning oriented dynamicists can benefit from being exposed to exemplary work by experienced dynamicists; also, getting feedback from experienced dynamicists is a valuable learning opportunity. This places the Society in front of a twofold challenge: one of our purposes is to support learning, and therefore we naturally want to support learning oriented members (who are not experienced, by definition). However, this would be useless if there is not a sufficient number of experienced dynamicists who can show exemplary work and give productive feedback to learners. And, of course, our purpose also being to help advancing the field of system dynamics, it is our duty to provide experienced dynamicists valuable experiences.

A number of feasible actions have been identified to make the membership experience more valuable to each of these groups. Let me mention first those actions directed at all or experienced members:

- We can open new conference threads and training/tutorials on cross-field topics of interest; this will attract more professionals from other disciplines attending our conference and therefore increase the chances to grow in areas that might be stimulating and/or useful for the work of experienced dynamicists.
- If we thus increase the collaboration opportunities at the conference, there will be two effects: (1) it will increase the number of connections for isolated professionals, and (2) there will be more opportunities for research.
- Assuring a high visibility of quality research at the international conference, we would allow experienced dynamicists to give good examples to learning-oriented members.

Turning now to our learning-oriented members, now for actions we see in front of us:

- Online training opportunities will help members in remote areas to access knowledge about proper system dynamics modeling.
- Translating beginner-oriented system dynamics materials into different languages is the chance to reach interested individuals in places where English is not the mother tongue or an official language (and there are quite some areas where this is the case).
- Workshops/training on writing and publishing increases the ability to publish on system dynamics work.
- Establishing a "Mentor Award" for system dynamics experts can make mentorship a reality for learners worldwide and also increase the integration of new members.

As you can see, this ad hoc committee has given us valuable input to the B in BLISS. I propose to think of this B in terms of global learning opportunities, and certainly the summer school is worth mentioning in this context. The summer school is a relatively new activity for the Society, but thanks to the work of many members

who have made it possible over the past years, and thanks to those who have participated and shared their experience with us, we know that it is a successful activity. However, in its current state of development, it is restricted in time and space the week before the international conference at the site of the international conference. We shall strive to make the summer school accessible to our members in diverse places and at different times; we have called this idea the summer school in a box, and a group of members would be working to make first steps into this direction.

Many scientific or professional associations have developed and maintain a so-called body of knowledge, which makes the essentials of a discipline visible at a single point of entry - not only for members of the respective community, but also to potentially interested outsiders. Such a body of knowledge for system dynamics modeling would contain a brief conceptual definition of each skill component, a description of how it is carried out and how to assess the quality of its implementation, together with references to further sources. Even though this body of knowledge is still a thing in the future, I need to mention it to you because it will be an important element to serve our learning-oriented members - together with the summer school in a box - in the first phases of their learning process.

Another feasible action has been discussed under the label of "unpacking the making of outstanding models". Those of you who have studied classical books like *World Dynamics* or *Urban Dynamics* will remember how instructive the reading was: these books more or less allowed the reader to look into the mind of the modeler. So why not ask authors of outstanding models to talk about how they converted an initial problem into the model they built, in the form of videos? This would allow learning-oriented members to "spy" on experienced dynamicists without requiring the expert to comment on the reasoning more than once.

For those learners who have already reached an intermediate stage of competence development, the modeling assistance workshops offered as part of the international conference has always been an important resource. Mentoring is a crucial process, and it is not surprising that it has been pointed out by the new products and revenues ad hoc committee as well as the members engagement and retention ad hoc committee. But - in a way similar to the current format of the summer school - the modeling assistance workshop has been bound to the time and the place of the conference. Thanks to the new products and revenues ad hoc committee and especially our Vice-President Professional Practice, the global mentoring initiative will be a crucial opportunity to connect with expert dynamicists independently from space and time.

In the context of learning to "do" system dynamics, let me also mention that we have established a memorandum of understanding with the Creative Learning Exchange (CLE) - one of the other players on the field of system dynamics. The CLE is a community of educators and teachers who have developed and share a wealth of resources for teaching system dynamics and for learning it.

While it is certainly important for the future of the Society to engage in these new initiatives and actions, it is also important

to pay attention to the development of the conference and our journal.

As you may have noticed, many of the actions outlined above have to do with the conference. The conference is steered by the Vice-President Meetings and the SPOC (Society Program Oversight Committee), but we also have a conference related ad hoc committee because the areas of membership and professional practice are also affected by the conference - as is the yearly budget of the Society. We are committed to the international conference and will make every effort to develop its structure and content to allow a valuable experience for experienced dynamicists as well as learning-oriented members. This also means that we evaluate collaboration with sister associations.

Let me now come to our journal, the System Dynamics Review (SDR). Over the decades, the SDR has evolved through different stages. To understand its current situation, it is important to remember that approximately 10 years ago, the editorial policy had been revised. The following narrative is my personal interpretation, and it is entirely possible that others only partially agreed to it; I want to articulate my interpretation transparently, assuring that they are open to your critique. As I see it, there was an attempt to define the role played by the SDR in the world of scientific journals as the prime publication for advances in the method of system dynamics modeling. Applications of system dynamics in specific areas were meant to be published in journals belonging to those areas; this would spread the news of system dynamics as a useful approach in these areas, and at the same time profile the SDR as a publication for advances in the system dynamics methodology and dynamic decision-making. After a couple of years under this editorial policy, the SDR had indeed become a very specialized publication, and its articles received an increasing number of citations. A series of standards and rules have been developed to assure the work published in the SDR is scientifically sound: replicable and closely tied to evidence.

At the same time, the number of submissions and published articles decreased. Responding to this development, the editorial policy was revised to include relevant application papers as well as articles dealing with teaching and learning system dynamics. As I am delivering this presidential address, the SDR is receiving more submissions - but in the quickly changing industry of scientific publishing, new challenges are in front of us. Namely, the move towards open access publishing puts quite some pressure on scientific publications in general, and the perspective that in the nearby future our authors may have to pay for their work to be published in the SDR requires us to carefully examine our options on the way into this future.

At the same time, the discussion around the question what are the identifying or essential characteristics of system dynamics also has an implication for the aims and scope of the SDR. So, let me quote the new aims and scope of our journal:

*System Dynamics Review exists to communicate to a wide audience advances in the application and methods/tools of system dynamics approach. In its broadest sense, the system dynamics approach means model-based analysis of dynamic problems with a systems approach, focusing on endogenous, structural sources of the dynamics of interest. Depending on the characteristics of a given problem, different modeling*

*tools, architecture and software can be used with this endogenous dynamic perspective. Applications include social, technical, managerial, business, economic, health, biological, ecological and environmental problems, among others.*

*The publication goals of Review include but are not limited to: advances in modelling and simulation methodologies for dynamic feedback problems; advances in methods of policy analysis based on endogenous feedback causality; modeling applications in diverse domains; generic structures (feedback structures that support widely applicable behavioral insights); system dynamics contributions to theory building in the social and natural sciences; contributions to the analysis, and applications of complex nonlinear dynamics; policy studies and debate emphasizing the role of feedback causality in the problem behavior of concern; developments in strategies for simulation-based consulting and implementation of model-based policy conclusions; advances in methods and applications of systems thinking approaches relevant to dynamic feedback problems; contributions to system dynamics education and teaching.*

I quote the entire statement because I want to make sure that you take notice of the boundary which we are defining: "model-based analysis of dynamic problems with a systems approach, focusing on endogenous, structural sources of the dynamics of interest" means that the endogenous approach and the articulation of models as basis for inquiry in the causes of dynamic problems is considered essential. It is not essential that your model be in aggregate stock and flow model.

Note also that we encourage insightful application - that is, applications containing information and insights which will be useful beyond the particular application itself. Therefore, if you have developed applied work and believe that the content of your work or the methods and tools used would be relevant to others in the wider field, please consider the SDR as a high-quality publication outlet. And by the way: if you look up the challenges for the field that are discussed at the end of the seminal "Business Dynamics" book and think about it in the light of the works which have received the Jay Forrester award since its publication, we quickly realize that there is a wide array of methodological contributions to be made. So, the new aims and scope is not equivalent to watering down the essence of the SDR - they only recognize that system dynamics is evolving in a world which is changing over time.

What do I mean with high quality? Referring to the SDR, our authors receive a swift and thorough review and helpful feedback. This assures you that your work will be shared with others the clearest possible way and has a good chance to play its role in the collective process of science. Of course, this may mean that you need to rework certain aspects one or several times; however, such iterations will never be useless exercises - they would always lead to improvements in the currency and clarity of your contribution. And this leads me to the other aspect of high-quality: the SDR has high standards and strict rules for its articles, and I do believe that this is a huge advantage. These standards are explicit, so as an author, you know precisely what is expected from you and you can implement a lot of quality assurance before your initial submission. And: authors and readers alike can trust that the SDR articles have gone through a strict scrutiny, your work would be seen as trustworthy and others would use it and cite it.

Yes, it is difficult to produce a piece of work that is published in the SDR. But then again, is the criterion “difficulty” the most relevant one? If you think of system dynamics work in a similar way then a musician thinks of playing music on his or her instrument, of a physician having a patient recovering health or an architect designing a building, then you quickly realized that whatever you do: doing it well is difficult. However, if playing music is meaningful for the musician, if the physician cares about his or her patients, if the architect enjoys creating buildings that are inspiring for its inhabitants, then they always want to improve their skills and ability. In that case, the fact that this is difficult it is not the most relevant aspect - it is the drive to become better at what they are doing.

Let me close the 2019 presidential address with a firm encouragement to get in touch with the chapter in your area, with the SIG dedicated to your application area to exchange with colleagues, with a Policy Council member or the home office to volunteer for the benefit of the Society and its members, with the editors of the SDR to see if your work should be published there, and with the program committee of the next international

conference to propose workshops or simply see where your work fits in. The System Dynamics Society is a membership and every contribution of yours will be to the benefit of other members, and their contributions will benefit you. And let us all be thankful to those volunteers and professionals who invest their time so that we have a backbone for the System Dynamics Society.

And now, forward – there is a lot of work awaiting us.

