Protecting Worker Health and Total Worker Health: A Vision for our Profession

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Confronting Risk and Making a Choice:
Do I Gain or Do I Lose?
Do I Look Back or Do I Look Forward?
Do I See New Horizons and Opportunities?
Do I Feel Discomfort and Fear?
Enterprise Risk Management (ERM)  
An AIHA “BoK” Initiative

Value of Our Profession

“With regard to our Business Enterprise, HSE is necessary, but the value is razor thin.”  
– Anonymous Client
Key Constituents of Business

- Customers
- Workers
- Shareholders

What is the Corporate Priority?
(Competition, Issues, Stresses bring Tradeoffs)

Why (Should) Shareholders Come First

“A business corporation is organized primarily for the profit of the stockholders, and the discretion of the directors is to be exercised in the choice of means to attain that end, and does not extend to the reduction of profits or the nondistribution of profits among stockholders in order to benefit the public, making the profits of the stockholders incidental thereto.”

Have Modern Workers become Modern Slaves?

What are the facts?
What are the perceptions?
What are the politics?
What needs to be changed?
How can changes be made?
Is MAGA working?
Are trade wars working?
For whom are things working?
“The beginning of wisdom is the definition of terms.”

Socrates
470–399 B.C.E.
Merriam-Webster

Protecting
To cover or shield from exposure, injury, damage, or destruction.

Worker
One that works especially at manual or industrial labor or with a particular material.

Health
The condition of being sound in body, mind, or spirit.
A condition in which someone or something is thriving or doing well.

What is the metric and goal?

Zero?

Figure 2–70. Incidence rates of injury cases by type of case in private industry, 1976–2001
NIOSH Publication Number 2004-146 Worker Health Chartbook 2004

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We all have reasons for why Health matters
Usually personal in nature

- I want to be vibrant in my old age
- I want to be an energetic mother / father
- I want to look and feel better
- I don’t want to be sick!
- I want to provide for myself and family to the best of my capabilities
What does good Health mean to the business?

It matters if it links to performance and the bottom line!

I want my employees to be productive and “present”

We want the business to be innovative

We need our employees to give us a competitive edge

A Culture of Health while Speaking the Language of Business

A Sustainable approach to Bend the Health Care Cost Curve

Average Savings 2002-2008 = $565/employee/year

Estimated ROI: $1.88 - $3.92 per $1.00 invested
History and the Long-Run

- Distribution of the labor force by sector, 1880-2010
- Distribution of output among sectors, 2010
- Private-sector employment as percent of total private employment, 1948-2010
- Private-sector output as percent of real GDP, 1948-2010

Productivity and Wages

- Samuel Slater (1768 to 1835)
  Father of the American Industrial Revolution
  (Also my great-grandfather)

- Frederick Winslow Taylor (1856 to 1915)
  Father of Industrial Engineering
  Father of the Scientific management & Efficiency Movement
Revolutions

Health and safety is integral to revolutions. Who benefits from revolutions? Does health and quality of life always increase? Do risks always go down?

- 1700-1800 1st Industrial Revolution: Water/Steam (Samuel Slater)
- 1870-1941 2nd Industrial Revolution: Electricity (Fred Taylor)
- 1980's-?? 3rd Industrial Revolution: Computers (Fred Boelter)
- 2016-?? 4th Industrial Revolution: Robotics (Any of you?)

Antitrust Laws

1. Sherman Act, 1890
2. Objectives are to:
   a. protect the process of competition for the benefit of consumers,
   b. make sure there are strong incentives for businesses to operate efficiently
   c. keep prices down
   d. keep quality up
3. Outlaws “every contract, combination, or conspiracy in restraint of trade.”
4. Workers are not mentioned.
5. Assumption has been more new jobs will be created than are lost.
6. Laws and regulations are lagging in the Fourth Industrial Revolution.
Dumbest Idea in the World: Maximizing Shareholder Value

“There is only one valid definition of a business purpose: to create a customer.” (1973) 

Peter Drucker (1909 to 2005) Management consultant, educator, and author

“Shareholder value is the dumbest idea in the world. Shareholder value is a result, not a strategy.” (3/12/2009)

Jack Welch (Born 1935) CEO of General Electric between 1981 and 2001

Costs of Steel and Aluminum Tariffs

- Over 400,000 U.S. jobs lost1
- GDP decline of 0.2% ($36 billion)1
- 16 U.S. jobs lost for every 1 gained1
- Decline of 2% in all imports and 1% in all exports1
- Costs to U.S. Consumers: $7.5 billion a year, before retaliation from the European Union, Mexico and Canada2

Sources: 1) Peterson Institute for International Economics & Trade Partnership Worldwide, 2018; 2) American Action Forum, 2018
AIHA Yuma Pacific Southwest | January 24, 2019 Presentation

Exhibit 2

History shows that technology has created large employment and sector shifts, but also creates new jobs.

And demands new skills!

Share of total employment by sector in the United States, 1860-2016, % of jobs

<table>
<thead>
<tr>
<th>Sector</th>
<th>1860</th>
<th>1900</th>
<th>1950</th>
<th>2000</th>
<th>2016</th>
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<tr>
<td>Agriculture</td>
<td>10.6</td>
<td>6.9</td>
<td>3.1</td>
<td>5.3</td>
<td>6.5</td>
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<tr>
<td>Goods</td>
<td>3.9</td>
<td>2.6</td>
<td>2.1</td>
<td>2.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Utility</td>
<td>0.3</td>
<td>0.6</td>
<td>0.5</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Construction</td>
<td>4.8</td>
<td>3.0</td>
<td>0.9</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Business and repair services</td>
<td>0.8</td>
<td>0.9</td>
<td>0.6</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Education</td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>1.2</td>
<td>1.5</td>
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<tr>
<td>Healthcare</td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>1.0</td>
<td>1.4</td>
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<td>Financial services</td>
<td>2.3</td>
<td>2.3</td>
<td>2.3</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Mining</td>
<td>1.2</td>
<td>1.0</td>
<td>1.0</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1.5</td>
<td>2.0</td>
<td>2.4</td>
<td>2.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Trade (retail and wholesale)</td>
<td>11.6</td>
<td>12.4</td>
<td>8.0</td>
<td>5.6</td>
<td>7.0</td>
</tr>
<tr>
<td>Household work</td>
<td>1.2</td>
<td>1.5</td>
<td>1.8</td>
<td>2.1</td>
<td>2.3</td>
</tr>
</tbody>
</table>


McKinsey & Company

Scenarios for labor displacement by automation

Midpoint automation adoption, Full-time equivalents (FTEs) potentially displaced by 2030, millions

- Current work activities displaced by automation by 2030, %

- United States 36.6 FTEs potentially displaced

GDP per capita, 2010 real US dollars

 NOTE: These estimates for automation displacement are based on scenarios for automation adoption and should not be interpreted as predictions.

Source: McKinsey Global Institute analysis

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Technology Displacement

Our Professional Role
Hierarchy of Controls
Ya know, not having a job is not healthy!!

How about Universal Basic Income?
Some say ‘free money’
Others say ‘dividend’
• Duty
• Dignity
• Incentives
• Responsibility
• Purposefulness

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Automation and UBI

“There is a pretty good chance we end up with a universal basic income, or something like that, due to automation.”

Elon Reeve Musk
(born 1971)
Technology entrepreneur, investor, and engineer
CNBC Interview (4Nov2018)
UBI and Future Projects

“Adopting a universal basic income for all people can help society think creatively with new ideas, develop new industries, and free-up people to work on important future projects.”

Ray Kurzweil
(born 1932)
Business Futurist
Letter from Ray (May 2018)

One Perception of UBI

What is the message?
Speaking of Perception

Müller-Lyer illusion (1889)

Which vertical line is longer?

What Matters is What People Feel
Heuristic and Biases
(1973)

Amos Tversky
Cognitive Psychologist

Daniel Kahneman
Psychologist

Availability: A Heuristic for Judging Frequency and Probability

This paper explores a judgmental heuristic in which a person evaluates the frequency of classes or the probability of events by availability, i.e., by the ease with which relevant instances come to mind. In general, availability is correlated with empirical frequency, but it is also affected by other factors. Consequently, the reliance on the availability heuristic leads to systematic biases. Such biases are demonstrated in the judged frequencies of classes of words, of combinational outcomes, and of repeated events. The phenomenon of illusory correlation is exploited as an availability bias. The effects of the availability of incidents and scenarios on subjective probability are discussed.
T&K Calculations

Anchoring and adjustment heuristic

Two calculations – 5 seconds each

First sequence

Second sequence

T&K Problem A & B

Isolation Effect

Problem A: In addition to whatever you own, you have been given $1,000. You are now required to choose between the following options:

Option 1: A 50% chance to win $1,000
Option 2: A gift of $500

The probability outcomes are identical

Problem B: In addition to whatever you own, you have been given $2,000. You are now required to choose between the following options:

Option 3: A 50% chance to lose $1,000
Option 4: A sure loss of $500
People do not judge risk, they judge consequences.

Commitment to Livelong Learning

7 Principles of the Future Employee

1. Has a flexible work environment
2. Can customize own work
3. Shares information
4. Uses new ways to communicate and collaborate
5. Can become a leader
6. Shifts from knowledge worker to learning worker
7. Learns and teaches at will

10 Principles of the Future Manager

1. Is a leader
2. Follows from the front
3. Understands technology
4. Leads by example
5. Embraces vulnerability
6. Relies in sharing and collective intelligence
7. Is a firestarter
8. Gives real-time recognition and feedback
9. Is conscientious of personal boundaries
10. Adapts to the future employee

Fred Boelter, CIH, PE, BCEE, FAIHA
**Improving Health Beyond Exposure**

- **Societal**
- **Community**
- **Environmental**
- **Occupational**
- **Individual**

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**Safe = Not Unacceptable Risk**

- **Characterized Risk w/o Controls**
- **Target Risk Objectives w/o Safety Factors**
- **Risk Objectives w/ Controls**
- **Zero Risk**

- **Risk Level**
- **Necessary Risk Reduction**
- **Actual Risk Reduction**
- **Residual Risk**

- **“Unsafe” Unacceptable Risk**
- **“Safe” Not Unacceptable Risk**
- **Acceptable Risk**

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Risk Analysis and Decision-Making

1. **Define the problem.** What decision has to be made?
2. **Define objectives.** Objectives should be measurable.
3. **Define alternatives.** What are the range of permissible options?
4. **Analyze consequences.** What are the consequences of different management actions?
5. **Analyze tradeoffs.** In most complex decisions, the best we can do is choose intelligently between less-than-perfect alternatives.
6. **Acknowledge uncertainty.** Confront uncertainty and their possible consequences.
7. **Understand risk tolerance.** Be more objectives driven, transparent, and defensible.
8. **Sequence linked decisions.** Isolate and resolve the near-term issues. Gather for the future.
NIOSH: Total Worker Health  
AIHA: Protecting Worker Health

1. **Expands** beyond a traditional and historical role of assessing “exposure”.
2. **Engages** traditional occupational safety and health protection programs designed to protect workers from harms that arise from work itself.
3. **Recognizes** work is a social determinant of health; job-related factors such as wages, hours of work, workload and stress levels, interactions with coworkers and supervisors, access to paid leave, and health-promoting workplaces all can have an important impact on the well-being of workers, their families, and their communities.
4. **Beyond** any regulation, consensus standard, and policy.

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**Engagement is Key**

“If we get health right, everything else will follow.”

\[ \text{RISK} = \text{HAZARD} \times \text{EXPOSURE} \times \text{ENGAGEMENT} \]

Warner Lecture at the 2015 IOHA/BOHS Conference in London England

Dr. Alistair Fraser  
VP Health at Royal Dutch Shell
To get a seat at the table and have a voice in the room...
We need to master the language of business.

How Far Shall (Can) Our Profession Go to Protect Worker Health

1. Perhaps Total Worker Health fulfills our profession’s mission: Protecting Worker Health.
2. How do we meet the challenge in this globalized and nebulous place of work?
3. What additional skills do we need to learn and master beyond our historical core skills?
4. With more than 30% contingent workers in the US labor force today, are they adequately covered by laws and regulations?
5. How can the science of choice help forward looking industrial hygienists build healthy places of work?
6. Are the topics of "residual risk" and "safe" the best lens through which we can provide the greatest value to employers, workers, the public, and the environment?
Global Risk Trends and Interconnect

Pathways to the Future with S-T-E-A-M

To have impact, we have to:

Hint:
John Volckens
Colorado State University
Keynote Yuma 2016

Coalbrookdale by Night, 1801, Philip James De Loutherbourg
Thank you

Total Worker Health fulfills our mission to protect worker health in today's globalized and nebulous place of work.

How will our profession meet the challenge?

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