

The use of the Society's capacity development funding

The Brazilian Chapter Experience

<https://docs.google.com/file/d/0B-F3Xg6GPgGidERNZjk5Z0lNR3M/edit>

Capacity Development Fund

The Policy Council of the Society approved Motion 103 during the 2011 Winter Meeting, allocating US\$20,000 in the 2011 budget toward promoting chapter activities, ***“in order to support the development of capacity in/of SD in locations that are outside of the default conference locations.”*** (Development of capacity is interpreted to mean ***“new initiatives for workshops and/or training delivered by established experts external to the proposing group.”***)

Chapters in good standing are encouraged to develop and submit proposals to the VP Chapters. The substantive review and final approval of proposals, and awarding of grants with this funding, is the responsibility of an ad hoc Strengthening the Field Committee (SFC) consisting of VP Meetings, VP Finances, and Society President. If not fully expended in 2011, this budgeted line item will carry over to 2012.

An intermediate to advanced workshop in System dynamics

Model analysis of the
Market Growth Model

Workshop content (1/4)

Day 1: November 14, 2011

Session #1 – The Market Growth Model (MGM)

Purpose: Introduce the MGM, review CLD, SFs, and syntax

- Introduction to the MG problem and model
 - Feedback processes and causal loop diagrams
 - Stock-and-flow structures
 - Implementing the MGM

Workshop content (2/4)

Session #2 – Partial and full model analysis

Purpose: Partial and full model analysis

- Dynamic hypotheses
 - Sales growth, capacity acquisition, sales effectiveness
- Intended rationality
 - Indicated salesmen, delivery delays, capacity investment
- Extreme condition tests
 - (High–low) backlog, (many–few) salesmen, (high–low) capacity
- Full model analysis
 - Causal tracing

Workshop content (3/4)

Day 2: November 15, 2011

Session #1 – Advanced methods: Sensitivity analysis

Purpose: Univariate and multivariate sensitivity analysis

- Univariate sensitivity analysis
 - Single parameter uncertainty: random variables and distributions
 - Sensitivity tests: Salesman salary, delivery delay bias, capacity ordering delay
 - Analyzing sensitivity results
 - Probability distributions, confidence intervals, graphs
- Multivariate sensitivity analysis
 - Monte Carlo simulation
 - Latin hypercube

Workshop content (4/4)

Session #2 – Optimization and linearization

Purpose: Introduce/implement optimization, linearization, and calibration

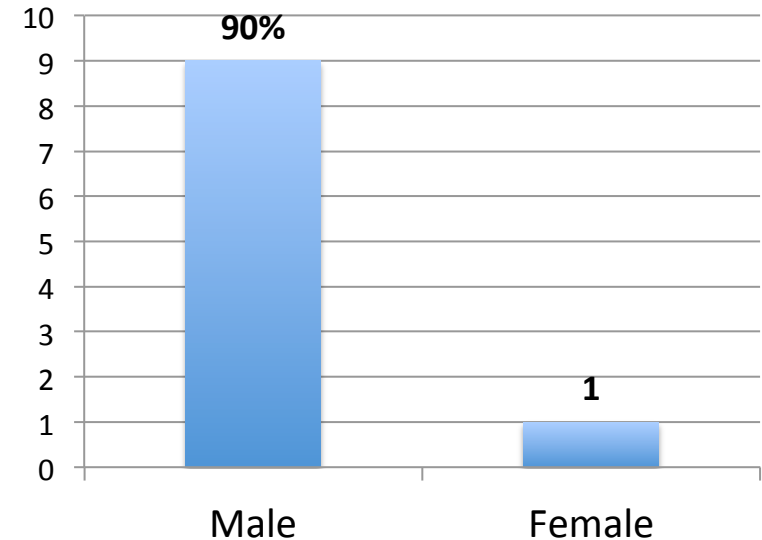
- Optimization: Objective maximization/minimization
 - Designing an objective function
 - Multi-criteria decisions
 - Time discounting
- Linearizing the MGM
 - Systems of equations
 - Eigen-analysis
- Calibration to data (time permitting)
 - Theil Statistics

Workshop participants

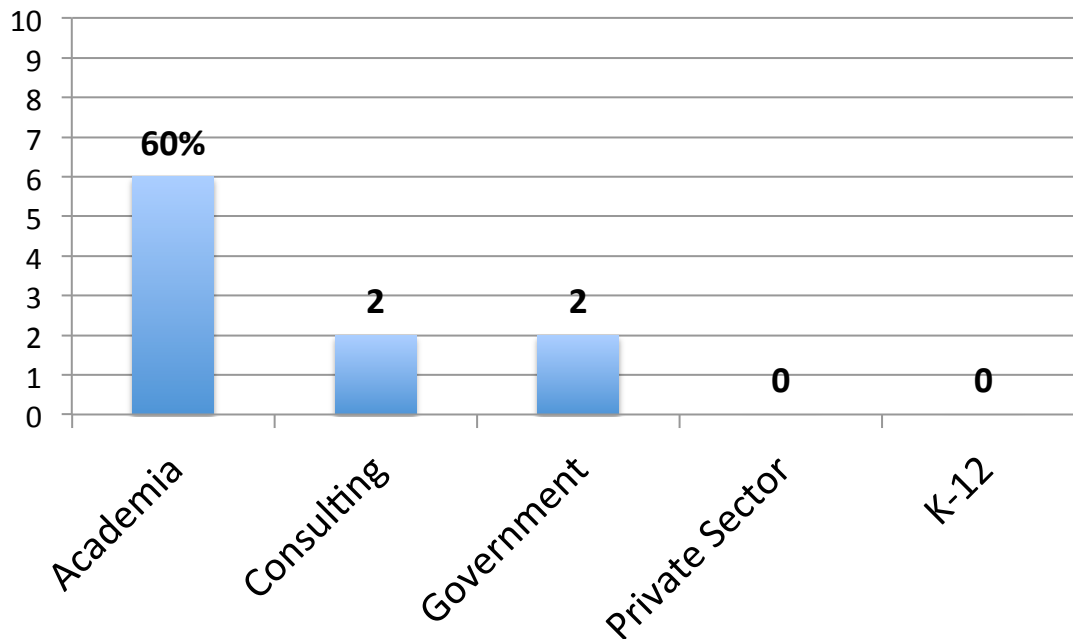
Total: 11 (targeted: 15)

- The only non-Brazilian registered could not attend because she did not obtain an entry visa

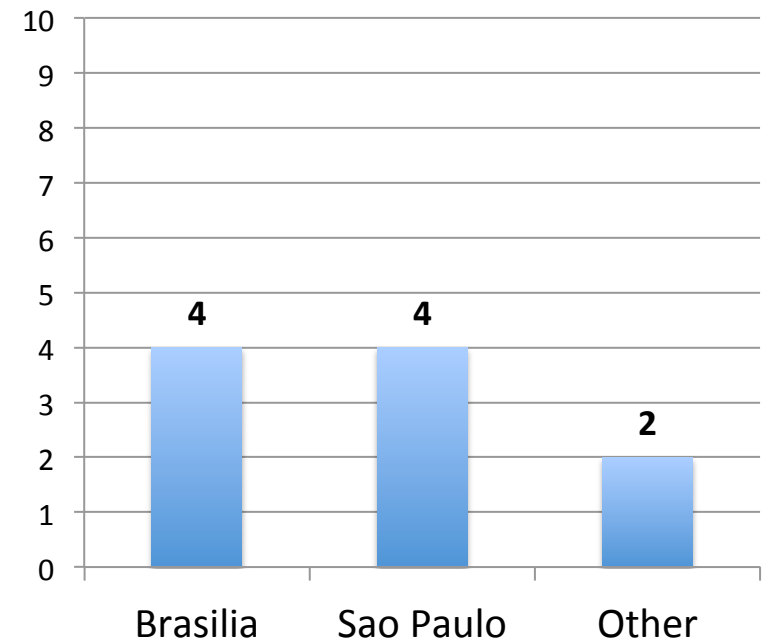
Gender



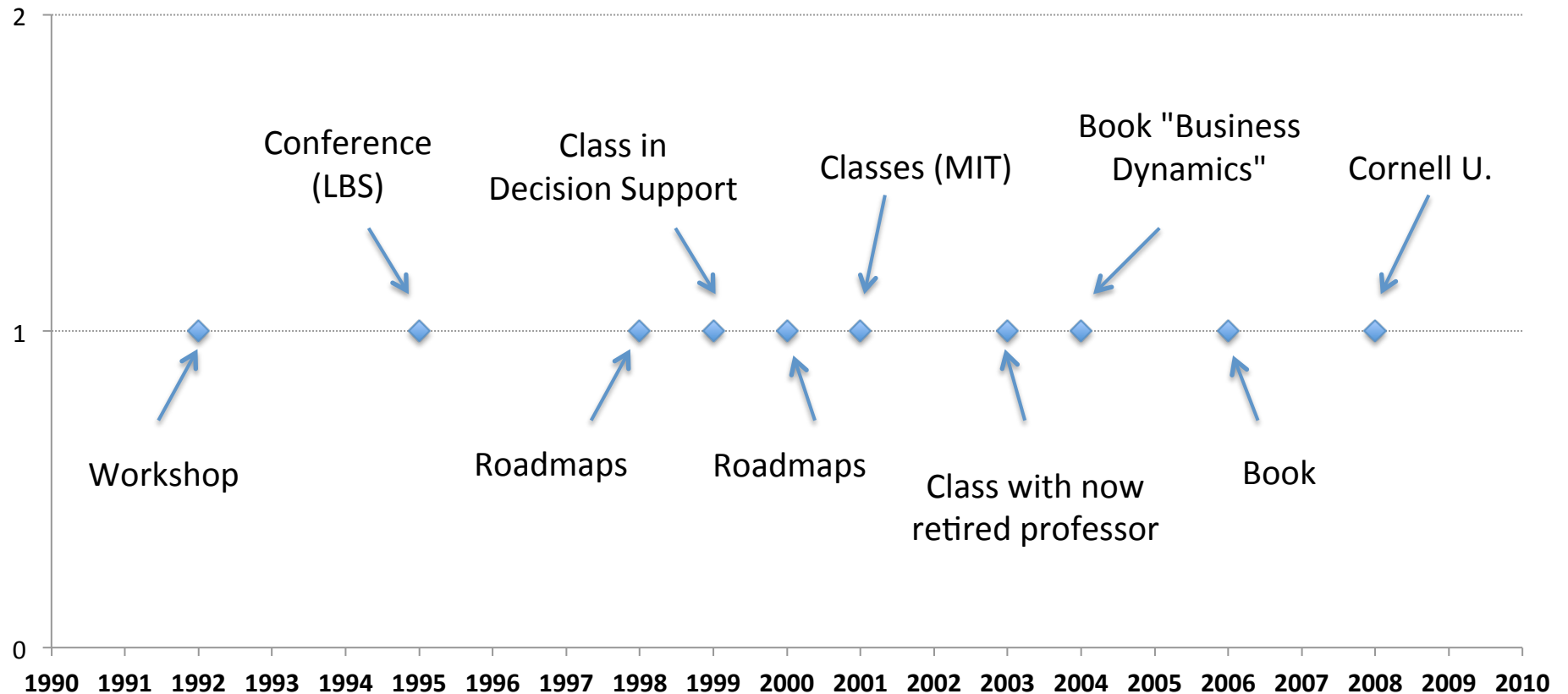
Sector



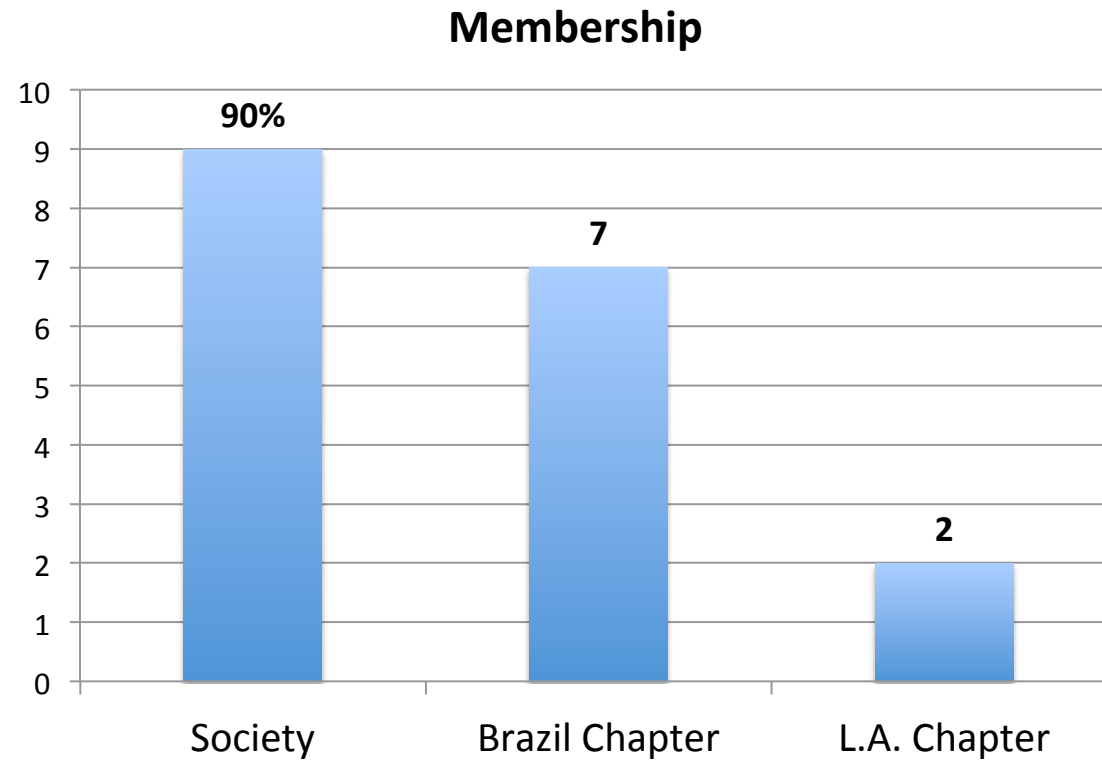
Location



How/when introduced to SD?



Society membership & affiliations



Budgeted vs. realized revenues & expenses

Items	Budgeted (USD)	Realized (R\$)
Capacity Development Fund	4,000	6,708.69
Revenue from registrations	3,000 15 registrations x \$200/each	3,027.24 11 registrations
<i>TOTAL REVENUE</i>	<i>7,000</i>	<i>9,735.93</i>
Instructor payment	(2,000)	(3,620.00)
Conference room rental (Including coffee breaks)	(2,000)	(3,774.00)
Equipment rental	(500)	(0.00)
Instructor travel & per diem	(2,000)	(900.00)
Bank fees and other expenses	(500)	(997.00)
<i>TOTAL EXPENSES</i>	<i>(7,000)</i>	<i>(9,291.00)</i>
Balance	0	444.93

Participant evaluations

Results from
entry & exit questionnaires

Expectations for workshop

- Learn model analysis techniques
- Learn about the Market Growth Model
- Improve modeling skills
- Expand SD usage horizon
- Clarification and better understanding
- Deepen knowledge
- Learn to use advanced features of simulation software
- Refresher
- Opportunity to stay active

Were expectations met?

Any surprises?

- Yes, enjoyed and learned
- Appreciated learning advanced techniques for model development and testing
- Expected to experience difficulty and did
- Discovered personal deficiencies and “novel” techniques
- Approach used, and instructor experience, naturally revealed insights and sparked discussion
- Really liked the part about “rational intent”
- Sometimes felt lost due to amount of material covered

Four scores

Instructor knowledge & experience

Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied
0	0	0	0	10

Subjects & techniques covered

Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied
0	0	0	3	7

Amount of instruction delivered

Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied
0	0	3	2	5

Instructional materials & documentation

Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied
0	1	2	5	2

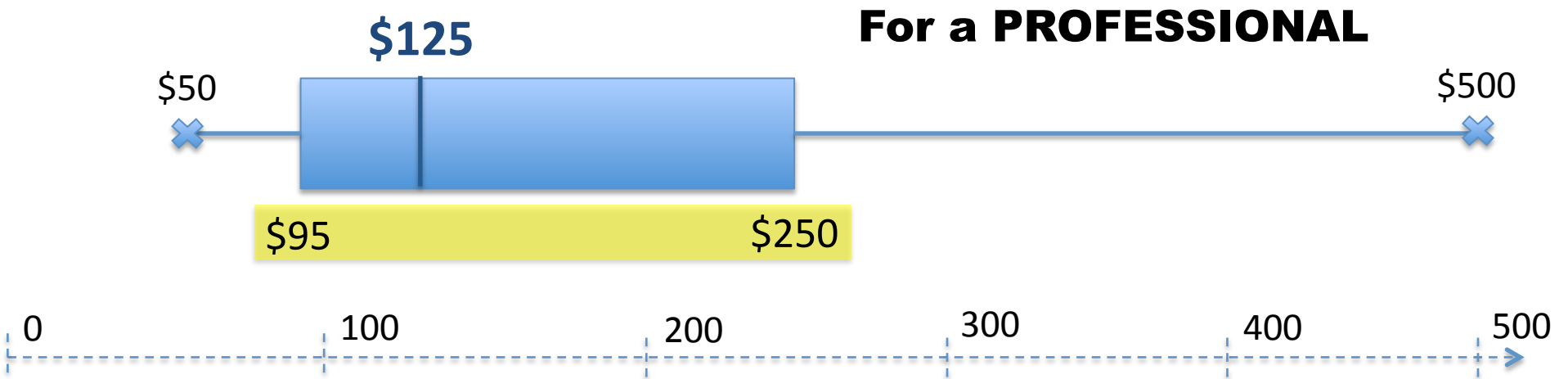
Praise

- Instructor demonstrated depth of theoretical knowledge and practical experience; treatment of important topics with references to real cases
- Developed better understanding of how to create robust models; gained appreciation for parsimony, analytical equilibrium, sensitivity analysis and optimization
- Enjoyed learning, face-to-face, from a well-qualified instructor and peers who are experienced, at a small fee and without the expense of international travel
- Enjoyed readings the MGM article; learned many details missed in reading; enjoyed seeing a very interesting model being simulated
- Feeling more secure

Critique & suggestions

- Seemed a bit improvised; could have been better organized and structured; failed to cover all topics
- There should be better balance between workshop scope and duration (the material was very dense; not enough time to cover all of the content); pace was too fast to do exercises personally; add 2-3 days (make it a full week)
- Wished to receive models and simulations beforehand; wished to have lecture notes and guidelines for procedures done during classes
- Suggest more exercises assigned to participants to do individually or helping each other in pairs/groups
- Suggest **pre**-workshop activities in preparation for face-to-face meeting; suggest **post**-workshop activities designed for practice, to surface questions, and to consolidate knowledge and skills learned

Adequate value for registration fees (Per day in USD)



How can SDS Chapters be most useful?

- Promote knowledge of, and increased interaction with, the professional/scholarly network (regionally or thematically); **creating** the SD network for research and consulting
- Dissemination of knowledge via conferences, workshops, publications, etc., particularly about SD applications to concrete problems;
- Provide training and information materials; facilitating access to development resources (courses, consultants, experts)

Desired activities for upcoming year

- Create an open/friendly environment
- Maintain the research network
- Organize an annual conference
- Promote training, including distance learning opportunities; more on advanced techniques based on generic models
- Publish and maintain a bibliography and share knowledge about ongoing projects and research
- Support WiKi to share knowledge; provide a model repository
- Promote institutional outreach; publish newsletters
- Create other opportunities for learning (vendors training users, conceptualization & formulation, model simplification, large scale models, validation, etc.)