

# Closing the Soft Skills Gap in Engineering Practice

The Live Webinar will begin shortly.....

*Upcoming PE Institute Live Webinars*

Wednesday, March 22 at 2pm

[Engineering Ethics: Public Health, Safety, and Welfare](#)

Wednesday, March 29 at 2pm

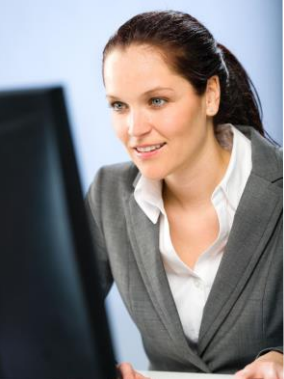
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## *Closing the Soft Skills Gap in Engineering Practice*



Your Guides to *Success Enabling Skills™*

# Learning Objectives

1. Discuss the history of the soft skills gap in engineering practice.
2. Define the definitions, terms, and language associated with soft skills.
3. Review the Engineering Competency Model (ECM).
4. Identify steps in the acquisition of soft skill competencies.

# What we will cover today

- Who am I, what do I have to offer?
- What are soft skills?
- Importance of soft skills in Engineering Practice
- History of the soft skills gap
- How to fill the soft skills gap
- What is your CLDO?
- How to get there from here

# Who am I?

- Over 30 years in professional practice
- Started out at PG&E in the 1980's
- Engineering business owner for 16 years
- Worked for various Engineering firms past 10 years

# What have I become?



- BSCE from UC Davis - 1984
- Professional Engineer in six states
- Master of Public Administration (MPA) MSU Bozeman – 2011
- American Studies PhD Program MSU Bozeman
- Facilitator of *Success Enabling Skills*™



# My Lifelong Learning Journey

- Learn new things, advance my career
- Didn't know where to look
- My career wasn't moving fast enough
- MPA – Masters in soft/social skills
- Gap in soft skills emerged
- Soft skills gap was holding back my career



# What do I have to offer?

- Practical experience managing Engineering Teams
- A collaborative project management approach
- Balance of technical *and* soft skills
- Focus was on needs of Team members
- Satisfaction with work vs. efficiency

# Poll

What were the results of Team Management using a balance of technical and soft skills?

- a. Achieve “stretch goals”
- b. Highest average billable hours per month
- c. Team members received maximum performance bonuses
- d. Highest chargeability and efficiency
- e. All of the above

# What are Soft Skills?



According to Deming<sup>1</sup>:

**“The ability to work with others.”**

# What are Soft Skills?



Per Development Economics<sup>2</sup> and Crawford et al.<sup>3</sup>:

- Communication and interpersonal skills
- Teamwork
- Time and self-management
- Decision making and problem solving
- Initiative taking
- Leadership

# What are Soft Skills?



Susskind & Susskind<sup>4</sup> assert:

- Know-how
- Experience
- Other soft/social skills
- Combined with technical skills = “practical expertise”

# Poll

What is the percentage of the US workforce that is at the high risk of being replaced by automation in the next one to two decades?

- a. 8%
- b. 13%
- c. 24%
- d. 47%

# Importance of Soft Skills

Deming<sup>1</sup> asserts:

- Computerization of the workplace → soft skills
- Soft skills compliment technical skills
- Employers view soft skills as most desirable
- Soft skills hardest to find in workers

# Importance of Soft Skills

Per Development Economics<sup>2</sup>:

- Improved self-confidence
- Improved self-esteem
- Greater work satisfaction
- Faster career progression
- Higher compensation



# Economics of Soft Skills

## Per Development Economics<sup>2</sup>:

- Engineering industry soft skills contribution to the UK economy was £6.4 B in 2012
- Engineering industry underperforming
- Industry growth thwarted by 10% between 2012 and 2025



# Poll

Interpolating from the Development Economics study, the contribution of soft skills from the Engineering industry to the US economy in 2012 is estimated to be \$20.3B.

- a. True
- b. False

# History of the Soft Skills Gap



Grinter  
Report

1955

- Journal of Engineering Education
  - Social sciences in curricula
- 1/5 of Engineering education
  - Feedback from industry

# History of the Soft Skills Gap



Grinter  
Report

1955

## Impacts to Education & Industry

- Shifted engineering education
- Changed trajectory of academia
- Social skills shifted to industry
  - Theory and reality

# Poll

My employer recognizes the value, and has provided the opportunity for learning and development of social skills in the workplace.

- a. Yes
- b. No

# At the Engineering Leadership Institute









- Success Enabling Skills™
- Online Performance Certification System
- Competency Based Education (CBE) model
- Leverage technology
- Curriculum based upon the Engineering Competency Model



# PLACEHOLDER FOR ENGINEERING COMPETENCY MODEL VIDEO

# How the System Works



Skill Assessment	Curriculum	Re-assessment	Digital Badging
<p><u>1.1</u> – Interpersonal</p> <p><u>1.2</u> – Integrity </p> <p><u>1.3</u> – Professionalism</p> <p><u>1.4</u> – Initiative </p> <p><u>1.5</u> – Dependability </p> <p><u>1.6</u> – Adaptability</p> <p><u>1.7</u> – Lifelong Learning</p>	<p><u>1.1</u> – Interpersonal</p> <p><u>1.3</u> – Professionalism</p> <p><u>1.6</u> – Adaptability</p> <p><u>1.7</u> – Lifelong Learning</p>	<p><u>1.1</u> – Interpersonal </p> <p><u>1.3</u> – Professionalism </p> <p><u>1.6</u> – Adaptability </p> <p><u>1.7</u> – Lifelong Learning </p>	

Tier 1 – Personal Effectiveness Competencies



# Why are Balanced Skills Important?

- Balanced skills drive Engineering success
- Technology is racing forward
- Engineers need to stay relevant
- Automation → demand for soft skills
- Human interaction is difficult to automate
- High paying, difficult to automate → soft skills

# What's Your CLDO<sup>5</sup>?

Career

Learning [and]

Development

Orientation

# Poll

Individuals who ***are not*** oriented towards learning and development experience favorable affects during learning activities.

- a. True
- b. False

# Adopt a Robust CLDO!

- Facilitates Lifelong Learning Journey
- Builds balanced, top-notch skills
- Builds character
  - Positive attitude
  - Self-confident
  - Motivated
  - Participative and collaborative

# Poll

What is your CLDO?

- a. I have adopted a CLDO, and embarked on a Lifelong Learning Journey
- b. I have adopted a CLDO and am planning on embarking on a Lifelong Learning Journey
- c. I only participated in the professional development hours required to maintain my Professional Engineering license
- d. I am not interested in adopting a CLDO or embarking on a Lifelong Learning Journey, it's simply extra work

# Career Benefits

- Soft skills compliment technical skills
- Automation → demand for soft skills
- Enhances “practical expertise”
- Employers reward balanced skills
- Faster career progression
- Higher compensation



# How to Get There From Here

- Identify your soft skill gaps
- Adopt a robust CLDO
- Set goals to fill your soft skill gaps
- Articulate who you want to become
- Embark on a Lifelong Learning Journey
- Get busy!



Questions? Feel free to contact me:

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# References

1. Deming, D.J. (2015). The growing importance of social skills in the labor market. *Harvard University and NBER*.
2. Development Economics. (2015). The value of soft skills to the UK economy.
3. Crawford, P., et al. (2011). Comparative analysis of soft skills: What is important for new graduates? *Michigan State University*, East Lansing, MI.
4. Susskind, R. & Susskind, D. (2015). *The future of the professions: How technology will transform the work of human experts*. Oxford University Press: Oxford, UK.
5. Maurer, T.J. (2002). Employee learning and development orientation: Toward an integrative model of involvement in continuous learning. *Human Resources Development Review*, 1(1), 9-44.
6. American Association of Engineering Societies and the US Department of Labor Education and Training Administration. (2015). Engineering Competency Model, [www.careeronestop.org/COMPETENCYMODEL/competency-models/engineering.aspx](http://www.careeronestop.org/COMPETENCYMODEL/competency-models/engineering.aspx).

# Closing the Soft Skills Gap in Engineering Practice

To receive credit for this course, each registrant will need to take the quiz below and pass with a score of 70 or above. Click link

<http://quiz.nspe.org/quiz/closing-soft-skills-gap.aspx>

to take the quiz.

# Closing the Soft Skills Gap in Engineering Practice

NSPE would like your feedback regarding this live webinar. Click link

<https://www.surveymonkey.com/r/KTL7FCS>

to take a short survey.