Not For Women Only

Heidi Hahn, Los Alamos National Lab

One of the invited panels at IS17 in Adelaide was titled "The Role of Design in Systems Engineering – Systems Thinking Meets Design Thinking." NASA's Dawn McGowan talked about how design and systems engineering are related. This question had come up previously for me when my students in a Systems Engineering MS program had trouble reconciling what they had learned about SE processes with the Design Thinking (DT) way of working.

I had also just been teaching Design Thinking (aka Human Centered Design) to a group of female engineering students who were participants in a pipeline program called Future Female Leaders in Engineering, which involves summer internships and a professional development enrichment program among other benefits.

They had been taught SE the previous summer and they, too, had questions about how the skills being taught in Design Thinking would help them as engineers.

My initial response was along the following lines: The focus of the enrichment activities is to help build skills in problem definition, problem solving, communication and other "soft skills" that will enable you to excel as a technical leader. At LANL, progression to the higher levels of the R&D Engineer job family places a great deal of emphasis on these types of skills – technical competence in your engineering discipline is necessary but not sufficient.

I suggested that the summer DT project didn't necessarily have content related to the kind of engineering work they'd be doing in the future, but the skills related to gathering and organizing data, thoroughly understanding the problem from different points of view, considering the full product life cycle, and research ethics related to the use of humans as subjects in the design process are all directly relevant.

Dawn's presentation was really helpful to me and I hope you'll find this brief summary helpful, too. She started by saying that sometimes the different terminology, and particularly the tendency to think in either/or terms, often trips us up. Rather than being OR, it's really AND as shown in the lower left table.

Dawn debunked the myth that qualitative data is not real data, and noted that qualitative methods like interviews and focus groups are useful ways to gather stakeholder perspectives on a problem in need of solution. She also saw value in Design Thinking's inclusion of non-traditional disciplines like sociology and psychology to bear on engineering problems – again, as valuable inputs to seeing the problem to be solved from a different point of view.

As shown in the graphic below, when it comes down to it, Design Thinking and Systems Engineering care about the same things, they just come at problems from different starting points! ∞

Design	AND	Systems Engineering
Creativity (Feminine)	↔	Rigor (Masculine)
Design Thinking	↔	Systems Thinking
Qualitative Data	↔	Quantitative Data
Integrating Non-Engineering Disciplines	↔	Integrating Engineering Disciplines

Courtesy of IDEO
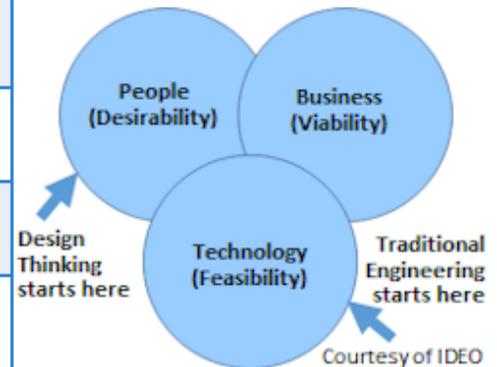
Three Days of TEDWomen

November 1-3, New Orleans. "We build them, we cross them, and sometimes we even burn them... at TEDWomen 2017, we will explore the many aspects of this year's theme: *Bridges*, through curated TED Talks, community dinners and activities throughout one of America's most beloved cities, New Orleans. We are excited to be convening TEDWomen 2017 in the historic Orpheum Theatre in New Orleans, with plans to capture the unique attractions that make this city one of the most visited in the US. We will hear TED Talks from entrepreneurs, innovators, artists and activists, thought leaders from business and civil society—bridge builders from around the world."

The first speakers in the lineup can be seen HERE. One is Valarie Kaur, pictured to the right, with a **jaw-dropping** talk (watch) that went viral, about the antidote to the rise in nationalism, polarization and hate in the U.S. and around the globe.
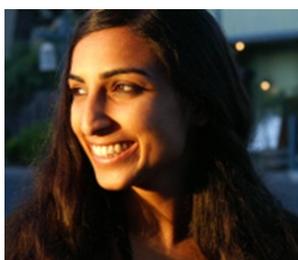
Another must watch—Sheryl Sandberg's iconic talk, *Why We Have Too Few Women Leaders*, from TED Women 2010, which inspired her book *Lean In*. She is Facebook COO with two kids.

Her follow-up TED talk, *So We Leaned In … Now What*, is HERE ∞

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2017 Oct 30-Nov 3	Las Vegas, NV
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2018 Apr 2-5	Denver, CO

Reminder: Free ASEP/CSEP exam at 2017 Socorro Summit ∞