



President's Message:

The True Professional

Robin Reynolds
Chapter President

I often refer back to [The Definition of a True Systems Engineering Professional \(as intended for INCOSE's multi-level certification program\)](#); I've sent it to mentees and colleagues and review it myself from time to time to remind myself to stay the course.

I remember carefully reading through this as I began studying for the CSEP examination and I vividly recall feeling a sense of pride and responsibility. The concepts captured in this document are still just as relevant today as they were in 2012 when it was originally published. In a nutshell, a true systems engineer *finds a way to get the job done—no matter what obstacles and complications may arise*. Kudos to each of you for doing just that – navigating the complex environment that 2020 has brought to us while continuing to stand strong as leaders in your companies and in the disciple of systems engineering. In my opinion, the key element supporting



Congratulations to Raymond Wolfgang on appointment to the 2020 INCOSE Technical Leadership Institute

successful SEs is trust. Trust is built by consistently demonstrating technical competence coupled with leadership, commitment, and the ability to execute innovative solutions which deliver value to the customer. If you haven't read it before, or haven't read it for some time, take a moment to do so and reinvigorate your commitment to these concepts.

Speaking of excellence in systems engineering, Raymond Wolfgang has been appointed to the 2020 [INCOSE Technical Leadership Institute](#). This 2-year program allows participants to strengthen one's leadership skillset, develop and collaborate with an extensive international network of SE technical leaders, and expand SE perspective and impact beyond the home organization and business focus. Raymond is an active member of our Chapter and I know that he will continue to have a positive impact on his colleagues, his company, and to SE as a whole.

Each year, INCOSE Chapters participate in the Chapter Awards Program. All awards are administered by the Chapters Committee and awarded annually to recognize performance for the previous calendar year. I'm pleased to say that the Enchantment Chapter was awarded the Platinum Award based upon the contributions and accomplishments for calendar year 2019. The Platinum Award recognizes that a chapter has exceeded the highest goals and standards established by the INCOSE organization and represents many hours of hard work and diligence by the 2019 Board of Directors and chapter members. I would like to especially thank Heidi Hahn for her leadership. Heidi served as 2019 Chapter President and now serves on the board as Past President.



Robin Reynolds proudly displays your Enchantment Chapter Platinum Award for 2019



INSIDE THIS EDITION

The True Professional	1
Business Ethics, Sex & Gender	2
What You Missed	3
Coming Up Next	3
Big Data Curriculum @ UTEP	4
New Members, Contacts, Other Useful Stuff	4

Not For Women Only:

Business Ethics, Sex & Gender

by Heidi Hahn



In reviewing the literature and survey data on gender differences in business ethics, McCabe, Ingram, and Dato-on (2006) make a distinction between sex, which is a dichotomous variable, and gender, which is multi-dimensional. Gender consists of biological sex, instrumental (masculine) and expressive (feminine) psychological traits, and gender-role attitudes.

Gender-role attitudes refer to a person's beliefs about which roles are appropriate for men and for women. Such attitudes govern the perception of appropriate roles, rights, and responsibilities and exist along a continuum that ranges from egalitarian to traditional. People with egalitarian gender-role views believe that gender roles are not dictated by biological sex. People with traditional gender-role views believe that there are different, mutually exclusive roles appropriate for men and for women. For example, traditionalists would say that it is appropriate for women to care for children and for men to provide for the family.

In the survey research, instrumental and expressive traits were measured using the Personal Attributes Questionnaire developed by Spence, Helmreich, and Stapp (1974; 1975). The instrumental scale contains self-assertive traits more associated with men than with women. The expressive scale consists of desirable, socially desirable traits more associated with women than with men.

Gender-role attitudes were measured using the Male-Female Relations Questionnaire developed by Spence,

Helmreich, and Sawin (1980). Scores indicate the degree to which respondents' behaviors and preferences reflect conventional sex-based role expectations.

Finally, participants' ethical perceptions of various business situations were measured using the Ruch and Newstrom (1975) business ethics scale.

Statistical analysis of the survey results showed that, based on sex alone, there are no differences in the ethical perceptions of men and women. But, when the multi-dimensional variable gender is considered, the results show that expressive traits and egalitarian gender-role attitudes contribute to both men's and women's perception of unethical workplace behavior as being unethical.

Because expressive traits and egalitarian gender-role attitudes are associated with the likelihood of perceiving unethical workplace behaviors as unethical, the authors suggest that employers may want to consider these characteristics when hiring and rewarding employees. Further, if employers use egalitarian values as a standard for determining whether actions are unethical, the authors believe that organizational and societal cultures will demonstrate less corruption.

References:

- McCabe, A. C., Ingram, R. and Dato-on, M. C. 2006. 'The business of ethics and gender', *Journal of Business Ethics*, 64, 101-116.
- Ruch, W. A. and Newstrom, J. W. 1975. 'How ethical are we?', *Supervisory Management*, November, 18.
- Spence, J. T., Helmreich, R. L., and Stapp, J. 1974. 'The Personal Attributes Questionnaire: A measure of sex-role stereotypes and masculinity and femininity', *JSAS: Catalog of Selected Documents in Psychology*, 4 (43).
- Spence, J. T., Helmreich, R. L., and Stapp, J. 1975. 'Ratings of self and peers on sex role attributes and their relations to self-esteem and conceptions of masculinity and femininity', *Journal of Personality and Social Psychology*, 32, 29-39.
- Spence, J. T., Helmreich, R. L., and Sawin, L. L. 1980. 'The Male-Female Relations Questionnaire: A self-report measure of sex role behaviors and preferences and their relationship to masculine and feminine personality traits, sex role attitudes, and other measures', *JSAS: Catalog of Selected Documents in Psychology*, 10 (87), 1-35.

Systems Engineering Professionals (SEPs) can break down barriers. They have a sense of empowerment — and the good judgment to know exactly where and how far they can push. Members of the leadership team know that a SEP will not be intimidated by certain barriers such as the belief that they are somehow crippled by the contract, by organizational policies, by technology, perhaps even by the leadership team itself. At the same time, the leadership team also knows that the SEP will not push hard in inappropriate places, like a bull in a china shop. A SEP is clear about what it means to be empowered, and how that power should be exercised. — John A. Thomas, from *The Definition of a True "Systems Engineering Professional" As Intended for INCOSE's Multi-Level Certification Program*.

*In looking for people to hire, look for three qualities: integrity, intelligence and energy.
And if they don't have the first, the other two will kill you. . — Warren Buffett*

What You Missed...

Recent Chapter Meetings

by Ann Hodges,
Sandia National Labs

❖ **APRIL 2020:** Josh Salinas, a Senior Member of Technical Staff at Sandia National Laboratories specializing in the application of Model Based Systems Engineering (MBSE) to Nuclear Weapons Engineering Processes, spoke on *Nuclear Weapons Engineering Requirements Modeling*. Requirements management represents a complex system of interconnections and inter-dependencies. MBSE is a Systems Engineering methodology many programs are using to manage physical product requirements. Joshua is using his experience with MBSE and adapting them to fit procedural requirements that will not only help with understanding complexity, but also proactively model and simulate a dynamic environment.

❖ **MAY 2020:** Mary Compton, Max Danik, Marcus Glazebrook, and James Nistler, technical staff members at Sandia National Laboratories, spoke on *Applying Model Based Systems Engineering to Nuclear Weapon Development and Sustainment Programs at Sandia National Laboratories*. MBSE is more than the traditional/descriptive modeling that is used to capture the characteristics of a system. A descriptive model can be used to inform and enable reduced order modeling. This talk included a brief overview of the adoption of MBSE at Sandia

Recordings of past chapter meetings are stored in the chapter's website library at:

<https://www.incose.org/incose-member-resources/chapters-groups/ChapterSites/enchantment/resources/meeting-materials>

National Laboratories and how MBSE is being applied to the nuclear weapon program cycle reduction effort. Topics included what is modeled, how modeling is implemented, challenges faced by our modeling efforts, and successes achieved using these models. Finally, the bridge from the descriptive to analytical models was discussed, showing how these federated models can be utilized by SOLSTICE, our framework for reduced order modeling.

❖ **JUNE 2020:** Rick Dove, CEO of Paradigm Shift International (specializing in agile systems and security research, engineering, and project management) and an adjunct professor at Stevens Institute of Technology, spoke on **Security Foundations for the Future of Systems Engineering (FuSE) Initiative**. The Future of Systems Engineering (FuSE) is an INCOSE led multi-organization collaborative initiative that has identified several specific topics to be investigated. Rick leads the FuSE topic on security. The current focus in the security topic within the FuSE initiative is on foundation development – general considerations that should shape the breadth and depth of necessary future solution strategies. Two IS20 papers offer two initial foundations. One addresses strategy for security system engineering as a process, the other addresses strategy for engineered system security as an operational product. This presentation reviewed the content of these two papers: “Contextually Aware Agile Security” and “Techno-Social Contracts for Security Orchestration.” Agile security is a solution designed for continual dynamic adaptation, needed to contend with relentlessly innovative agile adversaries. A social contract, in historical context, is the cultural and/or lawful agreement that binds a community of people around mutual protection. A techno-social contract is equivalent; but exists principally among a community of technical elements in a system or system-of-systems.

A Fond Farewell... I would like to wish Dr. Bill Cooper farewell and the very best of luck in his new adventure. He has accepted an exciting career opportunity in Colorado Springs. Though our time together on the INCOSE Enchantment Chapter Board of Directors has been brief, I have truly enjoyed his thoughtful and passionate engagement as Vice President. I speak for the entire board when I wish him every success, personal and professional, in the future. We look forward to hosting Bill as a speaker!

We're currently seeking a VP candidate with a passion for systems engineering and a desire to contribute to the local INCOSE organization. Please contact any board member with suggestions or interest.

- Robin Reynolds / Chapter President

Coming Up Next

Next Chapter Meetings / Events

❖ **JULY 8, 2020:** Dr. Jon Wade, professor of practice at the Jacobs School of Engineering at the University of California at San Diego, will speak on *Systems Engineering 2.0*.

❖ **AUGUST 12, 2020:** Sarah Hale, a technical staff member at Sandia National Laboratories, will speak on **A Next-Generation Model-Based Enterprise Maturity Index**.

❖ **SEPTEMBER 9, 2020:** A fun virtual social event will be held. Watch for upcoming details!

Big Data / Computational Decision Making Highlight 2020 Curriculum Changes for Our UTEP Student Division

by **Eric Smith,**
Advisor to INCOSE Student Division

Curricular changes were necessary to address increasing trends towards the computational handling of large data sets in support of systems decision making.

The Industrial, Manufacturing & Systems Engineering (IMSE) Department proposed and guided to approval the following changes to the undergraduate curriculum in the Bachelor of Science in ISE: Industrial & Systems Engineering degree plan.

The following courses were added to the Freshman schedule:

*IE 1333 Computational Methods, and,
IE 2333 Decision Support Systems*

The courses were necessary because exposure to computational methods in the first semester is essential to providing a computer programming groundwork for the

Welcome New Members!

Please welcome the following new members to our Enchantment Chapter!

Chris Hales -
Daniel Pagliaro -
Michael Schupbach - **PAGCORE Solutions**
Angel Zarate - **student**

Enchantment now has 105 members. That includes 93 regular members and 12 student members.

INCOSE has ~18,000 members in 70 countries worldwide.

creation of decision support systems, which are now necessary to understand Big Data.

IE 4391 Production Planning & Inventory Control Systems, and IE 3331 Systems Engineering are now prerequisites for *IE 4266 Senior Design Project*.

The goal is for all Senior level students to have the background necessary to make positive impacts in their project interactions with project-sponsoring organizations.

There's still time! Sign up now for INCOSE's virtual symposium, coming in just a few weeks to a screen near you.

Now, without flying to South Africa, without jet lag, without even leaving your couch, you too can participate in three days, three tracks of nonstop SE action! Chat live with the plenary speakers. Listen and interact in real-time or access session recordings after the fact (which may be a good option since sessions are being held in South Africa's time zone).

What are you waiting for? In this 30th anniversary year, the International Symposium comes to you...



30th Annual INCOSE
international symposium

Virtual Event
July 20 - 22, 2020

See: <https://www.incose.org/symp2020>

INCOSE Enchantment Chapter Board and Committee Leads

Board of Directors	President	Robin Reynolds	rmreyno@sandia.gov
	President Elect	<vacant>	
	Secretary	Ann Hodges	alhodge@sandia.gov
	Treasurer	Mary Compton	mlcompt@sandia.gov
	Past President	Heidi Hahn	drsquirt@outlook.com
	Director	Cheryl Bolstad	cbolsta@sandia.gov
	Director	James Larkin	jelarkin3@gmail.com
	Director	Eric Smith	esmith2@UTEP.edu
Committees	Director	Kyle Spisak	kspisak22@sandia.gov
	Technical	Heidi Hahn	drsquirt@outlook.com
	Prof. Development	Ann Hodges	alhodge@sandia.gov
	Collab. Engagement	Phil Bennett	pcbenne@sandia.gov
	Operations	Robin Reynolds	rmreyno@sandia.gov

The Enchanted View

is published quarterly by the INCOSE Enchantment Chapter (New Mexico & El Paso), www.incose.org/enchantment.

Editor: Bob Pierson
bob.pierson@atacorp.com

Published material does not necessarily reflect the views or opinions of INCOSE, the Enchantment Chapter Board of Directors, or the Editor.

Call or email your news, reviews, announcements, or other contributions and suggestions to the chapter Secretary: Ann Hodges, alhodge@sandia.gov.