Ladies and Gentlemen,
Dear Members of System Dynamics Society,

It's a great honor and privilege to receive this award. I am truly humbled by, and thankful for the recognition.
This could have not been possible without the help and support of many people, some of whom are here tonight. So thank you!
I would like to take this opportunity to briefly talk about my journey, and share some of my experiences that may be helpful for the path forward in the society.

My story:

1. ***Entering the Filed:***

I entered Sloan in the Fall of 1973 as a PhD student to study Planning and Control, then chaired by Professor Michael Morton. Right before I left Iran, the vice chancellor of my Alma Mater, a bright MIT graduate, advised me to major in System Dynamics with Professor Jay Forrester.

Once I started at MIT, still a Planning and Control major, I took a System Dynamics course to see what this new field is about. The first course had a profound impact on me and right then I decided to change my major. And thus with Michael's permission, and Jay's acceptance began my journey in SD.

2. ***Jay Forrester the advisor:***

I was lucky and very privileged to learn from and work with Jay Forrester. His lectures and talks shaped my deep appreciation and love for SD. He became my advisor and my mentor. His clear thinking, his deep insights in dynamics of socio-economic systems, and his brilliant mind to pick and highlight the major points in any subject or discussion, all helped me gain deeper understanding of the field and develop my modeling skills.

Through our Friday Morning Study Group, a few of my fellow PhD students (including David Andersen and George Richardson) also played a significant role in enhancing my understanding of SD. We met every Friday to present and discuss our work, in a very positive and constructive manner so we could all learn from and with each other. To this day, I encourage my own students to hold similar discussion groups (though it doesn't have to be on Fridays; it could be on Saturdays!).

3. ***My Thesis:***

When I was at MIT, the National Model was the major project in system dynamics group and most PhD students worked on a topic within that Model. But I wanted to define and work on a development problem related to Iran. So despite some serious warnings from Professor Forrester that defining my own problem would be a risky undertaking – I may not be able to complete it in

time, he said – I went ahead. Fortunately, my research went well and as you all know I did graduate! :)

My thesis examined the strategy of economic development based on exhaustible resources for the case of Iran. I managed to define a clear and focused dynamic problem and develop a model to Jay's satisfaction.

I'll never forget: when I presented my model, its behavior, and findings to Jay, he asked me if they were indeed the result of a model or my own drawings. When I assured him that they are the actual outputs, he stood up, shook my hand and congratulated me!!!

To me the practice of defining a clear dynamic problem, developing a dynamic hypothesis and then formulating a model was very crucial in development of my skills and understanding of system dynamics modeling.

4. Starting at MIT

After obtaining my PhD, Jay asked me to join the system dynamics group at MIT and work on the National Model Project. So I began working as a research associate. But after a few months, against Jay's wish for me to stay and continue my work, I returned to Iran. This was November 1978, when Iran was in turmoil and going through a revolution. I knew the revolution would put the country in distress and there would be a much higher need to promote rational thinking and educate people who could then help develop the country. I decided to go back and hoped to make a bigger difference there than I would, if I remained here.

5. Returning to Iran - to make a (bigger) difference

Upon my return to Iran, I started my work at a newly founded University in Isfahan. We launched the IE program at Isfahan with help from two other faculty members who joined after me. But the situation in the country was far from normal! The revolution was taking over all aspects of social and political life of the country. Most of the managers at different levels and also many experts in the government were either ousted or left their jobs. Universities were closing as conflicts between different political groups on campuses across the country were dominating the academic environment. Even with opportunities to return to the States, I stayed in Iran as I thought helping to develop rational thinking in the public sector and training a new generation of technocrats, especially in management and system thinking, was important to the future of Iran, and even the region!

6. Institution Building:

In 1980, I was invited to work as an advisor to the Plan and Budget Organization of Iran, the most important planning and policy formulation organization of the Iranian government. The mission was to develop and implement a planning system for the country and educate government employees on formulating policies and plans for different economic sectors and regions. I with a colleague who joined me organized around 5,000 people in different ministries and government agencies throughout the country and put them through on-the-job training

programs for analysis of economic conditions and driving policies and plans within the government's macro-economic policies. That was my first involvement with the Plan and Budget Organization of Iran, and was the first stepping stone for my next moves to build several educational and research institutions in Iran.

The first plan we developed wasn't implemented due to the Iraq-Iran war and the uncertainty and additional chaos that the war brought. However, that planning practice had several fruitful outcomes. First, it became clear to me and more importantly to some of the key officials in the government (including the head of Plan and Budget Organization) that the country needs to educate a new generation of planning and policy experts. Second, my colleague and I who managed the planning process built a credibility and reputation as experts in planning and policy formulation. Third, I built a constructive relationship with the head of Plan and Budget Organization (PBO) and many other high officials in the government.

Seeing the need for upbringing a new generation of system thinkers and policy making experts, I seized the opportunity created by these three outcomes, and with some of my colleagues, developed a master program in engineering of socio-economic systems, which was approved by the ministry of higher education. Calling it an "engineering" program was a tactical move to dig into the talent pool that typically chooses either engineering or medicine, the two traditionally top choices in developing countries. But the title wasn't the only thing attracting talented students… the reputation my colleagues and I had built during the planning practice also helped. We launched the program in 1982 at the newly founded Isfahan University of Technology, admitting 40 students in the first class.

The Graduates of this program ended up very successful and effective in their respective careers. Among its alumni was the head of macroeconomic office of the PBO, and shortly after, the deputy of that Organization in economic affairs.

In 1986, I transferred from Isfahan to Sharif University and then came to the US for my sabbatical. The success of the program in Isfahan and its graduates were well received, and when I returned back to Iran, I was asked to build a new institution in Tehran to spread our teachings to more people, including the employees of the PBO. I was put in charge of re-opening the Institute of Research in Planning and Development – a key research institution that was shut down shortly after the revolution. I invited some of my friends to join me. We began taking some of the best graduates from across the country, and involving them in both training and research. We also launched a quarterly journal in development and planning that is still published.

For training, the institute admitted students to the same master program we started in Isfahan, in engineering of socio-economic systems. We also offered short training programs to government employees involved in development of public policies.

The research was focused on topics central to the country's development, such as strategies for the railroad network and systems, the steel industry, and development of national transportation network to name a few. We kept a high quality of teaching and research in the institute relative to other comparable institutions.

After a few successful years, the institute's positive impact was felt in the government. And in turn, that very success created sensitivity and even suspicion in some that the institute's thinking, which gravitated towards a free market economy, might not be in line with revolution's ideology.

Since the institute was affiliated with the Plan and Budget Organization, itself part of president's office, I felt a threat that with any administration change, the institute's mission might be jeopardized, its direction changed, or even shut down. To safe keep the institute from potential political risks, I suggested to the head of the PBO to transfer the institute to Sharif University of Technology, as universities are relatively more stable and independent from the government. But he did not share my viewpoint. Shortly thereafter, I left the country for my sabbatical leave again. And once the head of the PBO was replaced in a new administration, as I feared, the institute changed its mission and line of thought, moving away from free market economy towards central planning and controlled economy, at the same time merging with another training institute with a mission of mass training of government employees regardless of their talent quality

When I returned from my sabbatical to Iran in 1996, my belief remained in building institutions to offer quality education in management and economics. I was at Sharif University, the best engineering school in Iran, which attracted many of the most talented Iranian high school students. To leverage this amazing young talent pool already gathering at Sharif every year, I proposed creating the new school of management and economics.

While a few faculties supported the idea, the majority opposed creating a non-engineering program within a technical university. I spent what seemed like endless hours explaining how the management school would complement engineering education, and how badly the country needs to educate its brightest minds in management and economics. I used MIT and Sloan as an example in my arguments.

At the end, the faculty council at Sharif approved the new school and the Graduate School of Management and Economics was founded in 1999.

As it turned out, some of our alumni from the socio economic engineering program from earlier years had chosen to continue their education, obtain their PhDs, and we were able to recruit them for faculty positions at the newly established school, one positive loop was closed!

We set three objectives in the school's mission:

First was to educate talented graduates. We hoped to lead them either to continue their education in the top universities and become high quality academics in management and economics in Iran, or to enter the industry and help improve the country's management and policy formulation.

Our second objective was to train management and economics experts for the industry and government sectors via short training programs.

Our third objective was to offer elective courses to the undergraduate Engineering and Science students, make them familiar with management and economics subjects, and attract them to our new school to continue their graduate studies.

Fortunately, rather quickly, the new school became very popular at not just Sharif, but in the entire country. Very soon we had a lot of students participating in our entrance exam, dropping our acceptance rate to around 1% of applicants.

While engineering and science graduates from Sharif were well known to top universities in the world, our graduates in management and economics were new and with no track record. But gradually, our graduates found their ways to top universities such as MIT, the University of Chicago, LSE, Stanford, INSEAD, North Western, and Toronto. And those who couldn't go anywhere else ended up at Harvard! :)

In all of the programs and institutions I developed over the years, I made sure that at least one or two System Dynamics courses were taught, whether in the Industrial and Systems Engineering Department at Isfahan University, the Institute for Research in Planning and Development, or in the Graduate School of Management and Economics at Sharif. Today, some of the previous students have become teachers of SD in different universities across Iran. SD went from being taught at just the University of Isfahan in 1981, to now more than 20 universities offering SD courses. I'm proud to say that now Iran even has its own registered chapter of SD Society.

7. Teaching System Dynamics

Over the past 35 years I've taught more than a dozen courses in a wide variety of subjects required to launch different programs. Yet the only one I've taught every year without an exception is System Dynamics. Whether taught as a required course or an elective one, these SD courses have had a significant impact on the students. In particular, the System Dynamics elective for undergraduates has been a turning point in taking in talented Iranian students, most of whom traditionally choose engineering over social sciences, and attracting them towards social and management studies and modeling. Some of these students have progressed and became prominent members of system dynamics society like Hajir Rahmandad, Navid Ghafarzadegan, Mohammad Mojtahedzadeh to name a few and some others are now teaching at the top universities in the world.

In teaching SD over the past three decades, I developed a course structure that I think is very effective in teaching the subject and attracting students to the field. And as a university professor, I wouldn't sleep right tonight if I didn't try to transfer briefly that structure to you here today!

The first course that I teach has become the most popular elective course among undergraduates at Sharif University, and more than 120 students register for each class. The course is divided into five parts:
The first part focuses on teaching dynamic and systems perspective and use of models in general that I think we don't emphasize enough in our teachings.

The second part covers theory of structure, mapping tools, and mathematical equations and simulation.

The third part covers simple systems structure that creates simple dynamics such as exponential growth, overshoot and oscillation. For each simple structure we discuss examples from real life in economics, natural sciences, business, politics, and social situations.

The fourth part presents and discusses complex systems from previous works in the field of system dynamics.

The fifth part is modeling that is discussed and practiced throughout different parts of the first course. (figure 1)

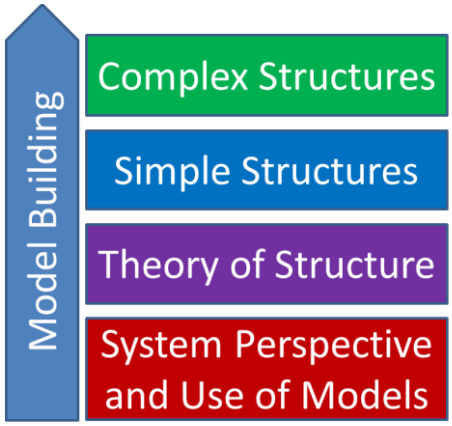

Figure 1: The first course structure.

The second system dynamics course focuses on more advanced topics. In this part we discuss classic and recent system dynamics papers published in the field. In addition students do a modeling project by picking a real world problem.

In addition to teaching formal system dynamics courses, from several years ago we established a voluntary group of my students who are interested in teaching system thinking in primary and middle schools by playing games and reading stories. The group is called ASEMAN – meaning sky in Farsi! Volunteer students have taken system dynamics courses and share the belief that we should teach system thinking to our youngsters from an earlier age. This is what Forrester thought the field should do, and was promoting it himself. We have developed material currently being used in schools. The group also is training interested school teachers in system thinking so they can teach it themselves in their classrooms. I am hopeful to expand this activity to most schools in the country in coordination with the ministry of education.

The joy of teaching and spreading system dynamics has been the best part of my academic career. I have gained the most joy from attracting and training talented students and spreading our valuable field in that part of the world.

I think for the goal I set for myself in 1978, I made the right decision in returning to Iran. The best way to a peaceful world is through sound education, economic development, and creation of hope for progress and prosperity. Looking back I was able to play a role in founding several key educational and research institutions, and train some of the upcoming generation of managers and policy makers of Iran. I am optimistic that based on what we've done in Iran during the last three decades; the quality of the fields of management and economics in that country will change dramatically and will have considerable impact on the development and progress of the nation for years to come and that makes me quit satisfied with the crucial decision I made in 1978.

Thank you!