



SOCIETY OF
ACTUARIES®

2019 **ANNUAL
MEETING**
& EXHIBIT

October 27-30
Toronto, Canada

Session 050: The 100-Year Old Actuary: Continuing Education for a Century Long Life and Career

[SOA Antitrust Compliance Guidelines](#)

[SOA Presentation Disclaimer](#)

2019 ANNUAL
MEETING
& EXHIBIT

100-YEAR OLD ACTUARY & OTHER PROFESSIONALISM TOPICS

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SOCIETY OF ACTUARIES

Antitrust Compliance Guidelines

Active participation in the Society of Actuaries is an important aspect of membership. While the positive contributions of professional societies and associations are well-recognized and encouraged, association activities are vulnerable to close antitrust scrutiny. By their very nature, associations bring together industry competitors and other market participants.

The United States antitrust laws aim to protect consumers by preserving the free economy and prohibiting anti-competitive business practices; they promote competition. There are both state and federal antitrust laws, although state antitrust laws closely follow federal law. The Sherman Act, is the primary U.S. antitrust law pertaining to association activities. The Sherman Act prohibits every contract, combination or conspiracy that places an unreasonable restraint on trade. There are, however, some activities that are illegal under all circumstances, such as price fixing, market allocation and collusive bidding.

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While participating in all SOA in person meetings, webinars, teleconferences or side discussions, you should avoid discussing competitively sensitive information with competitors and follow these guidelines:

- **Do not** discuss prices for services or products or anything else that might affect prices
- **Do not** discuss what you or other entities plan to do in a particular geographic or product markets or with particular customers.
- **Do not** speak on behalf of the SOA or any of its committees unless specifically authorized to do so.
- **Do** leave a meeting where any anticompetitive pricing or market allocation discussion occurs.
- **Do** alert SOA staff and/or legal counsel to any concerning discussions
- **Do** consult with legal counsel before raising any matter or making a statement that may involve competitively sensitive information.

Adherence to these guidelines involves not only avoidance of antitrust violations, but avoidance of behavior which might be so construed. These guidelines only provide an overview of prohibited activities. SOA legal counsel reviews meeting agenda and materials as deemed appropriate and any discussion that departs from the formal agenda should be scrutinized carefully. Antitrust compliance is everyone's responsibility; however, please seek legal counsel if you have any questions or concerns.

Presentation Disclaimer

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(SOA language with emphasis added by JMJ)

THINGS THAT HAPPENED IN 1969



TODAY'S TAKEAWAY



TODAY'S AGENDA

- **ACTUARIAL SCIENCE**: Are we artists or scientists?
- **MENTORING**: Paying forward --- your real professional dues
- **THE 100-YEAR OLD ACTUARY**: CE for a century long life and career

THE 100-YEAR OLD ACTUARY



TODAY'S OBJECTIVES

Broadly speaking to:

1. Make you both a better professional and a better actuary
2. Expand your concept of professionalism
3. Include mentoring as an integral element of professionalism
4. Prepare for a lifetime of learning and professionalism



TODAY'S FORMAT

- Introduction for each topic and questions I asked (myself)
- Table discussions (you select):
 - My proposed questions, or
 - Your thoughts
- Table reports

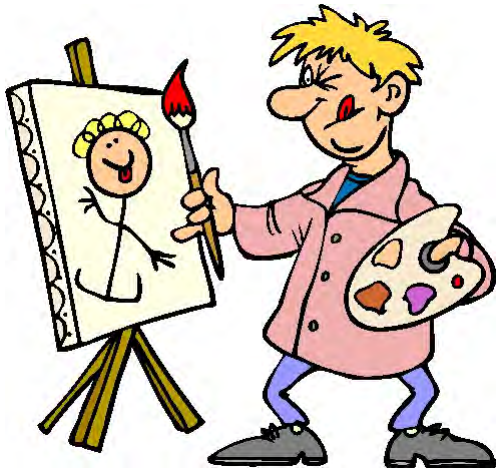


RECOMMENDATION

1. Select a **discussion leader**
2. Have someone volunteer as a **notetaker/reporter**

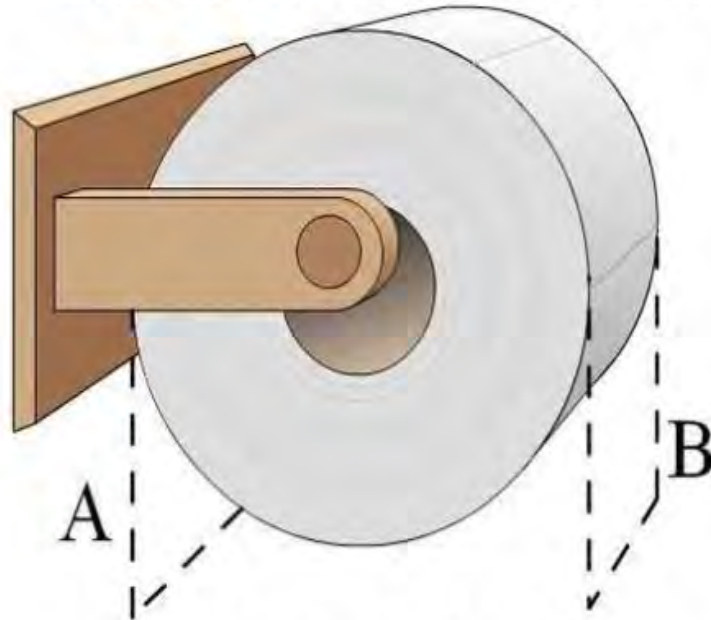
ready. set. go!

ARE ACTUARIES ARTISTS, SCIENTISTS, OR SOME OF EACH?



SCIENCE V. ART:

THE GREAT



DEBATE



VOTE

| FLAP OPTIONS | # | % |
|-----------------|---|---|
| IN FRONT | | |
| IN BACK | | |

**SCIENCE AND ART
ARE NOT
MUTUALLY EXCLUSIVE**

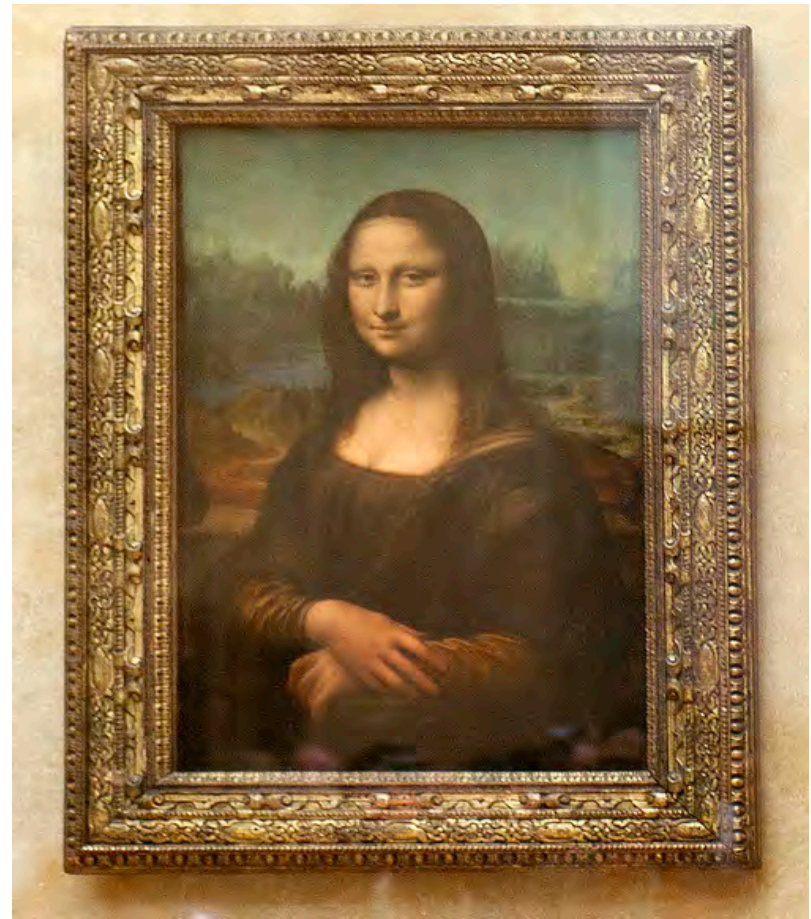
LEONARDO DA VINCI

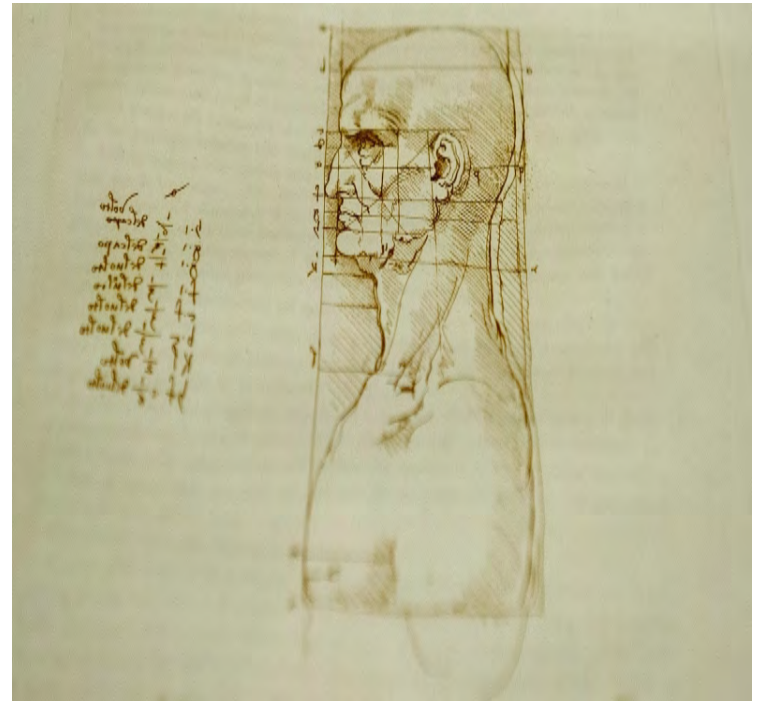
(1452 –1519)



THE MONA LISA

- Painted 1503
- 2'6" x 1'9"
- Louvre Museum, Paris





**Da Vinci's areas of interest:
inventing, painting, sculpting, etc.**

THE MEANING OF SCIENCE

- In Latin *scientia* means KNOWLEDGE
- One definition of science:
Knowledge about or study of the natural world based on facts learned through experimentation or observation

THE MEANING OF ART

- In da Vinci's lifetime an **artist** was someone who had a practical skill or craft.
- Currently, an **artist** typically refers to a person who creates beautiful things, such as the Mona Lisa

MY QUESTION #1



**IN DA VINCI'S TIME WOULD AN ACTUARY
HAVE BEEN AN ARTIST OR A SCIENTIST?**

EXACT V. INEXACT SCIENTISTS

- Exact sciences (e.g., physics): when the ratio of the dispersion of a set of measures to the absolute size of their average is relatively small.
- Inexact sciences (e.g., social sciences): the ratios described above are much greater.

M. Bruce Fisher, "A Note on the 'Exact' and 'Inexact' Sciences, The Journal of General Psychology, 1943, 29, pp. 153-4"

**MY QUESTION #2:
ASSUMING ACTUARIES ARE
SCIENTISTS, ARE WE**

**“EXACT OR INEXACT
SCIENTISTS”?**

ACTUARIAL SCIENCE (AS DEFINED BY WIKIPEDIA)

“The discipline that applies mathematical and statistical methods to assess risks in insurance, finance, and other industries”

SOME (POSSIBLE) “DOES ITS” OF THE TERM “ACTUARIAL SCIENCE”

- Does it convey results that imply more accuracy than we can deliver?
- Does it give actuaries a “nerdy” image?
- Does it make our work seem too technical and (*a priori*) impossible to understand by non-actuaries?

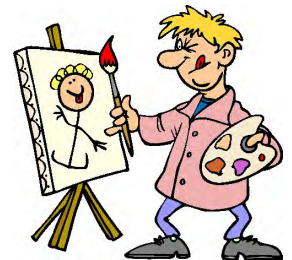
MY CONCLUSION

Actuaries are professionals whose work involves both art (**e.g., creating new products**) and science (**e.g., using knowledge based on facts learned through experimentation or observation**)

THE DUALITY OF ACTUARIES: INTERSECTING ART AND SCIENCE

- Art

- Convey results that are **understood** by non-actuaries
- Draw **conclusions, recommendations and inferences** from inexact results
- Design products that the **public wants**



- Science

- Analyze** complex numerical problems
- Research** (e.g., mortality studies)



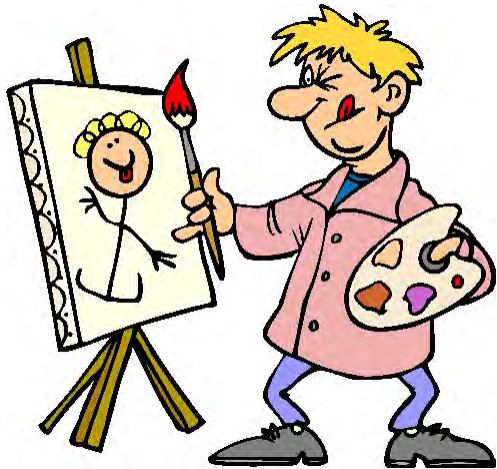
MY QUESTION #3:

IS THERE BETTER TERM TO
DESCRIBE OUR PROFESSION

O/T

“ACTUARIAL SCIENCE”?

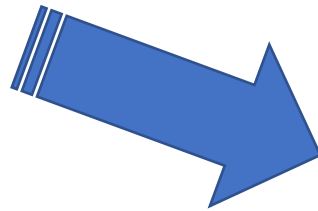
DOES RECOGNIZING THAT ACTUARIES ARE BOTH ARTISTS AND SCIENTISTS HELP YOU TO BE A BETTER PROFESSIONAL?



POSSIBLE ROUND TABLE TOPICS

1. In the 1500's would an actuary have been an artist or a scientist*?
2. Are we (i.e., actuaries) scientists? If so, are we “exact” or “inexact” scientists?
3. Is there another or better term for our work r/t “actuarial science”?

* This is not a trick question. There have been actuarial-type calculations for several centuries. FYI, the word actuary was first used in 1775 when William Morgan was appointed Actuary of the Society for Equitable Assurances in 1775.



REPORT



MENTORING



Students at Haines Elementary School, Chicago, IL

MENTORING

A professional relationship in which an experienced person (the mentor) assists another (the mentoree) to develop specific skills and knowledge that will enhance the less-experienced person's professional and personal growth.

ABE LINCOLN READING THE LAW



Recommendation: Visit Springfield, IL and the Lincoln Museum
--- also see New Salem, IL

WHY BE INVOLVED WITH MENTORING?

A WIN-WIN FOR ALL

- Mentors
- Mentorees
- Employers

MENTOR'S BENEFITS

- Pay forward
- Improves your skills and knowledge
- Helps the mentoree
- Selfishly, it makes you (the mentor) a better professional
- Enhances professional development and CE
--- forces you to clearly describe a point

MENTOREE'S BENEFITS

- Teaches the mentoree about a specific issue
- Coaches the mentoree on a particular skill
- Facilitates the mentoree's growth by sharing resources and networks
- Challenges the mentoree to move beyond his or her comfort zone
- Creates a safe learning environment for taking risks
- Focuses on the mentoree's total development

EMPLOYERS' BENEFITS

- Enhances strategic business initiatives
- A good investment:
 - Encourages employee retention
 - Reduces turnover costs
 - Improves productivity
- Breaks down the "silo" mentality that hinders cooperation among company departments or divisions.
- Elevates knowledge transfer from just getting information to retaining the practical experience and wisdom gained from long-term employees.
- May provide a fresh outlook on an old problem or task

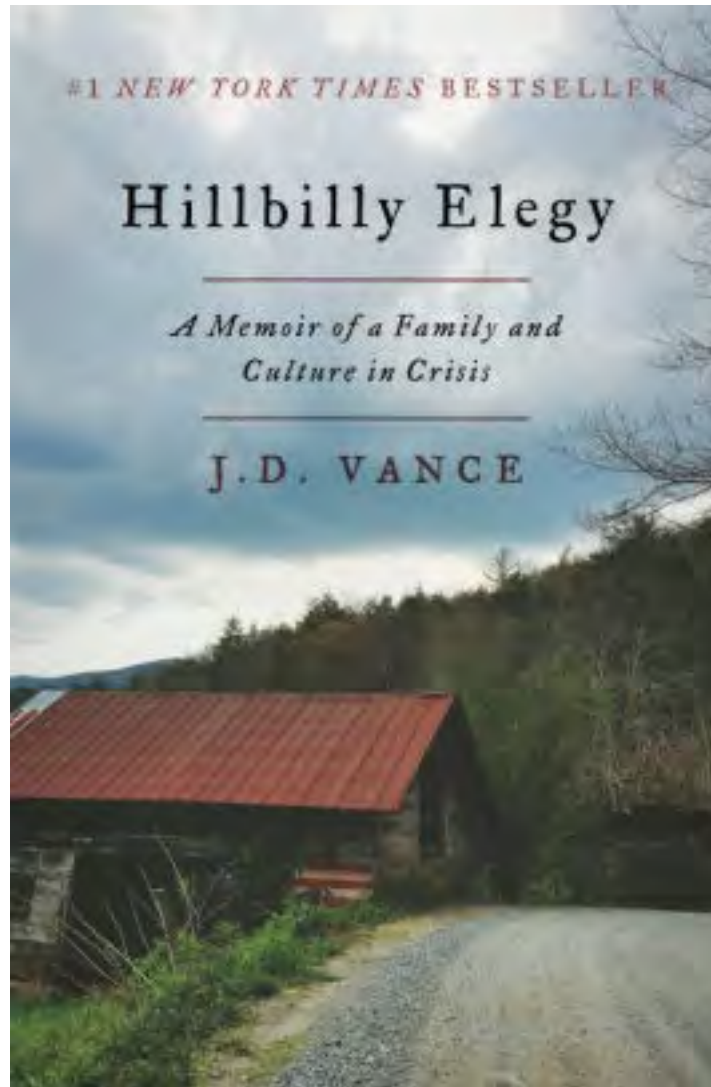
EMPLOYER'S BENEFITS

- Links employees with valuable knowledge and information to other employees in need of such information
- Uses your own employees, instead of outside consultants, as internal experts for professional development
- Supports the creation of a multicultural workforce by creating relationships among diverse employees and allows equal access to mentoring
- A mentoring culture continuously promotes individual employee growth and development of the mentor and mentoree

MENTORING AND JUDGMENT SKILLS*

- Future success as a manager (*and as an actuary*) will require judgment skills
- **Mentoring will help to develop judgment skills**
- Additionally, mentoring will:
 - Provide emotional support
 - Ethical standard training

*See “What to Expect from Artificial Intelligence,” Agrawal, Gans and Goldfarb, MIT Sloan Management Review, February 7, 2017



FACTS ABOUT JD VANCE

- Born: 1984
- Home state: southern Ohio
- Raised: Ohio and Kentucky
- Family: lived with and raised by many people
- Military: Marines
- Colleges: Ohio State and Yale

VANCE'S MENTORS

- Grandparents
- Marine Corps leaders
- An Ohio State Senator
- Law school professors
- Bosses

2 PERSONAL MENTORING EXPERIENCES

- As a mentoree I asked my boss “if you know the answer, why do I have to do the work?” and he explained ...
- As a mentor I asked the applicant what I can do to make him a better actuary --- and years later he told me ...

QUALITIES OF A GOOD MENTOR

- A willingness to **share**:
 - Skills
 - Knowledge
 - Expertise
- A willingness to **teach** based on the mentoree's current level of professional development
- Someone who remembers what it was like to start in the field (**empathy**)

ACTIONS OF A GOOD MENTOR

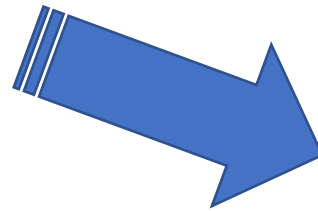
- Develop a good **relationship** with the mentoree
- Focus on **character/professionalism skills** but these are only a start
- Handle even **harebrained ideas** the mentoree may present
- Be **strategic** but willing to push the mentoree
- Provide **inspiration**

PICKING A MENTOR

- A person you **trust**
- Someone you **respect and admire**
- A person who is able and willing to **teach**
- Someone who is **available**
- If possible, **explain** what you want from a mentor/mentoree relationship
- Meet **often and regularly** (at least at the start)

POSSIBLE ROUND TABLE TOPICS

- A. Have you benefited personally as either a mentor or mentoree?** If so, please share your experience.
- B. What are the advantages/disadvantages of **formal** or **informal** mentor/mentoree relationships?
- C. Would you prefer an **internal** or **external** mentor/mentoree relationship and why?
- D. Any suggestions for finding a mentor or being a mentoree?**



REPORT



BEING A MENTOR MAY BE THE MOST IMPORTANT DUES YOU WILL “PAY” TO THE ACTUARIAL PROFESSION

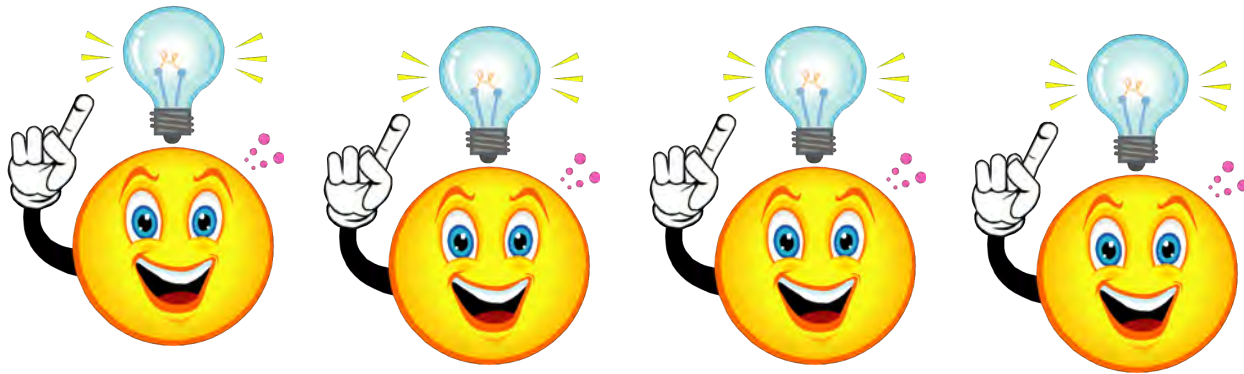


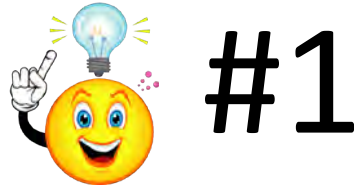
THE 100-YEAR OLD ACTUARY

**CONTINUING EDUCATION
for a Century Long
Life and Career**

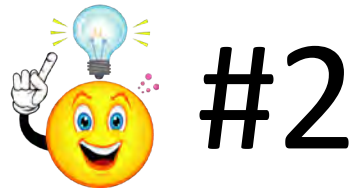


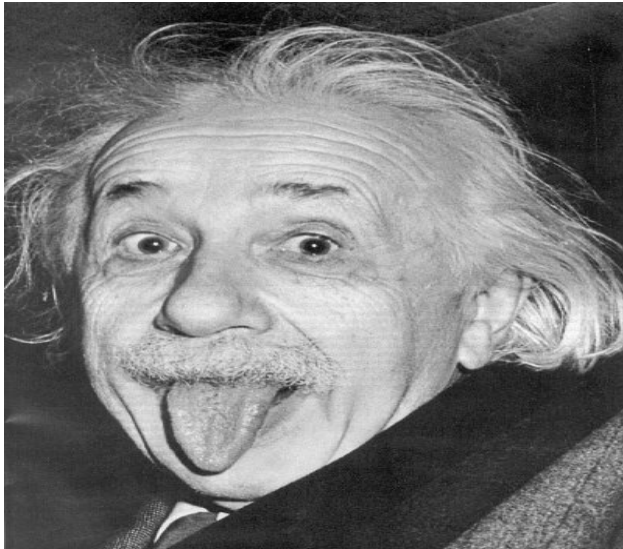
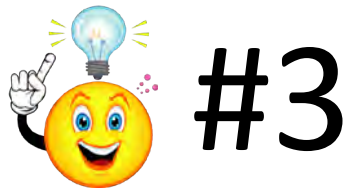
THE 4 INSPIRATIONS FOR THIS PRESENTATION





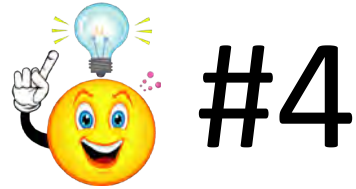
LIVING TO AGE 100 SYMPOSIUM





BONUS QUESTION;
WHAT IS THE PROBABILITY
THAT IF THERE ARE 23
PEOPLE IN A ROOM, THEY
WILL SHARE THE SAME
BIRTHDAY?

**THE
ANSWER:
50 / 50**



“The Corporate Implications of Longer Lives”

Lynda Gratton and Andrew Scott, London Business School
MIT Sloan Management Review, Spring 2017

5 REASONS THAT CONNECT A 100-YEAR OLD ACTUARY AND PROFESSIONALISM

REASON #1: THE LIFE EXPECTANCY FOR A 30-YEAR OLD ACTUARY

- Life expectancy 30-year old:
 - Male: 48 years (to age 78)
 - Female: 52 years (to age 82)
 - 50/50 M/F: 50 years
- 30-year old's probability of living to age 65:
 - Male: 82%
 - Female: 89%
 - 50/50 M/F: 86%

(Source: 2015 Social Security Life Table – probably understates q_x rates)

REASON #2:

**THE 3-STAGE
LIFETIME MODEL
IS NO LONGER**

LIFE STAGES IN THE PAST

3-STAGE MODEL

- Education:
 - Childhood
 - Young adult
- Work (Adulthood)
- Retirement

LIFE STAGES NOW

5-STAGE Model

- Education
- **Exploration:**
 - **Teenage years**
 - **Young adult**
- Employment (adulthood)
- **Transition**
 - **Life crises**
 - **Self-employment**
 - **Mix of paid and unpaid work**
- Retirement:
 - **Phase I**
 - **Phase II**

REASON #3: WE GAIN FROM LONGER LIVES*

A traditional three-stage life consists of a sequence of education, work, and retirement.

But ...

longer lives create opportunities for new stages to emerge and for each individual to create his or her own unique sequence of stages.

*A Quote from “The Corporate Implications of Longer Lives”

THE SHIFT FROM TANGIBLE TO INTANGIBLE ASSETS

- 3-stage model = employers create and promise
TANGIBLE ASSETS
 - Tiered earnings (tenure)
 - Retirement income (planned employee termination)
- 5-stage model = employees' worth centered around long-term **INTANGIBLE ASSETS**
 - Knowledge
 - Skill acquisition
 - Life-time learning

REASON #4: A 21st CENTURY ACTUARY LIVES AND WORKS IN A 5-STAGE WORLD

- Technology has created a new actuarial world:
 - Sophisticated analytic tools demanded by users & clients
- New actuaries are different:
 - Roughly 50/50 divided by sex
 - Dual income families
 - More diverse membership
 - Longer and healthier life span
- Employment factors:
 - We are economically a “good profession”
 - Consolidation of actuarial employers

CAREER IMPLICATIONS

- Likely to work > 65 or 70+
- Retirement optional r/t mandatory
- More positions over a longer career
- Potentially become deficient in needed/latest skills
- More rapid product irrelevancy
- New technologies to master
- Less employer loyalty
- More self-dependence and development required
- Need for more personal flexibility and new life styles

PROFESSIONALISM: CE MODEL < 2020

- Seems to be centered around mechanics r/t principles
- Presentations dealing with ASOP's, Code of Conduct, etc. are important --- these are a necessary but not sufficient approach to professionalism
- Qualification and compliance measured by hours r/t content and degree of learning

THE AAA PROFESSIONALISM WEBINAR TOPICS: EXAMPLES

- The anatomy of the ASOP's
- Learning from the mistakes of others
- US qualification standards
- Ethical cases from the ABCD
- Actuarial assumptions
- Actuary-to-actuary communication
- Code of conduct applications
- ASOP No. 41 (communications)
- Cross practice standards

THE AAA PROFESSIONALISM WEBINARS

- The anatomy of the ASOP's
- Learning from the mistakes of others
- US quality
- Ethical
- Actu
- Actua education
- Code of
- ASOP No. 41 (communications)
- Cross practice standards

REASON #5: A NEW CE MODEL > 2020

- S/B centered around these 3 principles:
 - Knowledge r/t technicalities
 - Skill acquisition for personal growth
 - Life-time learning is at the core
- Annual qualification cycle is outmoded because the 3 principles noted above are long-term r/t short-term:
 - A 2 to 3-year cycle seems more appropriate for gaining needed, new skills
 - Acquisition of skills s/b future oriented r/t only for current position
- While hours are a typical measurement of learning, they don't necessarily = **an increase in professional competency**

CE MODEL > 2020 MAY NOT BE EMPLOYER FRIENDLY

Employers must be willing to:

- Give professionals time away from work to acquire the needed skills:
 - Time off is expensive --- some employers have cancelled paying for SOA meetings
 - New skills make the employee more marketable
- Accommodate the needs of dual-career families
- Keep professionals stimulated
- Find ways to utilize older employees

CE MODEL > 2020

BASIC ELEMENTS

- Sufficiently flexible to **accommodate personal as well as employer interests**
- Must encourage study of **new areas** if actuaries are to remain a relevant profession:
 - Particularly important as the direction of the actuarial profession (e.g., the failed SOA/CAA union) may be to concentrate on skill specialization
 - Actuaries must have paths that ensure that skills can be transferred to new work areas
- Should not ignore actuarial rules and standards (e.g., ASOP's) but **reconsider how these are presented to and implemented by individual actuaries**

CE MODEL > 2020: THE MUSTS

- Begin early during an actuarial career and embedded in the actuarial culture
- Encourage actuaries to go beyond the minimum CE requirements
- Be recognized by the public as being credible and valuable
- **Have lifetime knowledge-based topics accepted by the actuarial organizations as qualifying for CE**
- Support the 5-stage r/t traditional 3-stage career model of a professional career

CE MODEL > 2020: MY “LOOK LIKES”

- Heavily academic based
- Accepting education beyond traditional actuarial subjects
- Offering credit for “bleeding edge” activities
- Allow/encourage individually constructed CE

CE MODEL > 2020 FOR SPECIFIC ACTUARIES



CE MODEL > 2020: 4 SPECIFIC ACTUARIAL TYPES

- Following accreditation
- The “career years”
- The “waning years”
- During retirement

A 30-YEAR OLD ACTUARY'S CE MODEL > 2020

- Definitely learn the “practical” aspects of CE:
 - ASOP's
 - How to handle yourself in unfamiliar and uncomfortable situations
- Start to think about the CE you need as an individual and for your career
 - Is FSA/FCAS enough in today's world?
 - What makes me happy?
 - Assess the amount of career-risk you're willing to take
- Become an active actuarial volunteer --- a great opportunity for “painless” CE

A “CAREER YEARS” ACTUARY’S CE MODEL > 2020

- Include some CE that extends skills beyond traditional actuarial areas
- Find CE activities that enable you to “keep up” with your younger colleagues’ knowledge (you may not do the work but need to understand it)
- Engage in CE activities that are as much creative as technical

A “WANING” ACTUARY’S CE MODEL > 2020

- Have teaching and mentoring new actuaries as accepted as CE activities (“the best way to learn something is to teach it”)
- Acquire the skills needed to bring your actuarial knowledge to better serve the public

A POST-WORK ACTUARIES' CE MODEL > 2020

- The number of “older/non-working” actuaries is increasing
- Retired actuaries are a valuable resource for both the actuarial profession and society
- Non-employed-actuaries s/b encouraged to maintain actuarial affiliations --- such as a special class of membership for post-work years actuaries
- Include among acceptable CE activities things that the “older/non-working” actuarial community can and wants to do

LIFE STAGES NOW

5-STAGE Model

- Education
- Exploration:
 - Teenage years
 - Young adult
- Employment (adulthood)
- Transition
 - Life crises
 - Self-employment
 - Mix of paid and unpaid work
- Retirement:
 - Phase I (active)
 - Phase II (inactive)

SPECIFIC CE > 2020 OPPORTUNITY FOR “MATURE” ACTUARY

- Business Analytics for Decision Makers
- 3 Day Course at Northwestern University
- Receive Certificate
- Goals of the program:
 - Describe the uses of analytics to drive business success
 - Create roadmaps to get an organization on an analytics track
 - Identify what is needed to build an analytics team
 - Develop an action plan to implement analytics at an organizational level
 - Use the intelligence generated by a company-wide data focus to get results (customers, sales, etc.)

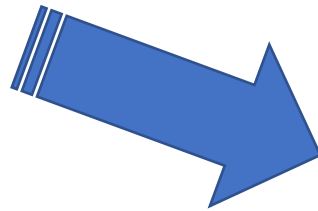
THE FINAL ROUND TABLE

THE SITUATION

You have become a mentor to an “aspiring” actuary. Your mentee has asked you for advice about selecting CE that will be helpful for his or her future (rather than just getting the required hours)

2 TOPICS:

1. What would be your recommendation?
2. On what did you base your recommendation?



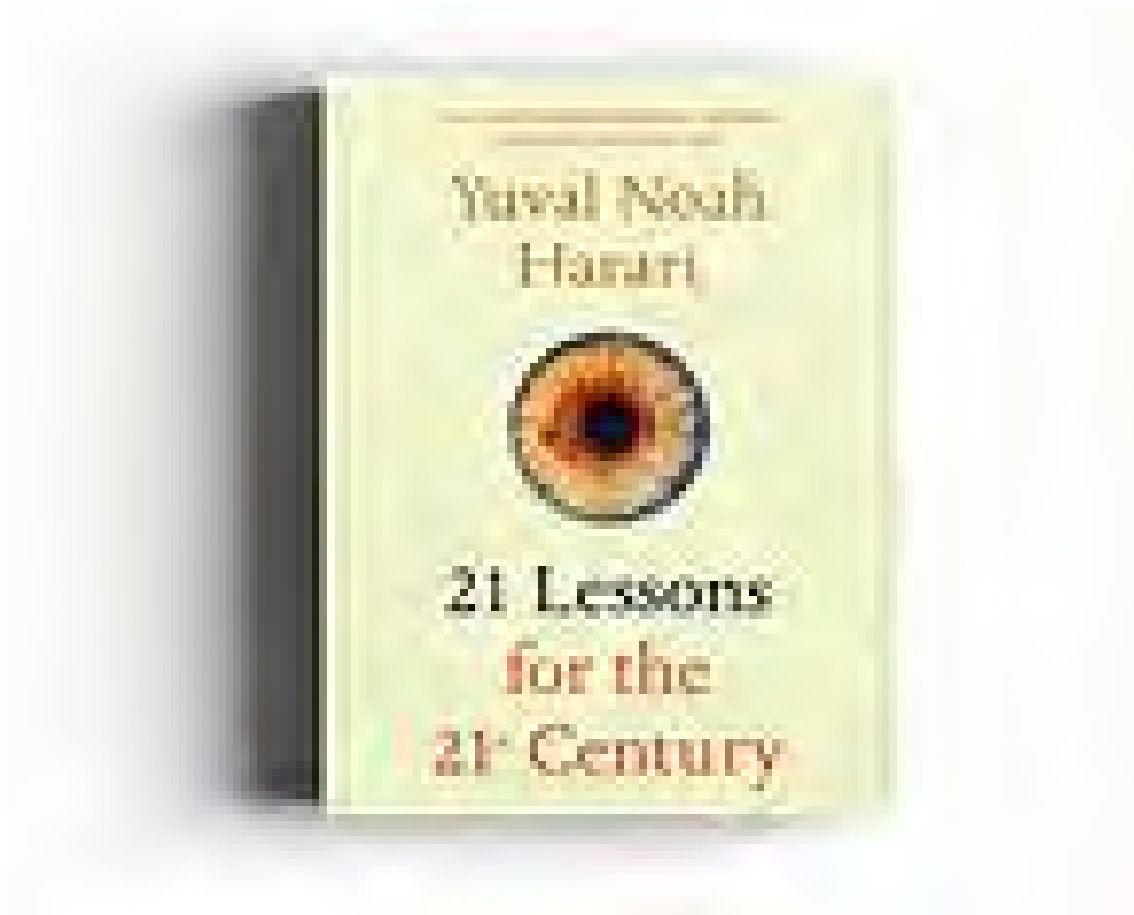
REPORT



ANOTHER PERSPECTIVE OF THE FUTURE



Yuval Noah Harari --Historian/Author



HARARI'S 4 C'S: NEEDED SKILLS FOR THE 21ST CENTURY

- Critical thinking
- Communication
- Collaboration
- Creativity

HARARI'S ADVICE FOR THE 21ST CENTURY

- Downplay the technical skills and emphasize general purpose life skills
- Be prepared to:
 - Deal with change
 - Learn new things
 - Preserve mental balance in unfamiliar situations
- Living in 2050 requires reinventing yourself again and again

PROPOSAL FOR A NEW SOA SECTION



**THE WE'VE LIVED TO
100 ACTUARIES**

TODAY'S AGENDA: RECAP

- Actuarial science --- are we artists or scientists?
- Mentoring --- paying forward your real professional dues
- The 100-Year Old Actuary --- Professionalism for a Century Long Life and Career

IN CONCLUSION, HOPEFULLY WE HAVE:

- Expanded your view of professionalism
- Encouraged you to consider mentoring
- Better prepared you for a longer lifetime of working and learning as a professional
- Made professionalism more fun
- Found more ways to build bridges that connect (the main takeaway)

WORK TO PREVENT ALL ERRORS BUT DON'T SWEAT THE LITTLE ONES





