

Improvement of the Professional Practice of System Dynamics

Ken Cooper
Winter Policy Council
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1. Main events and achievements of 2014

The Society has concluded that it is important to improve the professional practice of system dynamics. In 2014 we began with a long list of potential directions that might be taken. We then worked together to focus those into a few key *challenges to improvement of professional practice*. In summary, they are:

- Too few visible examples--in the form of individuals, organizations, and cases--that serve as role models to inspire entering and excelling in the commercial practice of system dynamics
- Too few mentoring opportunities to guide novices in the excellent art, science, and business of system dynamics modeling
- Too few opportunities to work on big, important, commercially valuable problem cases (hence low fees, low pay, low professional satisfaction, low attractiveness...)
- Too few paths available for a long-term rewarding professional career in system dynamics (hence stagnant skills development opportunities)
- Too little clear incentive for existing commercial organizations to participate in changing the situation

In the summer we outlined a plan that is supported, and further inspired, by some recent brilliant work by George Richardson, David Andersen, and Roberta Spencer. George writes of them in a paper, "Drawing Insights from a Small Model of the Growth of a Management Science Field."

There are three intertwined elements in the agreed plan:

- Establishment of a de facto *academic-commercial alliance* (students get an unprecedented exposure to best commercial SD practice from the best professionals in the field, firms get far better access to promising talent)
- Development of “*top-gun schools*”—a previously rare level of mentoring at commercial firms practicing system dynamics
- Expansion of the *success stories* of system dynamics (this will be one tangible output of the process here, a deliverable from each student allied with a firm).

2. Main aims for 2015

2015 Winter Meeting Actions

- **Enlist curriculum designers** at this winter meeting to plan core content of Top Gun training (need 1-2 professors and 1-2 practitioners, such as George R, David A, Khalid S, Jim L, John S, Sharon E, Ken C...).
- Enlist George R to participate as **first “(Virtual) Visiting Professor Emeritus”** (the ranks to be expanded after pilot)
- **Identify a short list of schools** targeted to participate (allow a student or 2 to be in Top Gun with a professional firm) in the fall... Albany, Rochester, WPI, MIT, Erasmus...; follow this with letters to the few targeted (draft letter attached below). *I have obtained a strong expression of interest in the program from one university already; our colleagues in academia should pursue a few of their schools.*
- **Identify a short list of firms** targeted to participate...e.g. PA, Greenwood/Ventana, Sandia, Los Alamos, Boeing, MITRE, Cooper... (a firm should have at least 5 experienced modelers to take on a candidate mentee); follow this with letters to the few targeted (draft letter attached below). *I have obtained strong expression of interest in the program from two practicing firms already.*
- Agree responsibility for **specifying criteria for students**. (Thereafter, promote the program on the website to begin identifying the first Top Gun candidates—they should feel that they are among the chosen elite!)

Late 2015

- Pilot with a small number of candidate (grad) students (5?), with small number of universities and firms. (George? visits or teleconnects to talk, teach, & cross pollenate as a “Visiting Professor Emeritus”)
- Obtain first round of documented “success stories”.
- Evaluate program during and after term, refine curriculum

2016

- Expand to 15-20 candidates for fall term, expand the ranks of “Visiting Professors Emeritus” and firms

3. Support, cooperation and resources needed as well as potential obstacles/issues.

As noted above, we now need volunteers to:

- Design the core Top Gun curriculum (1+ professor, 1+ practitioner)
- Sign up first “(Virtual) Visiting Professor Emeritus”
- Identify the schools to be targeted for the pilot, and solicit their participation (beyond the one that I have)
- Identify the commercial firms to be targeted for the pilot, and solicit their participation (beyond the two that I have)
- Specify criteria for student selection
- Promote the program on SDS website (how else?)

We will learn more as we go. We will change and refine the near-term program, and add elements over the years. We have a structure in place now to do so, with active SIGs (particularly in Business), and several pertinent functional roles in the leadership of the Society.

I know that it is possible to grow a high-quality practice by 10-15% annually. After the program is established, we should *target a 10% annual growth in professional practitioners of system dynamics*—not from simply hiring more, but from taking action on these and future quality improvement initiatives. The growth will come from increased demand—the demand of paying clients and of eager, inspired new and maturing practitioners.

Draft of letter from SDS to solicited companies and universities

We write to invite your participation in a pilot program to increase the number of top-notch professional system dynamics practitioners globally, which SDS has established as a priority objective.

The Society has agreed that a de facto academic-commercial alliance would be most effective in improving all these conditions. After much consideration, we request that your organization/university participate in this pilot program. We intend to expand the program in subsequent years, but we are limiting it initially to just a few notable participants, and we hope you can be one of them.

The so-called “Top Gun” program would take graduate students with system dynamics formal education and place them in firms commercially practicing SD. The firms will coach and mentor the students over a school term, and a senior “Visiting Professor” from the Society will oversee the basic elements of each placement to ensure quality and cross-pollination.

We see this program delivering significant benefits to *improvement of system dynamics professional practice*:

- Providing visible examples--in the form of individuals, organizations, and cases--that serve as *role models* to inspire students to enter and excel in the commercial practice of system dynamics
- Providing *mentoring* opportunities to guide novices in the excellent art, science, and business of system dynamics modeling
- Providing opportunities to work on big, important, exciting, commercially valuable cases
- Identifying paths available for a long-term rewarding professional career in system dynamics
- Generating a clear incentive for existing commercial organizations to participate in student development

We believe this is an exciting development opportunity for students, and a “win-win” for all involved. Please contact XXXXXXXX at YYYYYYYY for more information, and we will follow up with you in the next two weeks.

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