

Artificial Intelligence

Managing Change

Presented by:
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Agenda

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A love story: Underwriting in 2041



- A little about the authors
- A story of ~~star-crossed~~ AI-crossed young sweethearts
 - The world in 2041
 - Deep learning and the future of underwriting
 - Dangers of simple objective functions
 - Bias and fairness
 - Explanation and justification

Strengths and Weaknesses of Human vs. AI “Thinking”

| | Data required to learn | Quantitative optimizing and matching (picking a face out of a million) | Customizing for each situation (showing each user a different product to maximize purchasing) | Abstract concepts, analytical reasoning, inferences, common sense, and insight | Creativity |
|--------------------------|------------------------|--|---|--|------------|
| Human Brain | Few data points | Hard | Hard | Easy | Easy |
| AI Brain (Deep Learning) | Huge amount of data | Easy | Easy | Hard | Hard |

Why we care about AI

Affordability. Affordability. Affordability.

If we can move fast and safely, AI has the potential to transform the healthcare industry and society

- 6% of GDP spent on education, 15-18% of GDP spent on housing
- ~8% (26M) of Americans are uninsured
- ~600,000 Americans are homeless
- ~11% (38M) of Americans are below the poverty line (<\$15K annually)

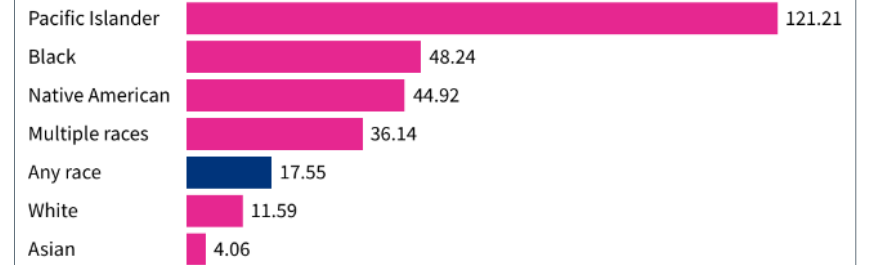
\$5 trillion

~20% of the 2023 US gross domestic product, \$26.2 trillion, is expected to be spent on health¹

\$260-520 billion

Estimates are AI will contribute to savings of 5-10% of healthcare spending.

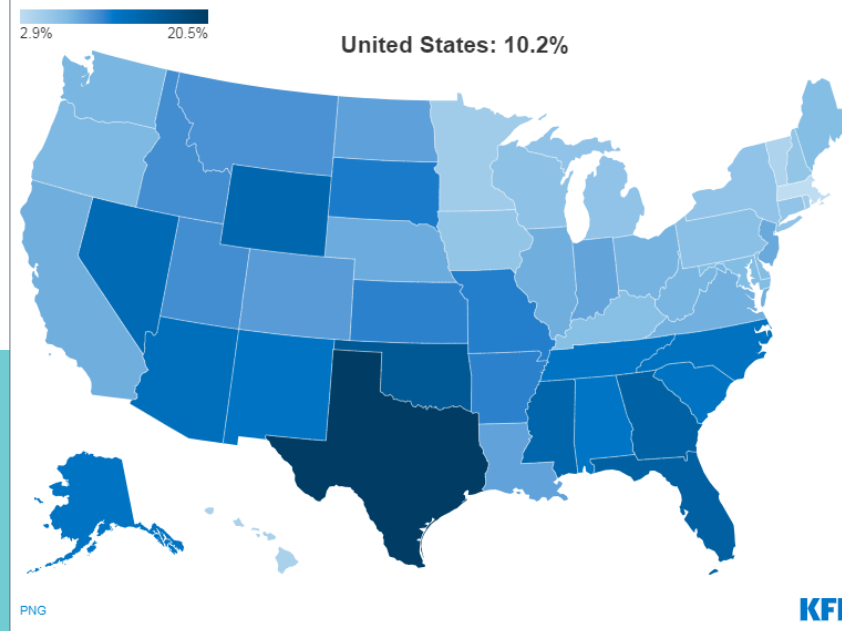
Rates of homelessness per 10,000 by race, 2022



Sources: [Annual Homeless Assessment Report](#), population estimates from the [US Census Bureau](#).

USAFACTS

Uninsured Rates Among the Nonelderly by State, 2021



1 - [US GDP references](#).

2 - [Link to KFF Uninsured data source](#)

3 - [How many homeless people are in the US? What does the data miss? - USAFacts](#)

Evolving landscape

Technology



Llama 2



Regulations



Committees Related to This Topic

Big Data and Artificial Intelligence (H) Working Group

Innovation Cybersecurity and Technology (H) Committee



Trustworthy & Responsible AI Resource Center



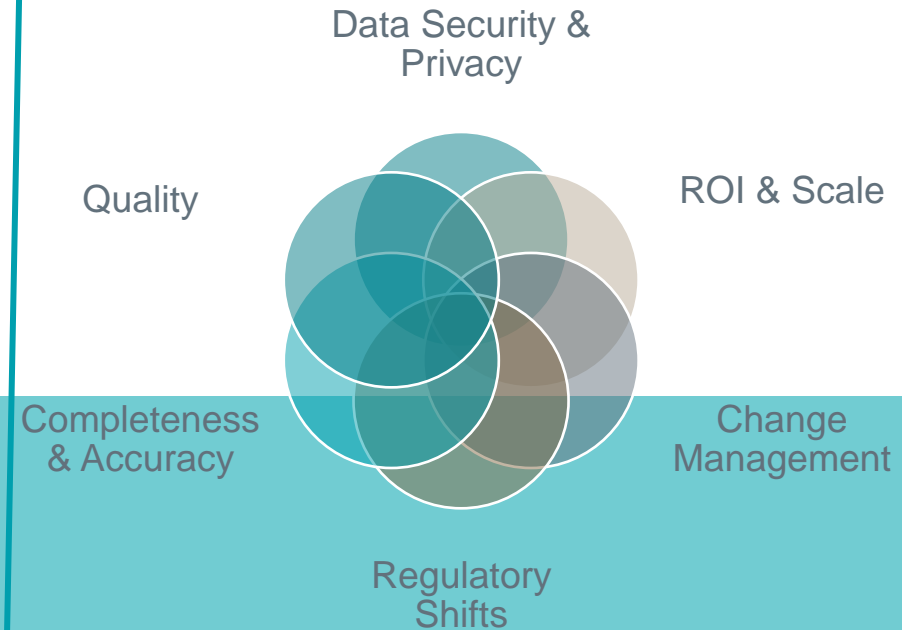
Unacceptable Risk Systems will be Prohibited

High Risks Systems will be Carefully Regulated

Biden signs AI executive order, the most expansive regulatory attempt yet

The action represents the U.S. government's most significant effort to date to grapple with the technology

Risks



Use Cases – Old and New

| Payer | Provider | Protect Against Bad Actors | Consumer |
|--|--|---|---|
| <ul style="list-style-type: none">• Claims Processing• Consumer sentiment• Summarize call transcripts• Personalized wellness programs | <ul style="list-style-type: none">• Billing & Reimbursement• Transcribing real-time• Image analysis• Precision Medicine | <ul style="list-style-type: none">• Data Security & Privacy• Fraud detection• Information Integrity – Deep Fakes• Content Moderation | <ul style="list-style-type: none">• Summarize texts• Create draft file outputs• Identity verification• Voice Assistants – Siri, Alexa• Chatbots• Home Automation |

“...societal structures are failing to keep pace with rate of change”

“we must increase society’s ability to adapt...90 percent of which is optimizing for learning”

– Eric “Astro” Teller, CEO of Google’s X R&D lab

ChatGPT 4.0 Prompt: *How will AI impact the actuarial profession?*

ChatGPT 4.0 Response:

The impact of AI on the actuarial profession is multifaceted, bringing both opportunities and challenges:

- 1. Enhanced Analytical Capabilities:**
 - AI and machine learning provide advanced tools for data analysis, enabling actuaries to handle larger datasets and more complex models. This can lead to more accurate risk assessments and pricing strategies.
- 2. Automation of Routine Tasks:**
 - Tasks such as data entry, report generation, and basic analysis can be automated, freeing actuaries to focus on more strategic, high-value activities.
- 3. New Product Development:**
 - AI can assist in developing innovative insurance products tailored to individual needs and dynamic pricing models that better reflect risk.
- 4. Improved Decision Making:**
 - With AI's predictive capabilities, actuaries can make more informed decisions regarding risk management, financial forecasting, and strategic planning.
- 5. Skill Set Evolution:**
 - Actuaries need to adapt and acquire new skills, including understanding AI algorithms, data science techniques, and programming. The role of the actuary may evolve to include more focus on interpreting and managing AI outputs.
- 6. Ethical and Regulatory Considerations:**
 - The use of AI in actuarial work raises ethical questions around data privacy, algorithmic bias, and transparency. Actuaries will play a crucial role in addressing these concerns.
- 7. Market Dynamics and Competition:**
 - AI could lead to increased competition in the insurance market, as companies leverage AI to gain insights and improve efficiency.
- 8. Job Redefinition and Displacement Concerns:**
 - While AI can automate certain tasks, this may lead to concerns about job displacement. However, it also opens up opportunities for actuaries to engage in more strategic and analytical roles.
- 9. Risk Modeling and Assessment:**
 - AI enables more sophisticated risk modeling techniques, such as predictive analytics and scenario analysis, enhancing traditional actuarial methods.
- 10. Customer Engagement and Personalization:**
 - AI can help in understanding customer behavior and preferences, allowing for more personalized customer engagement strategies.

In summary, AI is set to significantly transform the actuarial profession, requiring actuaries to adapt and acquire new skills while offering opportunities for enhanced analysis, efficiency, and innovation.

ChatGPT 4.0 Prompt: *What steps can an actuary take to prepare for the changes AI will bring to the profession. Be specific and provide recommendations on sequence and duration.*

ChatGPT 4.0 Response: To prepare for the changes AI will bring to the actuarial profession, an actuary can take the following steps, organized in a recommended sequence along with an estimated duration for each step:

- 1. Understand the Basics of AI and Machine Learning (Duration: 3-6 months)**
 - **Action:** Start with online courses or workshops to understand the fundamental concepts of AI and machine learning.
 - **Resources:** Platforms like Coursera, edX, or Khan Academy offer introductory courses.
- 2. Learn Programming and Data Analysis (Duration: 6-12 months)**
 - **Action:** Gain proficiency in programming languages like Python or R, which are widely used in data science.
 - **Resources:** Use online platforms such as Codecademy, DataCamp, or free resources like Python's official documentation.
- 3. Deepen Knowledge in Data Science and Machine Learning (Duration: 12-18 months)**
 - **Action:** After grasping the basics, delve deeper into machine learning techniques and data science methodologies.
 - **Resources:** Advanced courses on platforms like Coursera, Udacity, or specialization tracks on DataCamp.
- 4. Practical Application and Projects (Duration: Ongoing)**
 - **Action:** Apply your skills to real-world datasets. Start with simpler projects and gradually increase complexity.
 - **Resources:** Participate in competitions on Kaggle, work on personal projects, or collaborate with colleagues.
- 5. Stay Informed About Industry Developments (Duration: Ongoing)**
 - **Action:** Regularly read relevant journals, attend webinars, and participate in professional forums.
 - **Resources:** Join actuarial societies' AI initiatives, subscribe to industry publications, and attend conferences.
- 6. Networking and Collaboration (Duration: Ongoing)**
 - **Action:** Engage with professionals who are already working with AI in the actuarial field.
 - **Resources:** LinkedIn groups, professional actuarial societies, and local meetups.
- 7. Ethical and Regulatory Aspects (Duration: 3-6 months)**
 - **Action:** Understand the ethical implications and regulatory aspects of using AI in actuarial work.
 - **Resources:** Courses on AI ethics, workshops by professional bodies, and relevant reading materials.
- 8. Certifications and Further Education (Duration: 1-2 years)**
 - **Action:** Consider obtaining certifications or even a degree if it aligns with your career goals.
 - **Resources:** Certified programs from recognized institutions or universities offering specialized degrees.
- 9. Implement AI in Your Work (Duration: Varies)**
 - **Action:** Start integrating AI techniques into your daily work gradually.
 - **Resources:** Collaborate with your employer, propose pilot projects, or work with a mentor.
- 10. Continual Learning and Adaptation (Duration: Ongoing)**
 - **Action:** The field of AI is constantly evolving. Stay adaptable and continuously update your knowledge.
 - **Resources:** Online courses, industry seminars, and actuarial conferences.

This structured approach, with ongoing learning and practical application, will help an actuary adapt to AI's impact on the profession effectively. The durations are approximate and can overlap or vary based on the individual's pace and prior experience.

DEMO:

Let's play with the ChatGPT
"Intern"





**“AI won’t replace people – but
people who use AI will replace
people who don’t.”**

[– IBM Study “Augmented work for an automated, AI-driven world”](#)

Thank you.

DOES ANYONE HAVE ANY QUESTIONS?

Whitney Heflin, CPA

Whitney Heflin is the Senior Director of Enterprise Risk Programs at GuideWell where she leads the Enterprise Risk Management, Business Resiliency and Third-party Risk Management teams. GuideWell is the parent company for Florida Blue and Triple-S, the BCBS plans for Florida and Puerto Rico. In her role she is accountable for supporting GuideWell in its mission to help people and communities achieve better health. The ERM Programs support the GuideWell mission by driving actions that enable the company to become a leading innovator, enabling healthy communities. Prior to her current role, Whitney served in leadership positions within Internal Audit, led the creation of the Portfolio Management function within GuideWell's Corporate Development & Strategic Investments area, and is passionate about process transformation, change management practices, her two spoiled golden retrievers and her family.

Whitney holds a Bachelor of Business Administration in Accounting and Master of Business Administration from the University of North Florida and is an alumnus of PwC's Systems and Process Assurance group as well as a proud veteran of the US Navy.

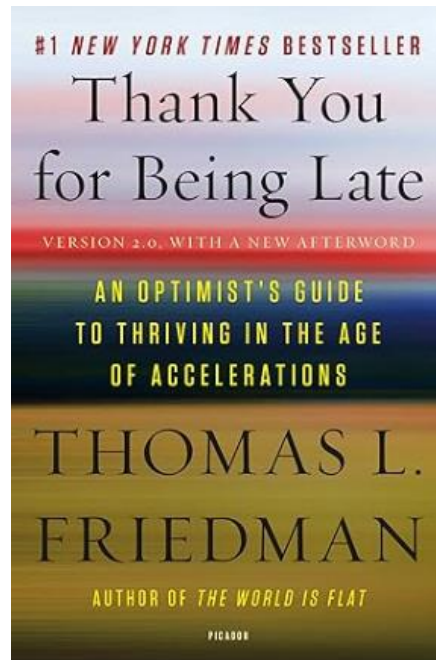
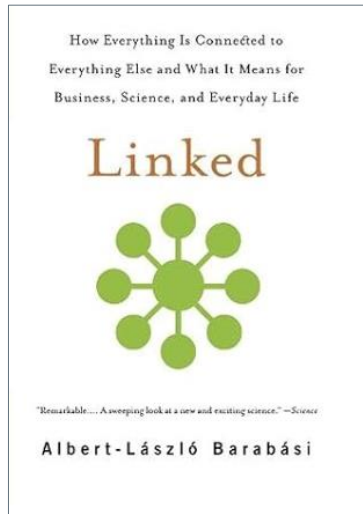
She is a graduate of the GuideWell Leadership Academy and holds a certificate in Strategy Execution from Harvard Business School Online. She is currently enrolled in the online Udacity Program, AI for Business Leaders.



Links

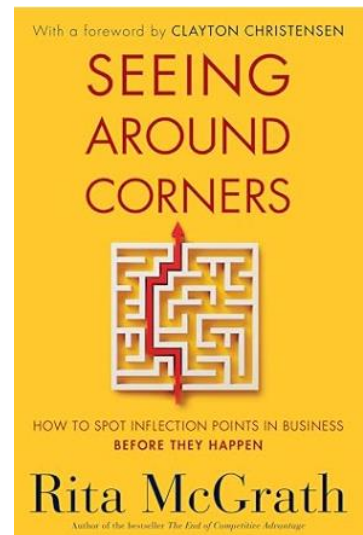
1. <https://content.naic.org/cipr-topics/artificial-intelligence>
2. https://airc.nist.gov/AI_RMF_Knowledge_Base
3. <https://cset.georgetown.edu/article/the-eu-ai-act-a-primer/>

Rewire to “See” and “Thrive” Amidst Change:



Eric “Astro” Teller, CEO of Google’s X R&D lab, as quoted in TL Friedman’s *“Thank You for Being Late”*

- It takes the human mind and society 10-15 years to adapt to big changes in technology
- By 1900, it was taking 20-30 years for technology to take a step big enough that the world became uncomfortably different. Not a problem.
- By 2016, as technology advances exponentially, those big steps are happening every 5-7 years. Big challenge.



AI Thought-Starter Resources

