

There were also sessions that explored applications of modeling and simulation to healthcare process improvement and discussions for how systems engineers and healthcare system simulation professionals could collaborate to yield enhanced benefits to healthcare delivery. Pat Baird from Baxter suggests alignment of Patient, Products, Practice, and Policy (including process) creates an ideal state. Misalignment causes adverse events to take place. All agreed that there is a need better alignment between hospital operations systems engineering and medical device systems engineering.

One challenge regularly raised its head, "How do we show stakeholders what systems engineering can do?" ED operations are complex, dynamic, and people-dependent, resulting in errors, delays, and variability in time of care, which makes them a prime opportunity for applying systems engineering methods. Several good examples of modeling and simulation were shown, and while we agreed they would be helpful acceptance by the clinical care community has been very limited. Come join the INCOSE Healthcare Working Group as we continue taking on these tough challenges in our next sessions focusing on the operating and intensive care departments. A key next step is that our work has to have clear value to the decision makers in terms that speak to them. We also agreed that a priority is to include the people in the modeling approach, to model the average value (to establish standards and show 'value on average', but also include expected variation and robustness).

Come join the INCOSE Healthcare Working Group as we continue taking on these tough challenges in our next sessions focusing on the operating and intensive care departments.

## EWLSE Update - INCOSE IW

Lisa Hoverman, newsletter @incose.org,

Alice Squires, alice.squires@wsu.edu

Systems engineering, at its heart, tackles complex and pressing issues working towards a solution of maximum benefit. This heart is strongly evident in the INCOSE Committee/Working Group "Empowering Women as Leaders in Systems Engineering (EWLSE)." EWLSE kicked off at the International Symposium (IS) 2015, and while still 'on the left side of the V' is going very strong. EWLSE held a very successful meeting at the 2016 INCOSE International Workshop (INCOSE IW), which set up exciting plans for the EWLSE offering in Edinburgh at the 2016 INCOSE International Symposium (INCOSE IS).

Founder Alice Squires kicked off the meeting with a round robin discussion of valuable resources for empowering women as leaders. The most common response was 'mentors' – specifically other women and included volunteering and getting feedback. This

comment on 'mentors' led to a direct action item for EWLSE to begin working on a Mentor-Mentee Initiative. The article from EWLSE member Claus Nielsen on EWLSE Mentor-Mentee Initiative in this newsletter is the start to fulfillment of that action item. Women attending the meeting shared published resources in the round robin that empowered them in their systems journey – some of these we list at the end of this write up for those interested in accessing.

Following the informational requirements gathering (or round robin), Claus Nielsen provided a short demonstration of the external EWLSE website. The website is under construction and ideas generated by participants included a 'resource page' with a list of empowering resources and a description of how the resource benefitted the member, a list of EWLSE liaisons to similarly chartered groups in other professional societies and networks, and the start of the EWLSE mentor/mentee group.

Next, EWLSE member Heidi Hahn provided an overview of current INCOSE Women in Systems Engineering (WISE) chapters and requested those interested in establishing a WISE chapter to contact her. You can reach Heidi at: [Hahn@lanl.gov](mailto:Hahn@lanl.gov) with Subject Line: WISE Chapter. Member Donna Rhodes discussed EWLSE outreach activities, the idea of establishing regional directors, and the need for being selective and leveraging existing efforts and relationships with other women in engineering groups. Regina Griego led the finalization of the 2016 INCOSEIS Workshop on Sunday Afternoon: July 17, 1:00 – 5:15 PM with a panel Beyond the Resume: Personal Journey of INCOSE Women Leaders and a round robin activity to extend throughout the conference.

When asked what is it that EWLSE wants to accomplish, the following responses flowed:

- "Make women aware of successful strategies to develop into systems engineering leaders."
- "Leverage initiatives like the INCOSEIS workshop that is planned – share with women in systems engineering your story – Similar to an 'Introductions Necessary' for EWLSE."
- "Be the systems integrators of efforts to raise awareness of the value of empowering women as leaders in engineering and systems engineering around the globe."
- "Participate with other professional societies / programs in progress that support women in STEM fields."
- "Develop engaging content and delivery approaches to bring systems engineering, knowledge, skills, abilities, attitudes, and values to women across cultures, locations, and domains."

*EWLSE Update - INCOSE IW continued on page 11.*

# Career Section

## EWLSE Mentor/Mentee Initiative

Claus Nielsen, c.nielsen@cranfield.ac.uk

The Empowering Women as Leaders in Systems Engineering (EWLSE) Working Group has held a number of meetings at the INCOSE International Symposium (IS) 2015 and the International Workshop (IW) 2016, with participation of women and men working at different levels and different areas of systems engineering.

From these meetings, the discussions, and the personal stories shared, it is clear that many women in an early career in an engineering role, are seeking guidance on navigating the systems engineering field. In many organisations, a preferred way of providing this guidance is through a mentor program. However, in a field with a high percentage of men there is a high likelihood that the mentor will be male. Now, this is not at all an issue for the vast majority of guidance needed on aspects such as career planning or on navigating the organisation.

However, from the EWLSE discussions it is evident that women in the systems engineering field come across a lot of questions, observations and perhaps doubts about the role of women in systems engineering and in systems engineering leadership. A fair amount of these may arise because of the existing gender gap in the field and their male counterparts may not have encountered them. Consequently, it can be difficult to find answers to these questions from a male mentor. With a shortage of senior-level women in systems engineering, it can be difficult for early career female system engineers to find mentors that have experience with these questions, especially within their own organisations.

It is from this background that the EWLSE mentor/mentee initiative grew. It is a way for early career female system engineers to become the mentees of a more experienced systems engineer of the same gender. The initiative is not meant as a career boosting mechanism, but instead of as an opportunity for the mentee to seek advice and support from their mentor. It gives the mentors' the possibility of passing on their practical experiences and to share some of the knowledge they have gained from working in the field of systems engineering and in systems engineering leadership. It is meant as a cross-organisation, cross-border and cross-educational activity in which *systems engineering* is the common factor. The relationship will be driven by the mentee, and it is not to be a formal time consuming process with specific goals; instead it is an offer to the mentee to pick up the phone and seek advice from the mentor, to exchange a few e-mails to share an experience, and to potentially meet at the INCOSE IW or IS for further sharing.

### Key points for the Mentee

- A mentee driven relationship
- To seek input from a more experienced professional that has been in similar situations

- An enabler for getting guidance on the questions for which you have not been able to find answers
- Seek advice, tips and tricks on navigating the Systems Engineering field
- Advance your network
- Key points for the Mentor
- Be a champion for more women in Systems Engineering by playing an active part
- Help with the professional development of the Systems Engineering field
- Be supportive of other women
- Advance your network
- Is not a formal process or major time commitment

EWLSE is looking for mentors who are current leaders in systems engineering to volunteer to host one to three mentees, and for mentees who seek advice on navigating the systems engineering field to request a mentor. Please send your mentor or mentee request to [ewlse@incose.org](mailto:ewlse@incose.org) to get started.

## EWLSE Update - INCOSE IW

*Continued from page 4.* It is clear that EWLSE will bring needed resources and solutions to women in systems engineering, and their mission, will be one that maximizes growth for systems women.

### Empowering resources shared at EWLSE IW Meeting:

- A Game Plan for Life: The Power of Mentoring by John Wooden et. al
- Become the CEO of You, Inc. by Susan Bulkeley Butler
- Fifth Discipline by Peter Senge
- Introductions Necessary
- Lean In, Sheryl Sandberg
- On Becoming a Leadership Coach: A Holistic Approach to Coaching Excellence", Chapter 23
- Solving the Equation: Variables for Women's Success in Engineering and Computing by Christianne Corbett and Catherine Hill, published by AAUW.
- The Thinking Path - <http://www.peje.org/wp-content/uploads/2014/05/Critical-Thinking-Path-Eli-2014.pdf>
- Women in Engineering Professional Advocacy Network

To join EWLSE simply add "Empowering Women" to your My Committees / Working Groups.