

CONTINGENCIES



INSIGHTS *and* IDEAS FROM THE AMERICAN ACADEMY OF ACTUARIES ▲

Rethinking Risk
in a Connected World

JAN
FEB
26

A close-up photograph of several hands placing white puzzle pieces together on a light blue background. The puzzle pieces are interlocking, and the hands are positioned around them, suggesting a process of building or connecting.

Making Tomorrow's Connections Today

Andover's Actuarial Recruiters Have the Experience, Expertise
and Insight to Direct You to Your Next Opportunity.



Lisa Evans



Debbie Fine



Hillary Steele



Sarah Price



Deborah Turner

**Contact us
for our latest
Exclusive
and Retained
searches.**



Alex Harper



Alexandra Stark



Lindsay Sands



Erin Cole



Teddy Chase



Susan Sobel



ANDOVER RESEARCH, LTD.

www.andoverresearch.com

twitter.com/andoverresearch 1-800-ANDOVER



New Year, New Opportunities



Contact Ezra Penland Actuarial Recruitment today to discuss your career goals, salary expectations, and the exciting opportunities that await you.

**Trusted by our clients and actuaries
to find a perfect fit**

EzraPenland.com | Actuaries@EzraPenland.com | 800-580-3972



IN THIS ISSUE



14

14 Rethinking Risk in a Connected World

As consumers generate vast volumes of behavioral data—from wearable devices to online interactions—insurance companies are reimagining risk assessment. Actuaries face both opportunities and challenges in leveraging this information to create fair, accurate, and ethically sound models.

By Nancy Mann Jackson

20 Powering the Profession

At its heart, everything the Academy does is designed to accomplish three goals: serve our members, strengthen the actuarial profession, and demonstrate the value actuaries bring to our stakeholders and society.

By William J. Michalisin

30 Agile and Ready for What's Next

Environmental, technological, demographic, and regulatory are just some of the changes impacting the actuarial world. The Academy's 2026 practice council priorities show how they are prepared to respond and lead in this dynamic landscape.

By Noah Kirsch

38 Actuarial Modeling Through a New Lens

Convolutional neural networks extend vision beyond the human eye, turning raw images—from medical scans to accident photos—into structured insights. This new way of seeing risk can help actuaries sharpen classification, improve pricing, and push the boundaries of actuarial modeling.

By Min Chieh (Jessie) Lee and Yvonne Chueh

CONTINGENCIES

JAN | FEB 2026 ▲ VOL. 38 | NO. 1

WWW.CONTINGENCIES.ORG

EDITOR-IN-CHIEF

Preeti Vasishtha

MANAGING EDITOR, MEMBER CONTENT

Michael G. Malloy

CONTRIBUTING STAFF

Barbara Bryant

DEPARTMENT EDITORS

Joshua Feldman

Sam Gutterman

Warren Manners

Stephen Meskin

Tom Toce

CREATIVE LEAD

Laurie Young

PUBLICATION DESIGN & PRODUCTION

BonoTom Studio Inc.

www.bonotom.com

ADVERTISING

Jeff Rhodes

410-316-9857

jeff.rhodes@mci-group.com

DEPARTMENTS

4 EDITOR'S NOTE
The Data We Leave Behind
Preeti Vasishtha

6 PRESIDENT'S MESSAGE
Even AI Knows the
Academy's Value
Tricia Matson

8 CEO INSIGHTS
The Power of Upholding
Objectivity & Independence
William J. Michalisin

10 UP TO CODE
Precept 13 and
Self-Regulation
William C. Hines

44 TRADECRAFT
Why Actuarial Transformation
Succeeds—or Stalls
**Tony Schweiss and
Anderson Olson**

46 POLICY COMPASS
Gearing Up to Inform and
Educate Policymakers on
the Hill
Ted Gotsch

48 MEMBER SPOTLIGHT
Building Trust Is the
Key to Success
Tim Koenig

50 CROSSWORD
New Year's Resolution
Warren Manners

52 CRYPTIC PUZZLE
Ad Duo Unum
Tom Toce

54 PUZZLES
Happy New Year
Stephen Meskin

56 LAST WORD
Are We Close to the
Tipping Point Yet?
Sam Gutterman

Opinions expressed in this publication by
outside contributors are solely those of the
author(s) and do not reflect the views of
the American Academy of Actuaries.



20



30



38



The Data We Leave Behind

WELCOME TO THE FIRST ISSUE OF *CONTINGENCIES* IN 2026, focused on the theme of artificial intelligence (AI) and data—one of the key priority areas for the Academy—as well as on the ongoing value the Academy provides to its members, the public, and the profession.

This issue's cover story, "Rethinking Risk in a Connected World," (page 14) led me to reflect on my own digital footprint. Within a couple of hours of waking up each morning, I've already checked the weather app, scrolled through headlines, and read email—all of which record not only what I read, but also when, for how long, and on which device. Somewhere, algorithms are quietly updating their digital profile of my habits, preferences, and behaviors.

In the rush of daily life, I don't even think of how this digital shadow is analyzed and modeled. Every search, every order placed, every "agree" on a cookie notice feeds massive amounts of data. My information joins billions of others in vast systems that learn from human behavior: how we shop, drive, sleep, save, or even how long we linger on an online page.

The cover feature explores what happens when the definition of risk itself evolves. Traditional actuarial models once relied on structured, well-defined data—age, health history, and claims records. Today, the rise of connected devices, telematics, and big data means risk assessment can now draw from a far more dynamic picture of human behavior.

The implications are significant. On one hand, these data-driven insights have the potential to make risk assessment more personalized, accurate, and equitable. On the other, they raise hard questions about transparency, fairness, and consent. For actuaries, this underscores the crucial role they play in designing enrollment and risk assessment processes that ensure accurate data, fair pricing, and reliable risk models.

Continuing the conversation on risk, another article, "Actuarial Modeling Through a New Lens," (page 38) shows how convolutional neural networks—a type of deep learning neural network designed to automatically detect and learn patterns in structured data—offer a new way of seeing risk, enabling actuaries to expand the scope of actuarial modeling.

Of course, technology is only one force reshaping the profession. Environmental, demographic, and regulatory shifts are also changing the actuarial world. In "Agile and Ready for What's Next," (page 30) the Academy's 2026 practice council priorities show how all six councils are prepared to respond and lead in this dynamic landscape.

The Academy itself continues to advance its mission while demonstrating its value to members. In "Powering the Profession," (page 20), senior leaders describe how—from enhanced learning and deeper member engagement to professionalism, advanced technology, streamlined operations, strategic communications, and expanded public policy influence—the Academy will continue to strengthen and guide the actuarial profession in 2026 and beyond.

In "Even AI Knows the Academy's Value," (page 6) Tricia Matson, in her first column as Academy president, brings together the themes of AI and the Academy's enduring value, highlighting how both are central to the profession's future.

In that same spirit, William J. Michalisin's "The Power of Upholding Objectivity & Independence" (page 8) highlights how objectivity and independence remain central to the Academy's direction and to the collaborative work carrying the profession into 2026. It is this commitment to objectivity and independence, he notes, that ensures the Academy continues to make a meaningful difference for the U.S. actuarial profession, for decision-makers, and for the public we proudly serve.

There's a lot more to explore in this issue that I haven't mentioned here. And as you read the magazine, I need to step away. An app on my phone just reminded me to reorder house supplies that it somehow knows are running low. ▲

PREETI VASISHTHA is editor-in-chief, *Contingencies*, and the Academy's director of content.



ACTUARIAL



CAREERS, INC.®

Submit by January 31!
Last call for entries in
our Salary Survey.
Results out late
February / early March.
Visit actuarialcareers.com
for details.

Your Future. Our Expertise. Trusted by Actuaries Worldwide.



For over 25 years, Actuarial Careers, Inc.® has been the leading recruitment partner dedicated exclusively to the actuarial profession. From students taking their first exams to seasoned executives, we connect actuaries with opportunities that fit their skills, ambitions and career goals. Our trusted reputation is built on discretion, industry knowledge, and long-term relationships that drive success.

Discover why actuaries across the globe choose us.

800.766.0070 | www.actuarialcareers.com



Even AI Knows the Academy's Value

IT'S VERY EXCITING TO BE WRITING MY FIRST PRESIDENT'S MESSAGE. I am grateful to anyone who is taking the time to read this. Since this issue of *Contingencies* is focused on artificial intelligence (AI) and data—key areas of focus for the Academy—as well as the value the Academy provides to members, the public, and profession, I decided to bring these topics together in my inaugural message.

I asked myself four questions related to the Academy and the value it provides to both the public and the profession. After answering these questions, I then asked Copilot to answer them. I have to say I was pretty impressed with the answers!

Why is it important for an actuary to hold the MAAA designation?

Me: The American Academy of Actuaries is *the* U.S. actuarial organization focused on the U.S. actuarial profession and serving the public. Being a member tells others that you are a qualified actuarial professional—committed to the Code of Professional Conduct, U.S. Qualification Standards, and actuarial standards of practice (ASOPs)—and able to provide them with sound actuarial advice. In addition, members gain access to awesome membership benefits such as cost-effective education, free publications, and the opportunity to grow as an actuarial professional through a wide range of volunteer opportunities.

Copilot: Membership in the American Academy of Actuaries is essential for actuaries practicing in the U.S. because it provides professional credibility through the MAAA designation, which is often required to sign actuarial opinions. It ensures adherence to rigorous standards of professionalism, ethics, and continuing education, and enables actuaries to contribute to public policy through expert analysis. The Academy also offers valuable networking and volunteer opportunities, reinforcing the profession's integrity and its role in serving the public interest.

What are some of the key current issues that the Academy is focused on?

Me: In the past year, the Academy has issued more than 300 publications on a range of critical issues, including retirement security (Social Security, pension plan funding levels and lifetime income options; and Medicare reform); availability and affordability of insurance (drivers of health insurance premium increases and access to homeowners and flood insurance); insurance company solvency (risk-based capital and appropriate use of reinsurance); and consumer protection (such as use of AI



and algorithmic models and consideration of unintended bias). In addition to these ongoing public policy issues, we are also continuing to promote sound professionalism standards and education for our members, and considering reputational risks to our profession in light of the current environment.

Copilot: The American Academy of Actuaries is currently focused on several key issues that impact both the profession and the public. These include the ethical and professional use of AI in actuarial work, assessing and managing climate-related financial risks, and addressing cybersecurity threats through improved risk modeling. The Academy also continues to analyze health care trends, particularly those affecting Affordable Care Act premiums, and engages with regulators on insurance market dynamics and consumer protection. Through these efforts, the Academy supports sound public policy and promotes high standards of actuarial practice.

How does the Academy execute on its mission to serve the U.S. public?

Me: I would point to two key areas that directly support serving the U.S. public. One relates to our public policy activities. As noted in the prior question, we are experts on insurance programs that protect the public, and we actively provide input to policymakers on those issues. Our input is independent and unbiased, and supports the development of sound policies and regulations so that insurance programs, both public and private, continue to serve the U.S. public well. The second area is education. We have tools available to anyone interested in understanding how to maintain financial security. For example, our Longevity Illustrator can assist retirees in understanding how much they may need to save to maintain income over their lifetime, as well as the relative certainty of that income covering them for their remaining life.

**PRESIDENT**

Tricia Matson

PRESIDENT-ELECT

Frank Todisco

SECRETARY-TREASURER

Ben Slutsker

VICE PRESIDENTS

Nancy Behrens

Bruce Cadenhead

Annette James

Bill Jones

Susan Kent

Kirsten Pedersen

SENIOR LEADERSHIP**EXECUTIVE DIRECTOR**

William J. Michalisin

SENIOR DIRECTOR, EDUCATION & EVENTS

Lori Feinman

**CHIEF FINANCIAL OFFICER &
SENIOR DIRECTOR OF ADMINISTRATION**

Tom Hopkins

**GENERAL COUNSEL &
SENIOR DIRECTOR OF PROFESSIONALISM**

Brian Jackson

SENIOR DIRECTOR, MARKETING & COMMUNICATIONS

David J. Nolan

SENIOR DIRECTOR, MEMBERSHIP

Kasha Shelton

SENIOR DIRECTOR, PUBLIC POLICY

Geraldyn Trujillo

Copilot: The American Academy of Actuaries serves the U.S. public by providing nonpartisan, expert actuarial analysis to inform public policy decisions on issues like health care, retirement security, and climate risk. It upholds high professional standards through its code of conduct, qualification requirements, and actuarial standards of practice, ensuring actuaries deliver ethical and competent work. The Academy also educates stakeholders through publications and events, and supports sound decision-making by clarifying complex financial and risk-related topics—all while maintaining a focus on integrity, transparency, and public interest.

Do ASOPs adequately cover standards related to the use of AI?

Me: Current ASOPs cover the use of AI in the following ways: ASOP No. 23, *Data Quality*, describes what an actuary should do, consider, and disclose when using data in actuarial analysis. This would apply to the use of AI for actuarial analysis. ASOP No. 56, *Modeling*, describes what an actuary should do, consider, and disclose when developing, using, or reviewing models, including AI models. There are also specific ASOPs that cover certain specific uses of AI such as ASOP No. 12, *Risk Classification* and ASOP No. 38, *Catastrophe Modeling*. Finally, ASOP 41, *Actuarial Communications* requires that an actuary provide sufficient information in their actuarial report.

Copilot: While there is no dedicated ASOP specifically for AI, existing ASOPs—such as those on data quality, modeling, and actuarial communications—do provide guidance that applies to the use of AI in actuarial work. These standards help actuaries ensure transparency, validate AI-generated results, and maintain professional integrity. Additionally, the American Academy of Actuaries has published a professionalism discussion paper on generative AI, offering practical considerations for ethical and responsible use. The Actuarial Standards Board is also actively monitoring developments in AI to ensure standards evolve alongside technological advancements.

Taken together, my reflections and the AI-generated answers all underscore the vital role of the Academy: guiding the profession, upholding high standards, and serving the public. Whether through our human judgment or through tools like AI, the value of the Academy in shaping, supporting, and advancing the actuarial profession remains clear. If you want to let me know what you think about my answers compared to AI's, feel free to shoot me an email at president@actuary.org. ▲

TRICIA MATSON is president of the Academy.

Contingencies (ISSN 1048-9851) is published bimonthly by the American Academy of Actuaries, 1850 M Street NW, Suite 300, Washington, DC 20036-5805. For subscription information and customer service, contact the *Contingencies* subscription department at the address above or (202) 223-8196.

Advertising offices: Jeff Rhodes of MCI Group, 410-316-9857, jrhodes@mci-group.com. Periodicals postage paid at Washington, D.C., and at additional mailing offices.

Copyright 2026. All rights reserved. This magazine may not be reproduced in whole or in part without written permission of the publisher. Opinions expressed in signed articles are those of the authors and do not necessarily reflect official policy of the American Academy of Actuaries. Any references to current laws, regulations, or practice guidelines are correct as of the date of publication.

Postmaster: Please send change-of-address notices to *Contingencies*, PO Box 16976, North Hollywood, CA 91615-6976.



The Power of Upholding Objectivity & Independence

AT THE AMERICAN ACADEMY OF ACTUARIES (ACADEMY), our mission is clear and enduring: serve the public and the U.S. actuarial profession. Fulfilling that mission requires us to advance actuarial professionalism and deliver an objective, independent, and balanced actuarial voice to the nation's most complex public policy discussions that shape the financial security systems that millions of Americans rely on.

In a fast-moving environment where data, decisions, and debates can quickly become clouded by bias or misinformation, objectivity and independence are more than professional ideals, they are essential safeguards. They ensure that policymakers, regulators, members, and the public receive insights grounded in facts, informed by expertise, and free from influence.



in integrity and service to all actuaries practicing in the United States. We do not advocate for special interests; we advance public interest. We do not take sides; we illuminate issues so others can make informed choices.

As the voice for professionalism and public policy in the United States, the

Why Objectivity and Independence Matter

Every issue the Academy engages with—retirement security, health care access and affordability, insurance solvency, AI, climate risk, and more—directly affects the financial well-being of individuals and families across the country. These are not abstract or academic challenges. They demand analyses rooted in data, professional standards, and sound reasoning rather than advocacy or ideology.

- **Objectivity** enables actuaries to focus on evidence and long-term implications instead of short-term pressures or political considerations.
- **Independence** ensures that our voice remains credible, respected, and trusted amid a wide range of perspectives and interests.

Together, these principles support the Academy's standing as the nonpartisan voice of professionalism and public policy in the United States, helping decision-makers arrive at better, more informed decisions that benefit us all.

The Voice of Professionalism and Public Policy

The Academy occupies a unique place in the U.S. actuarial landscape. We are a professional membership organization rooted

in integrity and service to all actuaries practicing in the United States. We do not advocate for special interests; we advance public interest. We do not take sides; we illuminate issues so others can make informed choices.

Academy represents a commitment to ensuring that actuarial practice supports sound decision-making for the public good. Our stakeholders rely on us to provide an objective, independent, and balanced view of the issues that keep them up at night. We fulfill this by seeking diverse opinions, perspectives, and experiences when preparing and delivering our initiatives, work products, and engagement opportunities with the stakeholders we serve.

This distinction makes the Academy indispensable. When policymakers or the media need unbiased actuarial insight, they consistently turn to the Academy because they trust that our perspective is grounded in professionalism, supported by evidence, and framed with balance. Each time we uphold that trust, we strengthen not only the Academy's reputation but also that of the U.S. actuarial profession.

Why This Work Matters Now More Than Ever

The financial systems underpinning our society, health care, pensions, insurance, and public programs, depend on long-term thinking and disciplined evaluation of risk. Through the Academy, actuaries provide the insight and foresight necessary to sustain those systems. Our ability to quantify uncertainty, assess financial strength, and communicate clearly about emerging risks makes us essential partners to policymakers, our principals and employers, and the public.

When policymakers or the media need unbiased actuarial insight, they consistently turn to the Academy because they trust that our perspective is grounded in professionalism, supported by evidence, and framed with balance. Each time we uphold that trust, we strengthen not only the Academy's reputation but also that of the U.S. actuarial profession.

As demographic shifts, climate volatility, artificial intelligence (AI) and cyber risks, and evolving health costs challenge our future, the Academy's objective and independent voice becomes even more critical. Our work helps ensure that decisions made today are grounded in sound analysis and designed to withstand tomorrow's complexities.

But maintaining that role requires vigilance. Losing our objectivity or independence, even in perception, carries real risks. If our analyses appear to favor a particular viewpoint or outcome, our credibility could erode. Policymakers might question whether our insights are shaped by influence rather than actuarial evidence. At precisely the moments when clarity is most needed, the Academy's voice could be weakened.

Without independence, we risk becoming just another voice in a crowded debate. Without balance, we lose our ability to bridge perspectives and help stakeholders find common ground rooted in fact. Upholding these principles is not simply about integrity, it is essential to maintaining the profession's self-regulation and the lasting value of including an actuarial perspective in public policy.

Looking Ahead: A Shared Commitment

The future will bring new risks, new technologies, and new pressures. To help the public and decision-makers navigate them, the Academy's voice must remain steady, principled, and grounded in our core values of objectivity, independence, and balance.

Every staff member, volunteer, and member of the Academy shares responsibility for upholding these values. By anchoring our work in evidence, questioning assumptions, and maintaining the integrity of our processes, we ensure that the Academy and the actuarial profession remain credible, reliable resources for all who depend on us.

Our objectivity and independence allow us to stand apart as a trusted source of insight. They give our work enduring value to policymakers, regulators, employers, and the public. We should take pride in the fact that our work does more than inform policy, it anchors it in reality, discipline, and fairness.

That is the value of objectivity. That is the power of independence. And that is what ensures the American Academy of Actuaries continues to make a meaningful difference, for the U.S. actuarial profession, for decision-makers, and for the public we proudly serve. ▲▲

WILLIAM J. MICHALISIN is the Academy's executive director and CEO.



Here's what we're working on:

- The Economic Impact of Extreme Cyber Risks
- Designing Fairness in Insurance Pricing in the Age of AI and Data
- The Impact of Current Events on the Performance of Long-Duration Insurance Contracts
- The Value of Participating in Hill Visits

Stay tuned for in-depth insights and expert analysis on the issues shaping the actuarial profession.

Have a topic that you would like to see covered? Send your ideas to editor@actuary.org.

Precept 13 and Self-Regulation

A PROFESSION IS GENERALLY DEFINED as an occupation that requires substantial training and the study and mastery of specialized knowledge in a defined subject matter area. Some professions, such as the U.S. actuarial profession, are self-regulated, while others are regulated by outside entities, including local, state, and national governments and related agencies.

The principal advantage of a self-regulating profession is the autonomy it provides. In such a structure, the profession and its members remain independent of undue external influence and exercise self-determination. Members are free to set the profession's direction within the bounds of applicable law and the ethical and practical responsibilities that come with self-regulation. Members of a profession are also typically the most knowledgeable and best trained to determine whether professional standards have been properly applied and upheld.

Codes of professional conduct, standards of practice, and disciplinary

procedures are essential to support and protect the integrity of a self-regulating profession. Equally important is the existence of an organization to establish, maintain, and support these elements. Within the actuarial profession, self-regulation takes shape through the following components, all of which are housed within the Academy and followed by all five U.S.-based actuarial organizations:

- Rules for admission into professional organizations, including basic education and/or experience, as well as continuing education requirements for maintaining professional membership;

- The Code of Professional Conduct (the Code) requiring adherence to ethical principles;
- U.S. Qualification Standards (USQS) and actuarial standards of practice (ASOPs) that provide the framework for the actuary to provide consistency in the delivery of professional services and work products; and
- Rules addressing how and when members may be counseled, disciplined, or removed from professional membership through a disciplinary process that includes due process.

Precept 13

Regulatory activities of a profession are carried out for practical and ethical reasons and help promote the public interest and maintain the profession's integrity and reputation. In addition, if a self-regulating profession does not prevent unethical behavior and practice, it is highly likely that some other regulator will emerge who can and will ensure ethical behavior and practice. A well-defined process of self-discipline and counseling is a key element of a self-regulatory approach.

Unlike other precepts established by the Code that apply to the actuary's self-regulation of their own conduct, Precept 13 requires an actuary to disclose apparent, material violations of the Code by another actuary to "the appropriate counseling and discipline body of the profession" (for members of the U.S.-based actuarial organizations, this generally refers to the Actuarial Board for



Counseling and Discipline [ABCD]) unless the situation was resolved through discussion between the actuaries or where such disclosure would be contrary to law or reveal confidential information.

A profession may also react to complaints made by nonmembers (i.e., the general public) or to public incidents indicative of bad behavior on the part of one of its members. In fact, it should be expected to do so. However, incompetence or unethical behavior may not always be obvious to someone with little mastery of the profession's specialized knowledge and practices. Therefore, just as a profession may establish investigative and disciplinary bodies to adjudicate a complaint made against a member, it must rely on and expect its members to identify and report any apparent violation of its code of which they become aware.

ABCD Requests for Guidance

From time to time, ABCD members receive requests for guidance from actuaries who are faced with possible Precept 13 situations. While each instance is unique, many possible violations of the Code can be resolved by speaking with the other actuary. That discussion might even lead to a better understanding by both parties, especially when some aspect of professional judgment has been involved. In some instances, the discussion leads to clarification of the issue or application of the Code or an ASOP, and the situation is resolved.

Some of the requests for guidance received regarding Precept 13 focus on the terms “apparent,” “material,” and “unresolved.”

Apparent

While there are situations when the result of another actuary's work may give rise to suspicion, it generally does not, by itself, rise to the level of creating “knowledge of an apparent violation of the Code.” Knowledge of another actuary's apparent violation of the Code may require an actuary to be privy in some way to the processes underlying the other actuary's work. On the other hand, actuaries should not use their incomplete access to relevant information or lack of experience

in a practice area as an excuse not to comply with the requirements of Precept 13. To the extent that information routinely available to an actuary regarding the conduct of another actuary gives rise in their mind to concerns about professional behavior, they may have observed an apparent violation of the Code and ought to address it under Precept 13.

Material

Annotation 13-1 provides a description of how “material” should be interpreted under Precept 13. Essentially, the annotation indicates that a violation is material “if it is important or affects the outcome of a situation.” It is immaterial or trivial if it does not. One could argue that Annotation 13-1 is not clear about when a violation of the Code becomes material because it indicates that materiality is determined by the effect a violation *has* on an outcome rather than the effect it *might have (or is likely to have)* on an outcome. It may be helpful for the actuary trying to understand the concept of materiality to review the definition of materiality in ASOP No. 1, *Introductory Actuarial Standard of Practice*.

Unresolved

“Unresolved,” as used in Precept 13, could be used to describe an apparent, material violation of the Code present or reflected in an actuarial process or draft work product that is not modified or amended before the work product becomes final or has an opportunity to influence a user of the work product in a material way.

Resolution of such a violation of the Code usually refers to one of two possible situations:

- An actuary with initial knowledge of an apparent, unresolved, material violation of the Code by another actuary may subsequently observe that the other actuary, through self-directed changes in conduct or practice or through the acquisition and/or application of additional information, has effectively eliminated those initial concerns in the final process or work product. Therefore, the matter could be considered resolved without having a discussion with the actuary in question.

From time to time, ABCD members receive requests for guidance from actuaries who are faced with possible Precept 13 situations. While each instance is unique, many possible violations of the Code can be resolved by speaking with the other actuary. That discussion might even lead to a better understanding by both parties, especially when some aspect of professional judgment has been involved.

- An actuary who believes that Precept 13 may have been violated should consider a discussion with the other actuary regarding the apparent, unresolved, material violation of the Code to resolve the issue. As a result of such a discussion, the actuary may determine that their concern regarding an apparent material violation of the Code has been eliminated, either through the other actuary's provision of additional information or through the amendment or modification of the questioned process or work product. In these cases, the matter could be considered resolved.

Confidentiality

Another element of Precept 13 on which the ABCD often receives requests for guidance is on the topic of confidentiality. Precept 13 is not intended to create a conflict with Precept 9 (Confidentiality). Therefore, Precept 13 does not require disclosure to the appropriate counseling and disciplinary body if such disclosure "would divulge confidential information." This exception should be read in light of Precept 9, which allows disclosure of confidential information if authorized by a principal or required by law.

A decision that the only way an apparent violation of the Code could be reported would be to breach confidentiality may be a welcome but inappropriate excuse for an actuary who is uncomfortable applying Precept 13. For this view to hold, the particulars of an apparent material violation may need to be so inexorably linked to confidential information that the disclosure of the apparent violation necessarily

also would divulge the confidential information. Precept 9 and the exception in Precept 13 are clearly intended to prohibit inappropriate disclosure of confidential information.

A one-on-one discussion with the actuary whose work is in question, as suggested in Precept 13, may also resolve the issue without disclosing any confidential information to anyone who does not already have authorized access to it.

Conclusion

Members of any of the five U.S.-based actuarial organizations are governed by the Code of Professional Conduct. As members of a self-regulated profession, actuaries have a responsibility to uphold high standards in order to serve the public interest and maintain public confidence in the profession as a whole. Adhering to all precepts of the Code, especially Precept 13, is a critical component of achieving that professional goal.

In the end, a profession is only as good as its members. If an actuary—whether from reluctance to confront a colleague or employer, fear of legal repercussions, or some other reason—fails to report potential violations of the Code, they may also be violating Precept 13. More important, the actuary may be allowing substandard actuarial work to stand unopposed. In a worst-case scenario, companies or governments relying on such substandard work, as well as their customers, employees, and citizens, would end up facing the consequences of the actuarial profession's failure to adhere to all the precepts of the Code. As such, reporting apparent, material, unresolved violations of the Code is not only required under Precept 13 of the Code of Professional Conduct; it's the right thing to do. ▲

Author's note: Much of the content of this article was taken from *The Application of Precept 13 of the Code of Professional Conduct* discussion paper authored by the Committee on Professional Responsibility and dated December 2013.

WILLIAM C. HINES, MAAA, FSA, is chairperson of the Actuarial Board for Counseling and Discipline.

Math can bring you on
amazing journeys.

The Magic School Bus[®]

Takes a Risk

A Book about Probability



**Aunt
Maxine**

WHO KNEW? SCHOOL ISN'T JUST FUN...

In *The Magic School Bus Takes a Risk: A Book about Probability*, Ms. Frizzle leads an adventurous field trip where the children meet Maxine, an actuary. Together, they explore how actuaries help people understand and lessen risk for the community.

**How can you bring
The Magic School Bus to your
home or community?**

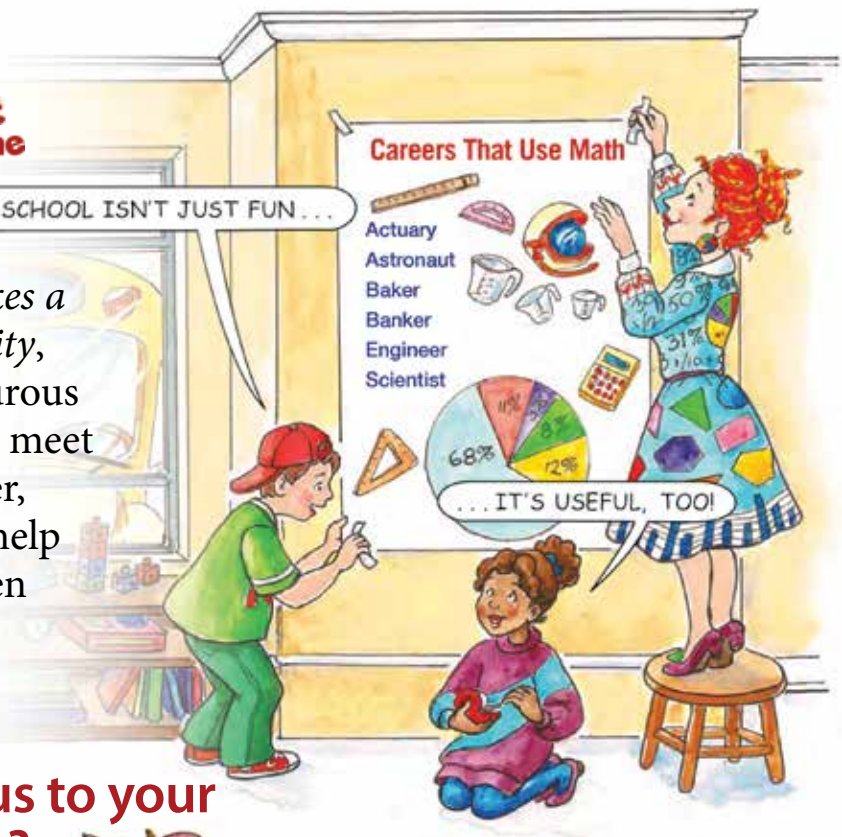
You can order a copy from the
American Academy of Actuaries.



AMERICAN ACADEMY
of ACTUARIES

Show children the possibilities of probability.

Learn more by visiting actuary.org/magicschoolbus





Rethinking Risk *in a* Connected World

BY NANCY MANN JACKSON



LIVING IN A CONNECTED WORLD



means consumers generate data constantly—when they make purchases, browse websites, use social media platforms, fill out online forms and surveys, and interact with services through smart devices and apps. These activities produce a vast amount of data, including purchase history, online behaviors, demographic information, and personal preferences.

Companies collect and use that consumer data for a range of purposes, from personalizing experiences to delivering targeted advertising. In the insurance industry, this behavioral data can play an even greater role. Some insurers are using consumer behavior data in areas such as risk assessment, pricing, fraud detection, and customer engagement.

“Actuarial practice has always depended on understanding the relationship between expected and observed outcomes,” says Doron Samuel, an Australia-based behavioral economist and recipient of the Academy’s 2024 Award for Research. “Insurers have historically relied on operational data gathered at underwriting and at the time of claim to make these comparisons, supported by product-specific sources of information. Increasingly, however, consumer behavior data is changing the boundaries of what can be measured and predicted.”

As consumer behavior data proliferates and becomes increasingly available, it presents both an opportunity and a challenge for actuaries, Samuel says. Actuaries have the opportunity to better align expected and actual outcomes, while also facing the challenge of accounting for new sources of variability that traditional data does not capture.

As consumers generate vast volumes of behavioral data—from wearable devices to online interactions—insurance companies are reimagining risk assessment. Actuaries face both opportunities and challenges in leveraging this information to create fair, accurate, and ethically sound models.

Risk Modeling

Many insurance companies have embraced consumer behavior data for use in risk assessments. Access to this data allows risk models to incorporate more individualized and dynamic indicators. For example, health and life insurers can analyze fitness app usage or wearable data to gain insights into lifestyle and health management. In auto insurance, telematics can provide a detailed view of driving behaviors, including speed, braking patterns, and time spent behind the wheel.

While these types of data can be informative, they can also introduce bias. For example, wearable technology, such as smartwatches used to track heart rate and rhythm, may provide less reliable data when worn by people with darker skin tones, according to the 2022 study, *The Effect of Skin Tone on Accuracy of Heart Rate Measurement in Wearable Devices: A Systematic Review*.



STOCK.ADOBE.COM / MISS IRINE

Applications for Consumer Behavior Data

Risk assessment isn't the only area of insurance where consumer behavior data is having—or could have—an impact. Here's a look at other areas that may be affected by increasingly available data.

Pricing. Insurance companies can use customer data to provide personalized pricing. For example, auto insurers may offer premiums based on how a person drives and how much they drive. Health insurers can offer discounts to policyholders who exhibit healthy lifestyle behaviors, such as walking a certain number of steps per day, completing health screenings, or visiting the gym regularly.

Fraud detection. Just as policyholders can be classified based on specific traits for risk modeling, insurers can use alternative data sources to detect patterns that help identify fraudulent claims faster, says Andrew Larocque, health actuary at Risk & Regulatory Consulting, a 2025 Rising Actuary Award recipient, and vice chairperson of the Academy's Behavioral Economics Work Group.

"Combining behavioral indicators with plausibility estimation systems can allow insurers to stratify customers into

different risk categories," says Doron Samuelli, Australia-based behavioral economist and recipient of the Academy's 2024 Award for Research. "This [approach] is not about deterministic judgments, but about probabilistic resource allocation. Valid claims could be processed more quickly and at lower cost, while those with higher-risk profiles receive additional scrutiny. Without such approaches, honest customers end up subsidizing dishonest ones, which raises both ethical and financial concerns."

Keep in mind that incorporating behavioral factors into risk models does not guarantee certainty. A customer whom the model predicts to be at high risk of dishonesty may actually act honestly. "Ethical insurers must avoid treating predictive categories as definitive labels," Samuelli says. "Operational guidelines should ensure that all customers are treated with fairness and dignity, even as insurers make better use of available data."

For example, a group of actuaries and data scientists from Travelers developed a graphical database known as the organized fraud detector to speed up the process of identifying potential insurance fraud enabled by complex social

networks. They use the graphical database to identify connections between claims, medical providers, lawyers, and insurers involved in a given fraud case, doing so up to 1,000 times faster than with a relational database. The team layers these complicated networks with a neural network model that uses deep learning algorithms to sift through the data and uncover any connections or participants that appear suspicious.

Insurers can also use telematics and connected devices to collect real-time data on driving behaviors, property conditions, and environmental factors to help them better detect fraudulent claims related to staged accidents, property damage, or theft.

Customer engagement. Behavioral analytics is also changing how insurers engage with their customers. For example, by understanding how policyholders interact with digital platforms—including how often they log in, which features they use, and where they disengage—insurers can identify friction points and design more intuitive, personalized services.

To effectively target people who may have a greater need for services, Wildflower Health uses the national

Andrew Larocque, health actuary at Risk and Regulatory Consulting, a 2025 Rising Actuary Award recipient and vice chairperson of the Academy's Behavioral Economics Work Group, says he opts in to allow his car insurer to track his driving behavior through an app in exchange for a discount. "They get real-time data from many drivers, which they use for modeling, predicting, and pricing," Larocque says. "But it's important to realize that the data they're collecting is from a specific population that knows about the program, and that knowledge may cause us to drive differently."

Some behaviors could signal risk, such as driving during overnight hours. "But if it's a person who may not have a choice and works the graveyard shift, that assumption of risk may be misplaced," says Dorothy Andrews, senior behavioral

data scientist and actuary at the National Association of Insurance Commissioners. "The problem with some of this data is that it has positive and negative implications for insurance pricing and consumers, and insurance companies and regulators have to balance both sides to determine the appropriateness of including the variable in a model." Andrews served as a member-selected director on the Academy Board of Directors from 2021 to 2024. She is chairperson of the AI Subcommittee and a past chairperson of the Data Science and Analytics Committee.

In addition to data generated by insured individuals through technology, some insurance companies also use data from government and other sources in risk modeling. For example, one health insurance company purchased the mailing list of

Area Deprivation Index, a scientifically validated measure of neighborhood disadvantage that can be used to evaluate and improve factors affecting health across populations. "The index tells us if someone lives in a particular ZIP code where they may be more susceptible to poverty or other social determinants of health," says Sara Teppema, chief actuary at Wildflower Health and vice chairperson of the Academy's Health Equity Committee. "If so, we conduct more aggressive outreach."

Similar consumer data can be helpful for Medicaid and Medicare populations, and insurers that offer Medicare Advan-

tage plans, Teppema says. Other types of consumer data, such as that generated by home sensors or wearables, help detect changes in the habits or movements of older adults, alerting insurers when to engage with policyholders, she says.

Product design. Tracking consumer behavior can also play a role in insurance product design. "If we really think about how consumers will behave down the line, we might design policies differently," says Randall Stevenson, president and consulting actuary, Hause Actuarial Solutions, Inc. "For example, combining long-term care with a life insurance policy could allow the policyholder to get

a monthly advance on their death benefit if they enter a nursing home. They may be less likely to cancel the policy later in life because they may need the long-term care benefits." Stevenson is chairperson of the Behavioral Economics Work Group and a past chairperson of the PBR Review Procedures Work Group.

Communication. Consumer behavior data can also inform communication strategies for insurers. For example, "actuaries often want to be very precise, but data shows that can diminish comprehension of communications," Stevenson says. "Instead of saying '23.578%,' consumers are more likely to remember 'about a quarter.' Also, if you give people three options, they will tend to choose the middle option. Penalties are more effective than rewards—people react more strongly to something being taken away than to something being added."

In addition to choosing the right words and phrasing, selecting the appropriate communication channel will make a difference. According to LIMRA's 2024 Life Insurance Fact Sheet, 59% of U.S. adults and as many as 84% of Gen Z adults use social media for financial guidance—so insurance companies should consider communicating through social media to achieve results.



STOCK.ADOBE.COM / ANDREW

Tennis Monthly magazine, says Randall Stevenson, president and consulting actuary at Hause Actuarial Solutions, Inc. “They wanted to market to that audience because they assumed a lower number of health claims,” says Stevenson, who is chairperson of the Behavioral Economics Work Group and a past chairperson of the PBR Review Procedures Work Group.

And some health plans use data related to social determinants of health, “such as noting that people in a certain ZIP code may be more likely to experience food insecurity,” says Sara Teppema, chief actuary at Wildflower Health and vice chairperson of the Academy’s Health Equity Committee. “Social data can be very predictive of health care costs.”

Behavior vs. Behavioral Economics

When using consumer behavior data to assign risk, it’s important for insurance leaders to distinguish between behavioral economics and simple human behavior. “Most insurers currently limit their operational risk modeling to observable characteristics such as age, gender, location, occupation, and, in some cases, lifestyle factors like smoking status,” Samuelli says. “These variables provide only a partial view of customer behavior. They do not capture values, preferences, and enduring psychological traits that strongly influence outcomes. Personality, for example, is one of the most consistent predictors of behavior, yet it is rarely incorporated into risk models.”

Ethical and Regulatory Considerations

As the use of consumer behavior data expands, so does the need for well-defined ethical and regulatory frameworks. Actuaries and data scientists must be especially mindful of how behavioral inputs might inadvertently introduce bias.

For example, Dorothy Andrews, senior behavioral data scientist and actuary at the National Association of Insurance Commissioners (NAIC), attended a health conference where “a data scientist said confidently, and without presenting any evidence, that if a person owns a dog, they are more likely to be a smoker.” The data scientist explained that a person who smokes will take their dogs for a walk. Many felt that the rationale did not provide an intuitive and credible relationship between dog ownership and cigarette smoking.

Such broad assumptions that are not based in fact are not uncommon and must be avoided. “It’s dangerous to draw conclusions about someone’s personality when you aren’t trained in psychology,” Andrews says. “Not all consumers respond to changes in financial matters in the same way. You can’t use behavioral economics to assess every aspect of a person’s personality or behavior. Not all human behavior can be interpreted through the lens

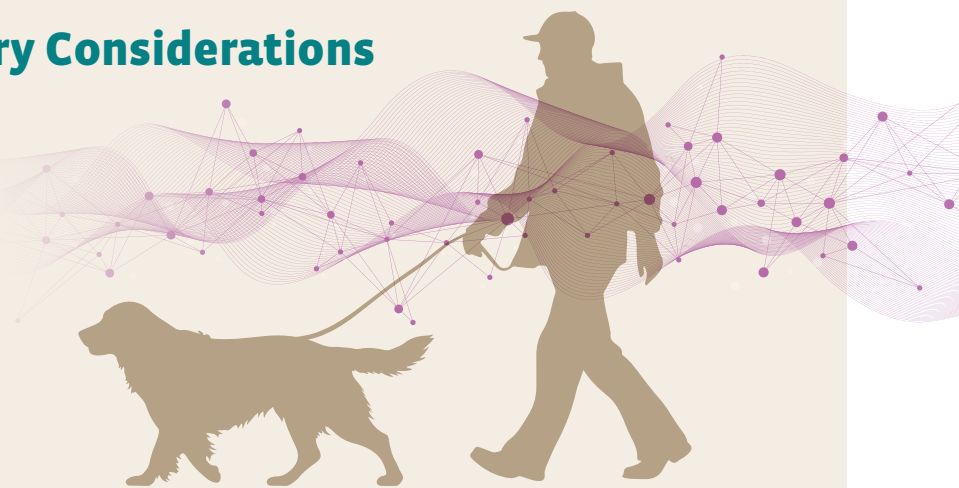
of behavioral economics. You have to understand the policies and frameworks that have influenced the data in order to begin identifying any embedded biases.” Andrews served as a member-selected director on the Academy’s Board of Directors from 2021 to 2024. She is chairperson of the AI Subcommittee and a past chairperson of the Data Science and Analytics Committee.

To combat the prospect of bias and inaccurate assumptions when using data, some lawmakers are pushing to regulate how predictive models are used in insurance, says Andrew Larocque, a health actuary at Risk & Regulatory Consulting, a 2025 Rising Actuary Award recipient, and vice chairperson of the Academy’s Behavioral Economics Work Group. The state of Colorado, a leader in

the movement, passed a law in 2021 protecting consumers from unfair insurance practices.

Colorado’s SB21-169, Protecting Consumers from Unfair Discrimination in Insurance Practices, holds insurers accountable for testing their big data systems—including external consumer data and information sources, algorithms, and predictive models—to ensure they do not discriminate unfairly against consumers on the basis of a protected class.

In addition to legal measures, the Actuarial Standards Board has promulgated standards of practice that address actuaries’ responsibilities when risk modeling. “Actuaries must follow both the regulations and actuarial standards of practice,” Larocque says. “And as technology changes, so do the regulations.”



That's why customers who appear similar on paper can have vastly different outcomes. For example, two people may experience similar car accidents, yet one may return to work quickly while the other develops a long-term disability. With current datasets, such differences are invisible at the underwriting stage, Samuelli explains.

Every person has hidden characteristics, such as honesty and responsibility, that play a big role in their behavior. "Insurance companies are analyzing a lot of data to determine how responsible someone is or how honest someone is," Andrews adds. "They might use credit scores to determine how responsible someone is, but some people in communities of color have no access to credit, so that's unfair for an insurance company to automatically assume you're high risk just because you don't have credit history. There are so many third-party variables that are behavioral in nature that are not dictated purely by economics."

How Actuaries Can Balance the Data Equation

An actuary's role is to establish the criteria for how insurers approach risk management, and new sources of consumer behavior data create the possibility of "richer, more nuanced models," Samuelli says. "Purchasing patterns, digital traces, and social media interactions can reveal traits such as impulsivity, a risk factor relevant across many product lines."

Insurance can learn from other industries about appropriate segmentation. For example, online retailers and other consumer goods companies group their customers into clusters based on behavioral and demographic data, and then tailor communication and pricing accordingly. "Insurers could benefit from a similar approach," Samuelli says. "Underwriting and communication strategies that consider latent traits would likely produce more accurate risk ratings, higher retention, and faster claims resolution."

For example, recent research shows that even slight adjustments to the enrollment process can lead to significant improvements. *Lower disclosures from customers screened by financial advisors*, a study that Samuelli co-authored, found that customers reported fewer risk factors when screened by financial advisors for life insurance, resulting in unfairly cheaper and more favorable policies. By eliminating financial advisors

from the process, the participating insurer in the study found it could reduce life insurance premiums by 20% without affecting profitability.

Results like these "illustrate the transformative potential of broadening risk models," Samuelli says. "If insurers fail to adapt, they risk being overtaken by non-financial firms that already leverage consumer behavior data at scale." It also underscores the crucial role of actuaries in designing enrollment and risk

assessment processes that ensure accurate data, fair pricing, and reliable risk models.

For insurance companies interested in innovating their risk assessment models, a wise first step is "to establish clusters of customers with common features that correlate with risk," Samuelli says. "Once identified, these clusters could be enriched with additional sources of behavioral data, including wearables, social media, and financial records. Actuaries are well positioned to guide this

process, ensuring that new models remain analytically rigorous, ethically defensible, and commercially valuable."

When deciding which variables should be included, there are many factors to consider. Andrews recommends ensuring that the variables have a true relationship to risk. She recalled one insurance company that wanted to include data in their risk assessments about how much mining occurs in the state of the insured. "The relationship to risk was not intuitive, and no correlation was demonstrated," she says. "You don't have to demonstrate causation, but you should show predictor model variables have credible correlations to risk."

To effectively make those decisions and lead their organizations in using data appropriately, actuaries need to improve their technical expertise as well as their understanding of the data, Larocque says. He recommends achieving this by collaborating closely with data scientists.

"There are so many more data points available now, and actuaries need technical skills to know how to use the data and incorporate it into models without introducing bias or creating a discriminatory model," Larocque says. "It's very common for actuaries and data scientists to work together on these issues." ▲

NANCY MANN JACKSON is a freelance writer for *Contingencies*.

When using consumer behavior data to assign risk, it's important for insurance leaders to distinguish between behavioral economics and simple human behavior.

POWERING THE



Building on 60 Years of Service to Our Profession

By William J. Michalisin

As we head into 2026, I find myself reflecting on the unique role the Academy plays in supporting and promoting the actuarial profession in the U.S. and am looking forward with real excitement to pursuing the opportunities that lie ahead. At its heart, everything we do is designed to accomplish three goals: serve our members, strengthen the actuarial profession, and demonstrate the value actuaries bring to our stakeholders and society.

Putting Members Front and Center

As CEO, my first priority is ensuring that our members, at all stages of their careers, truly feel the value of being part of this community. Whether they're just starting out in the

profession, serving as volunteers, or holding top leadership roles, Academy membership must be an investment that pays professional dividends. That's why we're committed to providing our members with high-quality educational

P R O F E S S I O N



resources on professionalism and policy topics, as well as opportunities to stay connected and share their expertise with peers, policymakers, regulators, and the public. We're also dedicated to ensuring that employers see the value of endorsing and supporting their employees' Academy membership, because stronger employees make stronger employers.

Our commitment to improving our services to members drives us to modernize across multiple levels. Operationally, we've invested heavily in technology, ranging from a redesigned website and our new, virtual volunteer community platform, Academy Connect, to our new learning management system, Academy Learning and

a growing library of webinars and other types of self-paced online education. Next up is a new association management system that will make it easier for members to join, renew, register for events, and access our resources, while providing us with better insights into member needs so we can deliver even more value.

And we're not stopping there. A board-level governance review is underway to ensure our structure and processes remain nimble and forward-looking. We're evaluating evolving member requirements and competencies so that they reflect the changes in the profession's landscape, from advances in artificial intelligence (AI) to emerging regulatory developments.



Safeguarding & Promoting Our Professional Voice & Impact

The Academy is the only U.S.-based actuarial organization that is dedicated to supporting the profession as a whole in the United States. As such, we're proud to house and support the work of the Actuarial Standards Board (ASB) and the Actuarial Board for Counseling and Discipline (ABCD), to uphold the U.S. Qualification Standard (USQS), and reinforce the importance of the Code of Professional Conduct, adopted by all five U.S.-based actuarial organizations. These structures keep us grounded in professionalism and form the foundation of our community's commitment to integrity, independence, and credibility.

A major focus in the years ahead will be helping stakeholders—and the public—better understand the importance of professionalism and our self-regulated focus, as well as the significance of the more than 1,400 references to the MAAA designation in state and federal laws and regulations. In addition, ensuring the public understands the role and positive impact actuaries have on public policy and other factors that affect daily life is critical to the profession and to nurturing the future pipeline of actuaries. From insurance protections to broader applications in business and finance, actuaries provide key information and insights that benefit millions.

That's why we'll continue to ensure, through our public policy activities, that decision-makers are aware of and appreciate the value of our members' informed, objective, and nonpartisan analysis. I can't stress this enough: We aren't a lobbying body; we inform and educate through Hill visits, policy symposiums, other congressional and federal agency outreach, engagement with and support for NAIC and state insurance departments, media interviews, and the more than 300 work products our volunteers and staff produce each year.

We've also greatly expanded the ways we use to communicate our members' work and its value to a variety of audiences through our blog series, a new stakeholder newsletter, refreshed magazine content, podcasts, infographics, and video content.

Listening, Learning, and Responding

I'm particularly proud of the progress we've made in engaging directly with our members and stakeholders. Through member and volunteer surveys, employer outreach, Hill visits, and conversations with regulators, we're getting a better handle on what we're doing well and where we can do better. The lesson is clear: When we listen to our members closely and engage with them meaningfully, we can respond more effectively—not just by reacting, but by anticipating needs.

I want to conclude by welcoming our newest members to the fold. You've joined a mighty and growing community of professionals with a focus on impact. The actuarial profession

may be compact in size when compared to others, but its impact is enormous and touches all aspects of society. The Academy is here to support your growth, uphold the standards that define us, and amplify the difference actuaries make every day. Your voice is valued, and the Academy is committed to engaging you, supporting your contributions, and helping you shape the work we do and the mission we serve.

As we celebrate 60 years, I can't help but think we're just getting started. The evolution of the profession is what makes it exciting—each new challenge, each innovation, each opportunity to serve the public and U.S. actuarial profession reminds us why this work matters. Together, we'll continue to strengthen our community, advance our profession, and make sure the value of actuaries is recognized, understood, and felt everywhere it should.

Member-Centered Learning

By Lori Feinman

We in Education and Events have been eagerly awaiting 2026's arrival, as this year marks the introduction of several exciting new member-focused enhancements. A few projects the Academy has launched over the past few years are coming to fruition, giving members new ways to engage in interactive learning experiences and collaborate in the development of professional education.

Academy Learning and Continuing Education

Launched in 2024, the Academy's learning management system, Academy Learning, has become a valuable member resource for publications, webinars, and event recordings. In 2026, we'll go beyond sharing previously produced educational material by providing new continuing education (CE)-eligible content that supports member engagement and better meets users' needs. Over time, Academy Learning will leverage learners' preferences to curate content based on what they have viewed previously. We'll also seek member input to further improve their learning experiences, through a member needs survey, and by asking Academy volunteers and members to offer advice on which topics to prioritize. This feedback will further ensure content is more relevant than ever, and we're delighted to give users more "skin in the game."

And, in 2025, the Academy integrated seven years of historic earned continuing education data (as required by the USQS) into Academy Learning, with plans to retire the TRACE® online tracking tool in 2026. Now, content consumed—and, thereby, credits earned—through Academy Learning will automatically appear in the user's record under "My Learning," and credits earned through other organizations' programs can be added to create one comprehensive, centralized, year-long learning record. It's a sophisticated but easy-to-use platform and will greatly improve members' overall learning experience.



Members will benefit from new tools in our webinar platform to encourage attendee interaction, new seminar-specific applications during in-person events, and expanded on-demand education modules across all content areas.

Engaging Members and Events in 2026

We'll be working on increasing member engagement through technology in other areas, too. Members will benefit from new tools in our webinar platform to encourage attendee interaction, new seminar-specific applications during in-person events, and expanded on-demand education modules across all content areas.

2026 promises to be busy and exciting in the Academy events world. We look forward to newer offerings, such as the second Insurance Investment Summit; legacy Academy seminars, including the Life and Health Qualifications Seminar and the Seminar on Effective Property/Casualty Loss Reserve Opinions; our ongoing collaboration on CLRS, held jointly with the CAS; a special multi-day, policy-focused, CE event on Capitol Hill in the spring; hosted educational and social events at NAIC and other industry convenings; a celebratory Volunteer Leadership Summit in the fall, and dozens of engaging webinars, which are always available on-demand in Academy Learning as a benefit of membership.

Behind the Curtain

The Education and Events team brings a strong and diverse mix of skills and experience to where we are today. Everyone on the team brings a fresh perspective to our roles and our focus on elevating the member's learning experience. Our varied backgrounds in association and corporate event management, public-school and higher education, hospitality, and the military,

are our collective superpower. We cross-train, mentor and, when necessary, troubleshoot on the fly to stay on top of all we do.

None of this progress would be possible without the Academy's inclusive and supportive culture. Whether you're a member, committee volunteer, board member, or staff, we're all part of the Academy community, ready to contribute expertise, guidance, and support wherever needed. This organization-wide commitment to member service and each other, and our combined dedication to the organization's mission and the actuarial profession, helps the Academy stand out.

Keeping the Academy's Motor Running (Under the Hood)

By Tom Hopkins

The Academy's HR, IT, and Accounting teams—which I like to think of as the Academy's internal engine—focused on two priorities in 2025: Incorporating automation and AI into our operations. And we'll continue advancing these “two A's” in 2026 to further enhance the Academy's performance and efficiency and improve our service to members.

The “Two A's” in Action

For example, we've been developing new data dashboards, which will give Academy leaders key information in quick snapshots on various metrics, including membership trends,



IT performance, and HR data. The dashboards represent a real automation breakthrough; they transform a mountain of data into a clear, concise “report card” that shows management how well the organization is performing.

Another key milestone for 2026 will be the launch of a new association management system designed to make it easier for members to review their records, purchase products, and engage with new platforms such as Academy Learning and Academy Connect, a community-based offering supporting virtual engagement for volunteers and eventually members. By syncing these systems, new platforms, and our website, members will experience a more streamlined, integrated way to access Academy offerings.

And, to boost efficiency, we revamped our chart of accounts, a categorized list of all financial accounts (think of it as a filing cabinet containing financial data that organizes transactions and generates financial statements). This change improved our ability to track—and reduce—expenses and will help us make smarter financial decisions, ensuring investments are geared toward delivering greater member value.

Teaming with Technical Titans

Innovation doesn't happen in a vacuum; we've sought out top-notch expertise to ensure our enhancements come off without a hitch. Our partnership with ADP has streamlined HR tasks ranging—from PTO tracking to performance reviews—while our IT partner, Dataprise, has helped us find and address security vulnerabilities, and migrate more of our systems to the cloud to boost reliability and reduce costs. These collaborations have freed staff to focus on serving members, made our systems and data safer and more efficient, and will help us ensure that our internal operations are operating seamlessly in the background.

There are many ways to measure success and a key one for us is how quietly and effectively we operate behind the scenes. We're dedicated to keeping everything running smoothly so that members' interactions with the Academy—from travel expense reimbursements and products purchase to CE tracking and reporting, and profile updates—are quick, easy, and accurate.

Looking Ahead

This year will undoubtedly usher in major advances in AI development, and we're excited to see how actuaries continue exploring and using the new technology—and how we, too, can further capitalize on it. The Academy enters 2026 on a firm financial footing, and our ongoing work to refine and increase our use of AI and other new technology will ensure that the future is bright.



The Academy's established reputation for objectivity and independence allows our members to enjoy the trust of legislators, regulators, and the public.

Professionalism

By Brian Jackson

Former Academy President Steve Alpert once described the Academy as the fulcrum of the profession's self-regulation because the Academy is structured to provide independence and credibility to the infrastructure of actuarial professionalism. Steve also noted that balanced on either side of this fulcrum are our members' individual actions on the one hand, and the expectations and needs of the public on the other. Steve further posited that “If self-regulation is to be effective, all three parts must be balanced and in harmony: The Academy's fulcrum must be at the right point, public needs and expectations must be appropriately identified, and individual actuaries must do the right things consistent with both.”

I take Steve's guidance to heart. And I believe that the Professionalism Department's priority—next year, and every year—will be to do our very best to ensure that all three parts are aligned and complement each other. We will continue to provide a structure that ensures that that actuarial profession remains completely capable of self-regulation and that it continues to maintain its reputation for providing actuarial service with honesty, integrity, and competence, and for accepting responsibilities not merely to principals but to a broader definition of interests a “learned profession” should serve.



The Heavy Responsibility, and Exercise, of Self-Regulation

The Academy was established 60 years ago to bring credibility and recognition to actuaries practicing in the U.S. Independent of but with the full support of the educational societies, the Academy has created a framework of standards, discipline, and qualification for practice in the U.S., as well as a voice for the U.S. profession on public policy matters for which actuarial expertise is helpful to the public interest. We still do that.

However, the largely self-regulated nature of the actuarial profession requires vigilant self-examination of our standards of practice, our Code of Professional Conduct and our Qualification Standards. Our plan for next year is to focus on assisting the ASB, Committee on Qualifications, and the ABCD when conducting the self-examination necessary for professional credibility and objectivity and for making sure that actuaries are professionally accountable. This year, we will also continue to assist our members in meeting the profession's high ethical standards by providing quality continuing education opportunities designed to help members understand and satisfy their professional obligations under the Code and keep current with the standards of practice and qualification that guide them when providing professional services. Our goal, as always, will be to provide independent and objective information, based on the principles of professionalism found in the Code.

A Message to New Members

The one message I'd share with our new numbers is that membership in the Academy means that you recognize yourself as a member of a profession—a profession that holds itself to high standards of conduct, practice, and qualification and strives to serve the public as well as the U.S. actuarial profession. I'd also mention that they are very fortunate in that they have joined an organization that has a culture of integrity that allows them, as new actuaries, to model their professional behavior by watching how senior, more experienced, members demonstrate and encourage ethical values when providing professional services. Lastly, I'd say the Academy's established reputation for objectivity and independence allows our members to enjoy the trust of legislators, regulators, and the public. So, when new

members are out there practicing and using the MAAA designation, the reputation of the entire profession supports them—and each new member's professional integrity supports the entire profession.

Message Delivered: Expanding the Academy's Outreach

By David J. Nolan

Last year was a busy one for the Academy and, inevitably, for the Communications Department, because our team is involved in every department's work. The technological initiatives we undertook last year will help our members to engage more effectively with each other and with a growing and increasingly diverse audience. Maintaining that upward trajectory requires a lot of flexibility and openness to new ways of doing things and we've proved to be up to the challenge.

Top Member Benefit: Diversifying Our Delivery Systems

Communication is not one-size-fits-all proposition; the "platinum rule" is to send information out in the ways people want to receive it. Some prefer a newsletter format while others may gravitate toward an infographic, video, podcast, or blog post. We started leaning into all these formats last year, while enhancing existing ones, to showcase our members' work in as many formats as possible.

Last year we launched a new website that makes our material easier to find, and instituted a new email system that enhances engagement with members as well as the look and feel of our newsletters. We also recruited staff with expertise in producing sophisticated motion graphics, live-action videos and eye-catching infographics. All of these enhancements will continue to amplify the Academy's voice and impact in 2026 in a variety of formats that resonate across a diverse membership as they allow us to better showcase volunteers' work through our publications, webinars, the website, and social media. This year we'll be focusing on helping members present their work in the best possible light: making sure it's polished, professional, distributed across multiple platforms, and given the best chance to fly.

Contingencies, our bimonthly magazine has a refreshed look and continues to deliver actuarial insights and examine the issues shaping the insurance



and financial services industries. We recently introduced three new columns—CEO Insights, Policy Compass, and Member Spotlight—to showcase our members, highlight the Academy’s unique role, and share the many initiatives underway to best serve our members, the public, and the U.S. actuarial profession.

We also had a hand in improving member-to-member and member-to-staff communication by supporting the Membership Department’s Academy Connect communications platform. (The Academy has also initiated conversations about improving our new association management system, with which all departments of the Academy are involved.) And we’re working with the Professionalism Department to help them add to the resources they offer.

Finally, we’ll continue refining how efficiently we receive, prepare, and release our volunteers’ work, ensuring timely delivery and, thus, helping it to gain more traction among members and the many stakeholders who rely on the more than 300 publications produced by the Academy annually.

Expanding Member Outreach

Actuaries are very generous about sharing their expertise and insights and a big part of our job is making it easy and effective for them to do so. We’re working hard to expand Academy members’ outreach to stakeholders by helping the Public Policy Department prepare members to conduct Hill visits and developing expanded policymaker contact lists. We’re also compiling other lists of key contacts both within and beyond the actuarial field.

One of our biggest challenges has been and remains attracting more media attention to the Academy’s work. What actuaries do may seem obscure and opaque to many but the issues they address affect everyone’s lives in ways large and small. I like to say that, although few realize it, there are seven actuaries in everybody’s life. Some journalists are aware of their influence but most of them tend to be trade press who speak to a select audience. It’s much harder to get covered in mainstream media but our team does a great job of helping us to break in.

That said, the ability to speak clearly and effectively with journalists and policymakers doesn’t come naturally; it takes a special sort of skill to message clearly and convincingly and an awareness of when and how one’s remarks could be misconstrued. That’s why we offer members presentation training to help them “perform” effectively in public settings, whether they’re testifying on Capitol Hill, participating in a webinar or podcast, or being interviewed.

We also have an active and growing speakers’ bureau whose participants are helping to explain and highlight the actuarial perspective on key issues and discuss what actuaries bring to the table.

Measuring Success

Our department doesn’t define its work by numbers alone, but data plays a key role in measuring progress. Our email open rates hover around 40%, which is high for a professional association. The website draws more than 150,000 unique visitors annually, with high levels of repeat traffic. Thousands of media mentions are logged each year and our social media metrics are consistently strong as well.

But numbers don’t tell the whole story. Quality of interaction is as important as quantity, and we’re proud of how inventive, adaptable, and forward-looking the Academy has been in developing a broad variety of approaches to better support members’ work and our efforts to disseminate it.

Goal for 2026: Showcasing the Best in Us

As the new year unfolds, we’ll continue to ensure that our members’ voices are heard, their work is understood, and their impact is recognized. This profession’s strength lies not only in its practitioners’ technical rigor, but in its professionalism, strong sense of ethics, and its commitment to promoting the public good. Helping to showcase those qualities, clearly and across every available platform, will remain our highest priority.

Strengthening the Member Experience in 2026

By Kasha Shelton

Members are our most important asset. That is why in 2026 we are focused on ensuring members feel connected, engaged, and valued at every stage of their journey and that employers clearly see the value of supporting and encouraging Academy membership.

The 2025 Member Value Survey gave us unprecedented insights into the diverse needs and perspectives of our membership. With responses spanning every career stage and practice area, we now have a roadmap that reflects what members want most: clearer pathways into the Academy, stronger feedback loops, and more support for both volunteers and employers.

Deepening Member and Key Audience Engagement

For new members, we are expanding the welcome email series and webinars launched in 2025, adding touchpoints across the year to help them feel connected from the start. We are also piloting a new space in Academy Connect where a variety of pilot groups, such as new members, can ask questions, respond to polls, and build peer connections.

For the newly credentialed actuaries, we are introducing a new reduced-rate membership tier in 2026. These early career members will be paired with tailored resources, including guides to navigate professionalism, opportunities

to connect with peers, and programming that supports their leadership development.

Expanding the membership pipeline is also a priority. Members will be equipped with outreach toolkits to present at high schools and universities, while also engaging parents of high school students to raise awareness of actuarial career opportunities. Updated university toolkits will bridge the gap between academic study and professional practice. Working closely with the Emerging Leaders Subcommittee, we will also increase our engagement with educators and explore opportunities to collaborate with peer organizations to collectively support a strong pipeline into the profession.

Employers remain central to our strategy. Through the Employer Value Subcommittee, we will be building resources companies can use to understand and highlight the value of Academy membership, including practical tools and recognition initiatives. Just as importantly, we will be learning from employers about the challenges they face in attracting and retaining actuarial talent, emerging trends, and challenges, so we can respond with meaningful support through expanded member and employer resources.

Advancing the Volunteer Journey

Volunteer contributions are at the heart of our work. One of the clearest findings from last year's volunteer survey was the need to refine onboarding. In 2026, we will launch a comprehensive program in collaboration with the Volunteer Engagement Subcommittee to develop additions such as orientation sessions, clear role descriptions, explanatory videos, training manuals, and podcasts with experienced volunteers sharing best practices.

We are also sharpening our focus on committee succession planning. By working more closely with committees to anticipate vacancies we can ensure smooth transitions and bring in fresh voices with the right skills and interests. This helps volunteers succeed and strengthens the member experience overall.

Expanding Feedback and Responsiveness

We are introducing new feedback channels, including shorter pulse surveys, quick polls on Academy Connect and the website, and member conversations tied to specific initiatives. Feedback will not just be collected; it will be shared back and acted on so members can see where their input has shaped change.

Employers remain central to our strategy. Through the Employer Value Subcommittee, we will be building resources companies can use to understand and highlight the value of Academy membership, including practical tools and recognition initiatives.





We are also expanding a pilot program for new members to create more structured onboarding experiences. Combined with our feedback channels, this approach will allow us to stay more closely attuned to members' needs, adjust more quickly, and keep members confident about their voices matter.

Strengthening Requirements and Standards

A major initiative in 2026 is the rollout of the Academy's new membership requirements heavily focused on the Academy's Competency Framework, which sets clear expectations for the minimum experience and expertise required for membership. We are updating the membership application process to reflect these requirements, ensuring applicants understand the professional and regulatory responsibilities tied to earning and maintaining the MAAA credential.

The Academy is referenced in thousands of laws and regulations. Protecting the integrity of the MAAA designation is central to maintaining public trust and preserving self-regulation in the actuarial profession.

Looking Ahead

The challenges facing society, including climate change, demographic shifts, and retirement security, are deeply connected to risk management. The Academy is committed to providing trusted, objective insights to policymakers and regulators on these issues. We are also building new ways to collaborate with actuarial partners to reinforce our position as the national voice of the U.S. actuarial profession.

Above all, we want members to know we are listening. Through surveys, polls, and direct conversations, member feedback is helping to shape our priorities. While we cannot act on every suggestion, we are committed to expanding our services and making the Academy a place where every member feels the value of belonging.

The profession is evolving with new challenges such as artificial intelligence, climate change, and regulatory complexity. By maintaining strong feedback loops, sharing insights across departments, and responding to member needs, we are building an Academy that will not only meet the challenges of 2026 but also set the stage for the years ahead.

Policy with Purpose: Helping Actuaries Weigh in on the Issues That Affect Us All

By GERALYN TRUJILLO

Although you are reading this article in early 2026, strategic planning for the public policy agenda actually started back last summer, with each practice council meeting to discuss what to anticipate in the next 12 to 18 months. One of the key refrains of those conversations, regardless of practice area, was the focus on our evergreen mission: serving the public and the U.S. actuarial profession. No matter the issue or line of business, public policy and research continues to prioritize positioning our volunteers and our work products to reflect sound actuarial practice, objective analysis, balanced perspective, and a nonpartisan voice. Achieving this goal won't be easy, particularly in the current political environment with the likelihood of a challenging mid-year election ahead of us.

Spotlighting the "Act" in Actuary

We know that policymakers, regulators, and the public need clear, accurate, and actionable information to help answer the question, "Why are our laws and regulations not working as we want?" That's exactly the sweet spot for the policy and research work of the Academy's Casualty, Life, Health, Retirement, and Risk Management and Financial Reporting Practice Councils.

The Academy is consistently working to connect the proverbial dots on a broad range of issues, ranging from aging and financial security to artificial intelligence and data, to the impact of climate events, to a consumer's ability to access and afford insurance, to investments and financial reporting. Our public policy volunteers do the heavy lifting in support of the Academy's mission. Through their publications, presentations, and engagement, we are able to highlight the relevance and value of actuaries—in industry, in business, and in policy. We often hear from our stakeholders—including elected officials, professional staff, consumer advocates, trade associations—that it is the Academy and actuaries who bring the analysis, perspective, and insight that can help quiet some of the rhetoric and point the way to a better solution that will benefit the public.

In 2026, one of our priorities is to find more effective ways to shine a brighter spotlight on our policy and research work, emphasizing the balanced and objective analysis our members offer. As we work with our colleagues in the Communications Department, we'll be focusing on how we better incorporate shorter pieces—one-pagers and infographics—that help summarize our policy findings and analysis. We also want to better leverage other communication modes to help share information and engage with our key audiences by increasing the public's

awareness of Actuarially Sound, our blog, and offering a greater number of policy-focused Actuary Voices, the Academy's podcast. Even something as quick as reacting to Academy activity on LinkedIn or other social media platforms helps to amplify our work.

Meeting policymakers, consumer advocates, and the public where they are, using language that is accessible and understandable, is an interesting challenge for our technical expertise. We will continue to emphasize why having an actuary at the proverbial policy table is not just a "nice to have" but a "need to have." Our research team helps us achieve this by continuing to spotlight early career academic research that influences public policy through our annual Award for Research and by submitting proposals on professionalism and policy topics for national and international conferences.

Get Ready to Save the Date(s)

We are energized by several events that will be on the Academy's calendar in 2026; some are highly anticipated annual gatherings while others are relatively new. Following a successful inaugural summit, the Life Practice Council will once again host an Insurance Investment Summit this year. The event is intended to facilitate conversations between actuaries, regulators, asset managers, and insurance executives, focusing on the evolving landscape of insurance asset management.

We anticipate hosting a retirement symposium, following last year's Retirement Practice Council's focus on strengthening the U.S. retirement system and 2024's ERISA@50 event. Both engaged congressional and federal agency representatives, who joined Academy volunteers in addressing recently published works. In 2026, we're looking at ways to better incorporate a cross-practice perspective on aging and financial security. Retirement encompasses more than just Social Security, pensions, and 401(k)s—it's also health insurance coverage (Medicare, Medicare Advantage, and Medicaid), long-term care insurance, annuities, and life insurance products.

The Casualty Practice Council will continue to develop and offer its established and well-regarded Opinion Loss Seminar, along with the ever-popular Casualty Loss Reserve Seminar event that the Academy produces with the Casualty Actuarial Society.

For all five practice councils, we'll also be hosting the second annual joint congressional Hill Visits. Early in the spring, volunteers and staff will once again head to Capitol Hill, meeting with key Senate and House of Representative committee offices and staff to discuss our priority policy issues and to ask them what is on their mind as they look beyond mid-term elections.

We're also focused on developing relationships with state legislators, primarily through the Academy's relationship with the National Conference of State Legislatures (NCSL). As we see more interest in issues around AI, climate events, insurance affordability and accessibility, and financial reporting at the state legislative level, building relationships with the organization that represents state elected officials and their staff offers the Academy another opportunity to inform and present our volunteer's works and expertise to help inform and influence public policy.

The Three P's—Public Policy Participation

We are also prioritizing how to communicate and identify the various ways members can participate in the Academy's public policy activities. Opportunities range from serving on committees and helping to develop and edit issue briefs and policy papers, to serving as peer reviewers, to participating on podcasts or webinars. We want to expand and increase awareness of our policy speakers' bureau, offering opportunities for actuarial clubs, employers, or other groups to hear from volunteers and Academy staff about the policy and research work we are doing. We've also launched the new policy column in *Contingencies*, Policy Compass, which will give us another way to talk about the Academy's policy work and engagement.

Finally, we'll be focused on spreading the word about why membership in the Academy is so valuable—for actuaries, for employers, for policymakers. The value of the MAAA credential and why it is so incredibly important for those inside and outside of the actuarial profession will be folded into more of our policy work—particularly as we look to engage with state and federal legislators, regulators, and other insurance and financial services stakeholders. We will continue to support the Academy's mission and vision by finding ways to easily explain how professionalism informs and influences our public policy work.

There is no such thing as a quiet year for the Academy or for public policy, and we have no doubt that 2026 will continue to challenge our ability to react to sudden changes in the political landscape while maintaining our focus on our key priorities. Luckily, our volunteers and members are our superpower. They are the heart and soul of the organization and the power that keeps the public policy light shining brightly. Election seasons come and go, policy priorities ebb and flow, and the public policy department along with our volunteers and practice councils will continue to build on our mission and vision to the benefit of the public and the U.S. actuarial profession. ▲



*Environmental, technological, demographic, and regulatory
are just some of the changes impacting the actuarial
world. The Academy's 2026 practice council priorities
show how they are prepared to respond and lead
in this dynamic landscape.*

By Noah Kirsch

Agile *and* Ready *for* What's Next



America's risk landscape continues to evolve rapidly. Among the challenges are climate volatility, which is transforming once-stable insurance markets; artificial intelligence (AI), which is rewriting the playbook for underwriting and claims handling; and an aging population, which is stretching the social safety net.

Meanwhile, fiscal debates have grown sharper in Washington, D.C., creating the potential for more regulatory and legislative changes that will further impact the actuarial landscape. This convergence of forces means that 2026 may not simply be a routine year for actuaries, but perhaps a test of how well the profession can anticipate and adapt to a rapidly evolving environment.

The Academy's six practice councils have addressed that challenge while setting their 2026 priorities. Though each group has its own specific agenda—ranging from AI to insurance affordability to concerns about the longevity of Social Security—for some councils, their work this year will build on initiatives from 2025. Their leaders describe a common goal: ensuring that the Academy continues to inform policy objectively, serve the public and the U.S. actuarial profession, and maintain the

public's trust in an era of uncertainty. (Read "COPE Priorities" on page 32 to learn about the areas of focus for the Council on Professionalism and Education's 2026 priorities.)

"There are a lot of opinions about different policies that are tinged with a political lens," says Annette James, vice president of the Health Practice Council (HPC). "That's why it's so important for the Academy to have an apolitical, nonpartisan stance and provide just the facts."

Common Ground

The largest point of overlap among the councils' 2026 priorities is AI. That is no surprise, considering the technology's rapid proliferation across industries and practice areas, and its potential to redefine the global economy.

According to PwC's report, "2025 AI Business Predictions," as of late 2024, almost half of technology leaders had integrated AI "into their companies' core business strategy." That number has likely grown.

Meanwhile, a 2025 analysis from McKinsey, "The state of AI: How organizations are rewiring to capture value," notes that more firms are addressing potential risks associated with AI, including those related to cybersecurity, intellectual property infringement, and disseminating inaccurate information—showing that these are key issues for companies.

AI is a "super challenging area to say much about, because by the time you're ready to say something, it's changed," says Susan Kent, vice president of the Casualty Practice Council (CPC).

The CPC is monitoring AI developments on a number of fronts, such as examining concerns about algorithmic bias as part of its Committee on Equity and Fairness. Insurance companies are using AI models in multiple areas, for instance, predicting which claims might be fraudulent or using machine learning to evaluate pictures of roofs to evaluate their condition. But properly implementing the technology will require prioritizing governance, Kent says.

From a regulatory perspective, state officials are closely studying how AI is being used for insurance underwriting and pricing—and the CPC plans to monitor any legal changes, Kent says. Meanwhile, the National Association of Insurance Commissioners (NAIC) has issued a bulletin, "Use of Artificial



As with AI, concerns about insurance affordability cut across sectors, and in some cases, intersect with other 2026 council priorities.

STOCK.ADOBE.COM / PETE

COPE Priorities

The Council on Professionalism and Education (COPE) includes representatives of all practice councils as well as additional Academy committees that relate directly to the professionalism and/or education needs of U.S. actuaries. COPE coordinates the Academy's work on professionalism and education topics. The Actuarial Professionalism Liaison Committee (APLC), under COPE, comprises representatives from professionalism boards, such as the Actuarial Board for Counseling and Discipline and Actuarial Standards Board, as well as representatives from other U.S.-based actuarial organizations. The APLC provides a

forum where representatives of the entire U.S. actuarial profession can discuss professionalism issues.

In 2026, the Committee on Education (COE) will continue to work closely with the Committee on Membership regarding the materials that support the new membership requirements. The requirements went into effect at the beginning of this year and require applicants to attest that they meet certain competencies.

As applicants go through the Competency Framework, they may identify required subjects for which they cannot attest to competency based on their current credential, their work experience, or other education. In these cases,

the applicants should look first to Academy Learning for relevant materials to help them acquire this knowledge. The COE will use feedback from applicants, new members, and employers to continue building out U.S.-focused resources that will allow an applicant to meet the requirements of the Competency Framework.

COPE will also continue to support the availability of educational opportunities to assist current Academy members in achieving their continuing education and qualification requirements. Relevant content will include professionalism and bias topics as well as technical aspects of actuarial work and updates on chang-



Intelligence Systems by Insurers,” on governance practices for insurance companies that use AI.

Jason Kehrberg, former vice president of the Life Practice Council (LPC), notes that in 2025, members prioritized changes driven by AI, particularly in reference to underwriting and risk classification. (Kirsten Pedersen took over as vice president in November.)

Kehrberg says the NAIC initiative regarding unfair discrimination and the use of third-party data is an area of focus for regulators, as well as the industry. The NAIC is developing a regulatory framework to address the potential for unfair discrimination arising from insurers’ use of third-party and models. He adds that, on a state level, Colorado has led the charge in attempting to regulate the application of AI to insurance. Additionally, the LPC will continue to pay close attention to potential regulatory shifts and offer feedback as appropriate.

The Risk Management and Financial Reporting Council (RMFRC) is continuing to prioritize AI in 2026 as well. Specifically, the Data Science and Analytics Committee anticipates publishing a paper on “model validation techniques,” says Bill Jones, vice president of the RMFRC. The Artificial Intelligence subcommittee will focus some of its efforts evaluating potential legislation and other ways AI could impact the industry.

In summary, Jones says, “AI is transforming all of our lives in many different ways.”

The RMFRC is simultaneously paying attention to other developments, too. For instance, the Behavioral Economics Work Group will release results of its survey on companies’ use of behavioral economics, while the Prudential Regulation Committee plans to review and comment on expected consultation papers by the International Association of Insurance Supervisors.

Addressing Affordability

As with AI, concerns about insurance affordability cut across sectors, and in some cases, intersect with other 2026 council priorities.

Jones notes, for instance, that data centers used to power AI platforms could potentially have environmental impacts or contribute to climate change, which, in turn, could intensify concerns about insurance affordability. The RMFRC’s Climate Change Joint Committee (CCJC)—a joint committee between RMFRC and the CPC—is working on other initiatives in that space, too, such as an analysis on legislative changes in Florida that will impact affordability in the homeowners market.

CCJC also plans to release an issue brief on insurance affordability, paying particular attention to climate events and the impact of climate change on affordability.

ing U.S. laws and regulations. This material will be housed in Academy Learning, which allows all members to access learning opportunities, track continuing education, and assess their educational needs.

COPE will continue to support self-regulation through presentations, webinars, and papers. Some examples of its recent papers include *Actuarial Professionalism Considerations for Generative AI* and *The Actuary’s Toolbox: Peer Review—How Can It Help?*

In late 2025, the Disruptive Events Task Force presented a recommendation to the Academy Board for a new process for identifying and responding to potentially disruptive events. This recom-

2025 Accomplishments

- Developed educational materials to support applicants as they prepare to attest to the Competency Framework in accordance with the new membership requirements.
- Developed a process to identify and monitor potentially disruptive events.
- Provided five professionalism webinars, the Life and Health Qualifications Seminar, and numerous speakers for professionalism presentations.



mendation was approved by the Board and the task force was dismissed with thanks. This new process will utilize the Cross-Practice Vice President group and will rely on the awareness and diligence

of members to report potential disruptive events through a form available at actuary.org/potentiallydisruptive.

—**Nancy Behrens, Vice President, Professionalism and Education**

James says HPC members selected affordability as one of their focus areas for 2026. They will also prioritize controlling health care costs and improving efficiency in health care spending.

In previous years, James says, the HPC selected specific health care areas to tackle and then built its list of priorities around those areas. This year, by contrast, the members began with broader themes—affordability being one of them—then developed an action plan to address those themes.

On a national level, rising health care premiums are a hot-button political issue. In the individual market, James says, the median premium has increased about 23% compared to 2025. At the same time, according to “Americans’ Challenges with Health Care Costs,” a report by KFF, “nearly half of adults say it is difficult to afford health care costs, including large shares of the uninsured, Black, and Hispanic adults, and those with lower incomes.”

The health care landscape is in flux on both the state and federal levels. “There’s a lot of legislative and regulatory activities ... that would impact the health insurance markets, specifically the [Affordable Care Act] markets and Medicaid,” James says.

“The individual, small group, and Medicaid markets have been the focus of

many of the recent federal health policy changes,” she continues. In 2026, the HPC will seek to provide actuarial guidance “on different policy options for regulators and policymakers related to the sustainability of those markets.” The council also plans to provide analyses on Medicare, employer-sponsored plans, long-term services, and other health care issues.

Insurance affordability and access is also a key issue for the CPC, Kent says. In addition to rising insurance costs, some companies have withdrawn “from challenging markets,” she says, leaving consumers with limited options.

Homeowners insurance is one area requiring special attention, which is the focus of the Homeowners Insurance Task Force, Kent explains. The California wildfires in early 2025 “really put a spotlight” on questions about access, “but I would say that’s not the only area where there’s been concern.”

Multiple factors, including climate change and more people living in high-rise areas, are exacerbating disasters on a number of fronts, Kent says, including the losses from wildfires and hurricanes. “There’s definitely been an increase in losses,” she notes. “That causes challenges for insurance companies, which causes challenges for actuaries in pricing for these risks, which then, in turn, causes challenges for policyholders who are

having to pay for coverage that will potentially cover these higher losses.”

The CPC is also focused on other affordability problems, including auto insurance, and potential state and federal regulatory changes. “Most property/casualty insurance is regulated at the state level,” and therefore, state policies are often top of mind, Kent says. Still, the National Flood Insurance Program and the Terrorism Risk Insurance program “regularly come up for renewal or reform,” so the CPC will continue to keep “a close eye” on any changes.

Retirement Readiness

Many Americans are not adequately prepared for retirement, according to an October 2025 analysis by Vanguard titled “The state of retirement readiness in three charts.” The study found that less than half of the country is financially “on track to maintain their current lifestyles in retirement.” Among generations, baby boomers are the least prepared, with just 40% of those between ages 61 and 65 meeting that benchmark. Millennials and Gen Xers (ages 45 to 60) have slightly higher preparedness levels, while Gen Zers (ages 24 to 28) are actually the most ready, with 47% on track.

It makes sense, then, that the Retirement Practice Council (RPC) is paying close attention to social safety nets and employer retirement programs. Bruce Cadenhead, vice president of the RPC, says the council is monitoring the future of Social Security as one of its top priorities.

“As we get closer and closer to the point at which the Social Security trust fund gets exhausted ... it’s certainly long overdue to get people more focused on that issue,” he says. “Under the current provisions, the money coming in will not be enough to pay out the benefits.” According to the 2025 annual report of the Social Security Board of Trustees, the Old-Age and Survivors Insurance (OASI) trust fund is projected to be depleted in 2033.



2025 Highlights

Risk Management and Financial Reporting Council

- In response to industry developments, the Council submitted an agenda request to the FASB regarding accounting guidance for indexed annuities, ensuring actuarial input informs future financial reporting standards.
- The publication of the *Climate Data: Actuarial Perspectives on Quality Challenges and Effective Risk Quantification* policy paper emphasized the need for high-quality, granular, and consistent climate data to support actuarial modeling and risk quantification across insurance and financial sectors.
- Throughout the year, RMFRC led cross-practice work, including several comment letters to the NAIC addressing two key initiatives: the proposed AI Systems Evaluation Tool, advocating for regulatory consistency and principle-based flexibility; and the Request for Information on a Model Law for AI Use in Insurance, emphasizing transparency, fairness, and sound risk management in algorithmic decision-making.

Casualty Practice Council

- During the opinion season and in reaction to the immediate need, COPLFR created and published a supplement to the annual Practice Note on the Statements of Actuarial Opinion on Property and Casualty Loss Reserves to provide guidance through a Q&A on how to file subsequent event information due to the California wildfires.
- The Committee on Cyber Risk published two papers which were featured on an Actuary Voices podcast, an Actuarially Sound Blog, and a webinar during Cyber Awareness Month.
- The Council, with the RMFRC and the Research Committee, sent a comment letter to NOAA firmly requesting the reinstatement of the Billion Dollar Disaster Database, which was retired in spring of 2025. The letter was then circulated to Congress and was cited in stories by multiple news agencies internationally.

Health Practice Council

- A cross-committee resource guide was created and will be updated regularly, exploring key policy and market factors that shape enrollment, risk pool composition, and premium trends across government programs and commercial health insurance markets for the under-65 markets.
- The final H2-Underwriting and Managed Care Credit report was delivered to the NAIC's Health Risk-Based Capital (E) Working Group, updating the formula factor to account for the health insurance market shift toward managed care.
- Several resources were updated on the state of long-term

care insurance in light of changing and post-pandemic market dynamics.

Life Practice Council

- The inaugural Insurance Investment Summit was held in May, bringing together actuaries, insurance executives, and regulators to explore the rapidly transforming insurance asset management landscape.
- Working with the NAIC's Life Actuarial (A) Task Force, several LPC committees led the NAIC's efforts to codify principle-based reserving for non-variable annuities (including fixed-indexed, payout, and indexed annuities) in section 22 of the NAIC's Valuation Manual. As of August, LATF has adopted the final draft of VM-22, which will be mandatory on Jan. 1, 2026.
- LPC committees have provided revisions and support to the NAIC's Life RBC (E) Task Force on C3 instructions and alignment, as well as providing a presentation and recommendations on updated CLO factor modeling to the RBC Investment Risk and Evaluation (E) Working Group.



Retirement Practice Council

- The council published a series of papers focused on the Social Security program, including public sector workers who aren't covered by the program, the significance of the trust fund, the relationship of the program on federal government deficits and debt and the impact of the program on the financially disadvantaged.
- It held a symposium, *Actuarial Perspectives and Solutions for Strengthening the U.S. Retirement System*, to discuss the future of retirement security with a focus on actionable, actuarially informed solutions with federal policymakers, leading retirement experts, and Academy volunteers.
- The council published deliverables informing public policy and advancing the profession, including *Retirement and Gig Workers*, *Improving Spousal Retirement Plan Protections*, *Decumulation Strategies: Creating Lifetime Income from Defined Contribution Plans*, and *Gain/Loss Analysis for Pension Plans*.

Currently, Cadenhead observes, many Americans appear unaware of the implications of the dwindling reserves, though he expects there will “come a point at which politicians will have no choice but to focus on it.”

“We want to do whatever we can to raise the profile of this issue, as time is of the essence,” he adds.

There are several other issues on the RPC’s radar. One area worth a close look, he says, is why premiums paid to the Pension Benefit Guaranty Corporation (PBGC) are so high.

“Those premiums have become very expensive to the point where they are an impediment to companies being willing to sponsor defined benefit plans,” Cadenhead says. This is a key concern for the RPC, he continues, because even if other impediments to offering defined benefit plans are addressed—“such as designs that more effectively manage sponsors’ financial risk, and reforms to the accounting and funding rules that address those designs”—high premiums will still dissuade employers from offering their employees these plans.

This is noteworthy, Cadenhead says, given that the PBGC is currently operating with a large surplus. “They have more money than they will need to pay all of their expected claims, possibly without even collecting any future premiums,” he says. Cadenhead adds that this situation merits examination, as it may raise questions about how it aligns with aspects of PBGC’s stated mission, such as keeping premiums “at the lowest level consistent with carrying out its obligations.”

Additionally, Cadenhead says there are new innovations in employer-sponsored plans that may create savings opportunities for more Americans. Given the stark numbers about retirement preparedness, this could be a critical development.

Cadenhead cites “risk-sharing designs” as one example. As more companies shy away from defined benefit plans, these programs are structured so that “the benefit varies depending on the assets performance,” he explains. Therefore, “if assets perform poorly, the sponsor is not necessarily on the hook for additional contributions to make up that shortfall.” That reduces risk for employers, while still allowing for longevity risk pooling that “can still be a win for everybody by ensuring that retirees have an income that will last a lifetime.”

Tackling Complexity

The LPC plans to prioritize multiple regulatory topics in 2026. One of its initiatives, “investments, complex assets, and risk-based capital developments” is based on a trend that LPC members observed, Kehrberg says—namely, more new and complex asset classes are being used to back reserves on life and annuity insurance products.

Traditionally, Kehrberg notes, many insurers focused on simpler assets like corporate bonds to back their products. Now, financial instruments like collateralized loan obligations are

increasingly in the mix. Some of these assets are privately sold, he adds, and therefore may not be rated by the likes of Moody’s or S&P.

As a result, he says, in May 2025, the Academy held its inaugural Insurance Investment Summit in New York “to bring actuaries, insurance executives, and asset managers together to better understand the risks involved of using these types of assets in the highly regulated insurance industry.” The event will return in 2026, with plans to amplify its message and encourage greater engagement between nonactuaries and the actuaries who add value and insight to this area.

The LPC is also continuing to focus on cross-border reinsurance in 2026. “There has been an ongoing and increasing trend for life insurance companies to reinsure asset-intensive products offshore,” Kehrberg says, such as fixed index annuities.

Many insurance firms have opted to reinsure their business in places like Bermuda, the Cayman Islands, and Barbados, he says. Those moves are perfectly legal, but they have drawn attention from regulators who are examining risks associated with that practice.

“Once the money is in Bermuda, it can be potentially more difficult to get that money back, especially in, let’s say, systemic events,” Kehrberg says. He clarifies that regulators aren’t necessarily calling for cross-border reinsurance to end, but they are scrutinizing it to ensure “that policyholders are still adequately protected here in the U.S.” In other words, if a reinsurer in Bermuda fails, American officials want to be confident that claims will still get paid.

Regulators recently introduced Actuarial Guideline 55 “to help ensure these transactions continue to result in adequate claims paying ability,” Kehrberg says. The guideline requires additional disclosures on certain reinsurance contracts to ensure life insurance companies still have adequate reserves after transferring risk to a reinsurer.

Educating the Public

In a splintered world, one of the best avenues for the Academy to influence the national conversation is to inform members, policymakers, and the general public about the impact of policy changes. Health care policies, as one example, have shifted dramatically in the past year alone, and the HPC plans to devote significant attention to educating the public about the sustainability of Medicaid and the individual and small-group markets.

“Policymakers need to understand these markets and the impact that policies may have on the long-term sustainability and stability of those markets,” James says.

The HPC created a resource guide on health insurance market dynamics in 2025, which features links to webinars and other resources. Collectively, these efforts are designed to



In a splintered world, one of the best avenues for the Academy to influence the national conversation is to inform members, policymakers, and the general public about the impact of policy changes.

promote well-informed discourse. In 2026, the council will continue to expand the resource and leverage it as a starting point for engagement with regulators, industry and trade groups, and consumer advocates.

Jones echoes that point, adding that the RMFRC has taken a “novel approach” to educating members. One of its committees, the Enterprise Risk Management/Own Risk and Solvency Assessment Committee, launched a podcast series in 2025 to generate conversation about risk management. It will continue that series in 2026 and other committees and councils are looking to follow their lead.

The information ecosystem is difficult to break through, but with creativity, actuaries can seek to capture an audience. For example, the Academy’s Social Security Challenge is an animation that lets users explore decisions for maintaining Social Security’s financial health for generations to come. Similarly, the Actuaries Longevity Illustrator, developed by the Academy and the Society of Actuaries, is an online tool that helps users plan for a crucial aspect of retirement.

Informing Policy

Washington is perhaps even more polarized than the country at large. To maintain credibility, the Academy must retain its neutral political stance, several council leaders say.

“I think that we are very aware this year, maybe more than other years, how important it is to be unbiased, objective, and provide fact-based information,” James says. “There’s quite a bit of disinformation, and for people who do not focus on, say, health care, there could be a lot of misunderstanding of the impacts of different policies.”

James highlighted the HPC’s work last year in preparing comment letters to Congress, which offered lawmakers an actuarial perspective as they contemplated potential legislative changes.

In addition to helping officials understand the ramifications of policy tweaks, the HPC’s work also helped illustrate the interconnectedness of health insurance markets, she says. (Other parts of the actuarial field are similarly intertwined.)

The ripple effect of changes to health care policy could play out in many ways in 2026 and beyond. The under-65 population,

for instance, gets health care from different sources—mainly employer-sponsored insurance, Medicaid, and the individual market. Tweaks to subsidies or the employer mandate “can affect who can access premium tax credit or subsidies in the individual market,” she says. Moreover, she says, policy changes could impact the “viability of hospitals, particularly in the rural areas, and the cost of care for everyone.”

“All of these different elements that we usually think of as separate from each other are actually very highly interconnected,” James summarizes. “We felt it was important for us to emphasize that as policymakers consider policies.” In 2026, the HPC will continue to advise officials on the effect of proposed changes, including developments that occur in late 2025 and beyond.

LPC’s Kehrberg makes a similar point as James. When lawmakers propose potential changes to actuarial regulations, the council attempts to provide input early on, in an effort to offer independent and objective feedback, he says. Then, once rules are finalized, it releases issue briefs, practice notes, and related webinars to help actuaries understand the changes and what they might mean for actuarial practice moving forward.

James adds that preparing for regulatory overhaul has benefits beyond influencing policy; it also ensures that councils are up to date on forthcoming changes and able to be agile when regulations shift. “What we found in 2025 is that we were able to react very quickly to policy proposals because we already had done quite a bit of work ... and we could put together comment letters fairly quickly, referencing past issue briefs and other publications.”

Given the changing health policy landscape, this kind of agility is an important priority, James says.

“It obviously continues to be such a dynamic world that we live in,” Jones concurs. For actuaries who are approaching issues from a nonpartisan perspective, maintaining relationships with lawmakers, visiting Capitol Hill, and developing networks within regulatory bodies will be critical to retaining influence, he says.

The RMFRC plans to have several committees involved in this year’s Capitol Hill visits, he adds. “Probably now more than ever, it’s important to have that seat at the table.” ▲

NOAH KIRSCH is a freelance writer for *Contingencies*.

Actuarial Modeling Through a NEW LENS

By Min Chieh (Jessie) Lee and Yvonne Chueh



Imagine a copper foil—thin, shiny, seemingly flawless. To the human eye, it looks perfect. Yet, in the high-tech manufacturing world, even a tiny scratch or pit can stop production lines, delay product launches, and cost millions of dollars. Traditionally, quality control has relied on cameras combined with rule-based software. These systems are precise in controlled settings but are slow, inflexible, and easily disrupted by changes in lighting, texture, or orientation.

Now, artificial intelligence (AI), particularly deep learning, is changing that picture. Convolutional neural networks (CNNs) are giving machines the ability to see and classify imperfections that humans or traditional software might miss. A CNN is a type of deep learning neural network designed to automatically detect and learn patterns in structured data, such as images, for tasks like classification or recognition. See Figure 1.

Unlike conventional machine learning, CNNs learn features automatically from raw image data, eliminating the need for labor-intensive feature engineering. This not only improves speed and accuracy but also scales well across large and diverse datasets.

In 2025, we conducted a study to explore the potential of CNNs in detecting and classifying imperfections in copper foil—a material essential for semiconductors, electronics, and other high-tech applications. By leveraging proprietary image datasets from an industry partner, we developed optimized CNN models capable of identifying a wide variety of defects, from

Convolutional neural networks extend vision beyond the human eye, turning raw images—from medical scans to accident photos—into structured insights. This new way of seeing risk can help actuaries sharpen classification, improve pricing, and push the boundaries of actuarial modeling.

scratches to microscopic particles.

We have found no published research applying CNNs to the insurance industry. Our article provides a test field to validate that CNN is implementation friendly (or feasible) and capable of processing large volumes of images for generating multinomial classification outputs. This capability can be valuable for enhancing insurance pricing and reserving models, risk models, and underwriting processes.

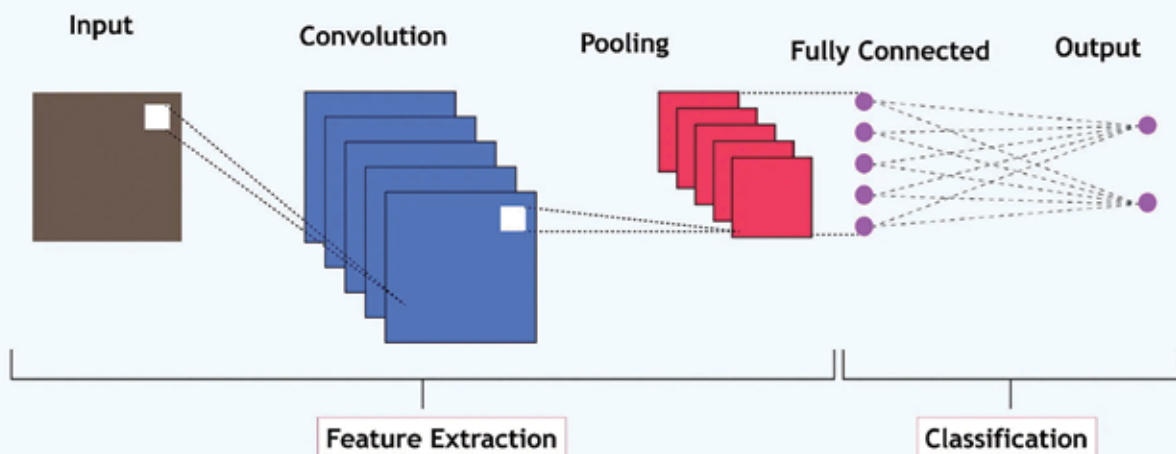
From Production Lines to Actuarial Models

You might wonder: What does copper foil have to do with actuarial science? The connection lies in risk assessment and predictive modeling. Traditionally, actuaries rely on structured data—financial records, claims history, and mortality tables—to calculate risk, set prices, and determine reserves. But many industries, including insurance, are now generating massive volumes of unstructured data, including medical images, property damage photos, and even satellite imagery.

CNNs can transform this raw data into structured features suitable for predictive modeling. In health insurance, AI could classify disease types from X-rays or MRIs, helping actuaries refine estimates of treatment costs and morbidity. In property/casualty insurance, automated analysis of accident photos could accelerate claim handling while improving accuracy. Even life insurance could incorporate bioimage data to enhance longevity models.

Figure 1.

The Architecture of Convolutional Neural Networks



Source: upGrad



The image shows a live shot of a copper foil defect detection device on a copper foil production line. Defection detection is obtained on copper foil during production. The green box on this picture is the lens for defect detection.

In essence, the same technology that identifies microscopic scratches on copper foil can help actuaries see risk in new ways and push the boundaries of traditional models.

Methodology

Copper foil, critical in electronics, hides tiny imperfections that can have outsized consequences. Traditional inspection approaches—manual review or rule-based software—are time-consuming and sensitive to environmental variations. Our study applied CNNs to address these challenges, training models to recognize 42 predefined defect types of size within 10 μ m (micrometers) across thousands of real-world images.

CNNs excel in such tasks because they learn hierarchical features directly from images. Early layers detect basic patterns like edges and textures, while deeper layers capture complex spatial arrangements. This ability makes CNNs robust against shifts, rotations, or scale variations, which are common in manufacturing environments.

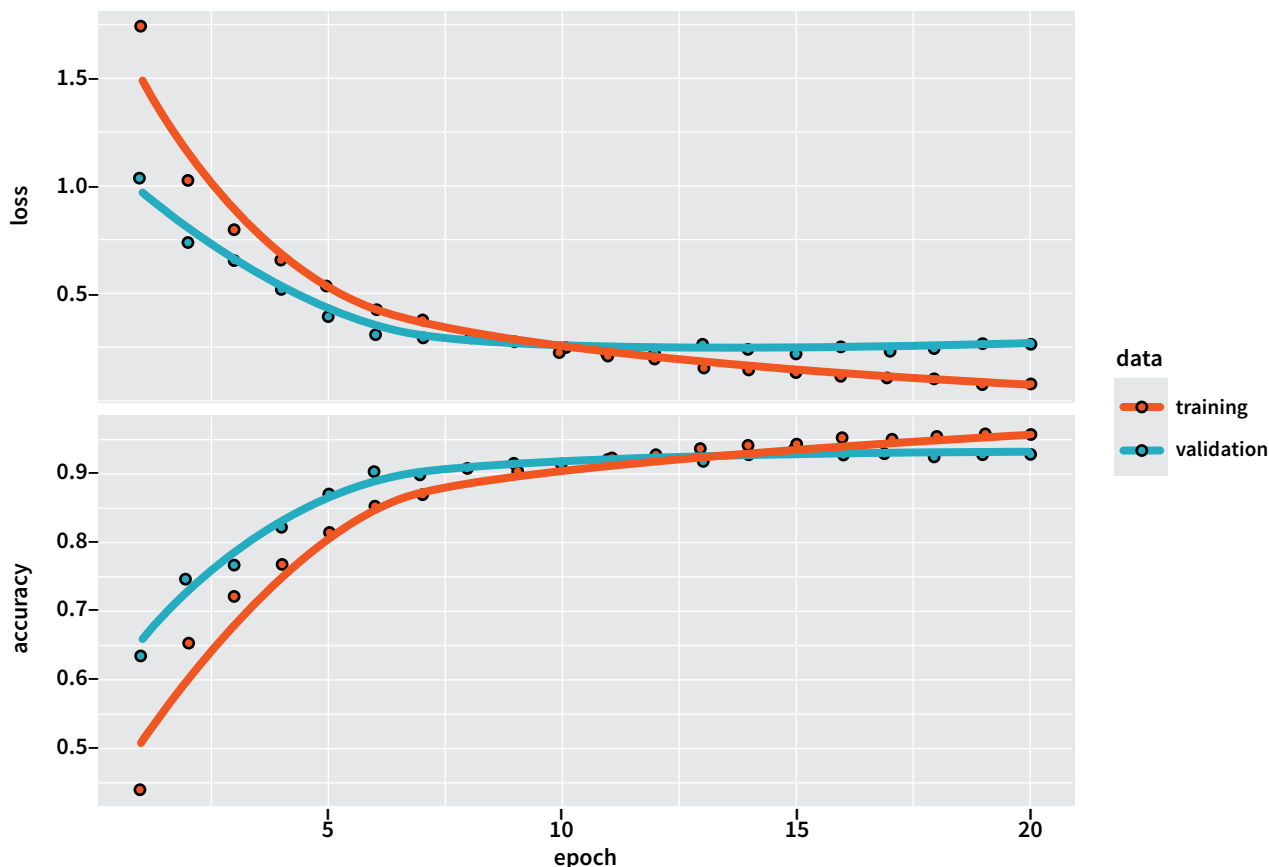
Step 1: Preparing the Data

Raw image data requires careful preprocessing to ensure the model learns effectively. In our study:

- **Resizing:** Each image was resized to 100x100 pixels to standardize inputs, enabling the CNN to process efficiently.
- **Normalization:** Pixel values were scaled to [0,1] to improve model convergence during training.
- **Tensor Representation:** Images were stored as 4D tensors (samples \times width \times height \times channels) compatible with CNN input requirements.
- **Label Encoding:** Class labels were converted into one-hot vectors to allow probabilistic output for each defect category.
- **Training-Test Split:** We used an 80/20 split for training and testing, with a fixed random seed for reproducibility.

By combining these preprocessing steps, we ensured that the CNN received consistent, structured input while retaining critical visual information.

Figure 2. Model Performance: M Dataset Learning Curve



Step 2: Building the CNN Model

We developed a multi-layer CNN using the Keras library in R:

- **Convolutional Layers:** Three layers with 32, 64, and 128 filters extract increasingly complex image features.
- **Activation & Pooling:** Each convolutional layer was followed by ReLU activation and 2×2 max-pooling, reducing dimensionality while preserving important patterns.
- **Flatten & Dense Layers:** Features were flattened into a 1D vector and passed through a 256-unit dense layer to learn complex relationships.
- **Dropout Layer:** A dropout rate of 0.5 minimized overfitting, improving generalization to unseen data.
- **Softmax Output:** The final layer provided probabilities across the 42 defect categories.

We used the Adam optimizer and categorical cross-entropy loss, tracking model accuracy during training. This architecture allowed the model to capture the nuances of copper foil imperfections with remarkable precision.

Step 3: Training and Validation

Each model trained over 20 epochs with a batch size of 32, using 20% of the training data for validation. We trained models on three configurations:

1. M dataset alone
2. S dataset alone
3. Combined M+S dataset

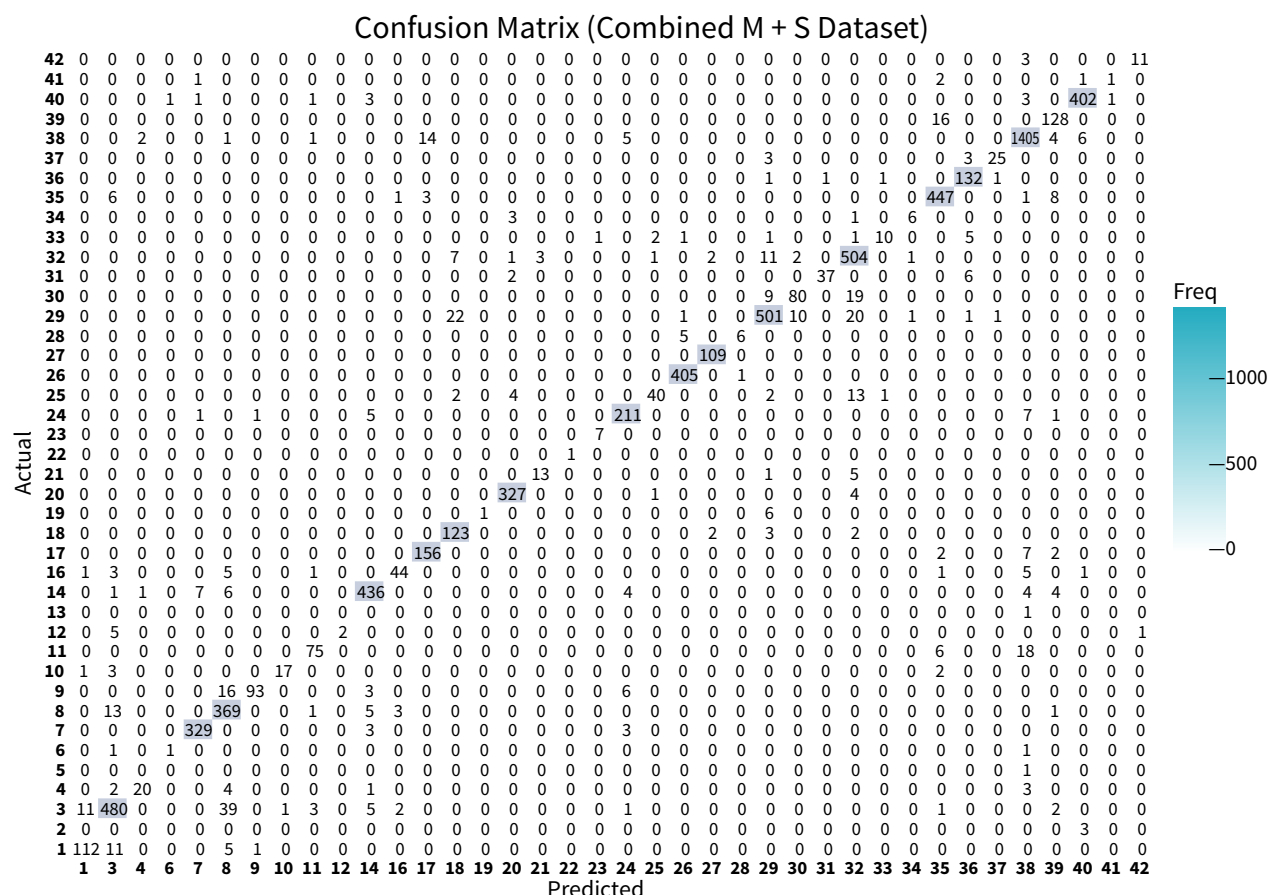
Validation helped monitor overfitting, ensuring that models generalized to new images. Throughout training, we tracked accuracy and loss curves, adjusting hyperparameters as needed to optimize performance.

Step 4: Evaluating Performance

After training, we evaluated each model using the test set:

- **Accuracy & Loss:** Calculated final test accuracy and loss.
- **Predictions:** Generated predictions and compared them to true labels.
- **Confusion Matrices:** Visualized misclassifications to identify patterns and weaknesses.

Figure 3. Model Performance: Combined Dataset Confusion Matrix



- Results showed that models trained on the M dataset achieved approximately 91% accuracy, while S dataset models reached 80%. Combined datasets achieved around 90%, indicating that data balance influences performance. See Figures 2 and 3.

Misclassifications tended to occur between visually similar classes, highlighting opportunities for further refinement. Even so, the CNNs demonstrated robust performance across thousands of images, validating their utility in complex, real-world tasks.

Future Actuarial Applications

While copper foil may seem niche, the lessons scale to broader actuarial applications. CNNs can convert unstructured image data into meaningful insights that feed predictive models, enhancing both accuracy and efficiency.

By integrating CNN-derived features into actuarial models, insurers can expand the range of usable data, improve pricing

accuracy, and strengthen risk management.

- **Health Insurance:** Automated disease classification from imaging can refine morbidity estimates.
- **Property/Casualty:** Photo-based claim assessments can enable faster, more precise damage evaluation.
- **Life Insurance:** Bioimage analysis can inform longevity models, linking visual cues to mortality predictions.

Analyzing satellite images of disaster zones could improve catastrophe modeling. Examining dashcam footage could enhance auto insurance claims analysis. Even customer-generated images from smart devices could feed predictive models, creating richer datasets and more nuanced risk assessments.

What's Next

Given the current topography of actuarial research which has largely focused on basic neural networks (NN) using exclusively text and numerical input, our findings with CNN implementation

Academy Supports ARC 2025

The Academy was a presenting sponsor of the 2025 Actuarial Research Conference (ARC), along with the Canadian Institute of Actuaries and the Society of Actuaries, held July 29–Aug. 1, 2025, in Toronto. Past President Darrell Knapp led several Academy

speakers at ARC, in support of academic research and actuarial science programs.

“The Academy itself is a consumer, producer, and promoter of research across all actuarial practice areas,” Knapp said in his opening-session remarks.

“Research helps actuaries and the Academy communicate objective insights and new information in their work and on issues ranging from climate change’s impact on financial security systems to the role of bias in assessing financial risk.”

suggest that predictive analytics—traditionally used in actuarial science, insurance, and finance—can be expanded, automated, and integrated through deep learning techniques, with a modeling that calls for image input. At this time, there is no reference to CNN applications in insurance functions, even though NN models have shown some improved results.

Our findings not only provide practical insights for researchers and professionals in predictive modeling but also highlight an opportunity to explore AI as a way to reshape the actuarial modeling world. Perhaps, someday, a customer could walk into an insurance office and obtain the most optimal insurance policy by scanning their iris—much like stepping through TSA PreCheck at the airport—with all the legal and regulatory issues seamlessly addressed. That future may be far off, but lessons from other industries suggest the path forward is worth exploring. ▲

MINCHIEH (JESSIE) LEE is a technology consultant at JyeJiang Group. **YVONNE CHUEH, PH.D., ASA**, is Professor of Actuarial Science, Statistics, and Mathematics, Mathematics Department of Central Washington University.

References

- Bishop, C. M. (2006). *Pattern recognition and machine learning*. Springer.
- Blier-Wong C, Lamontagne L, Marceau E. A representation-learning approach for insurance pricing with images. *ASTIN Bulletin*. 2024;54(2):280-309. Doi:10.1017/asb.2024.9
- Chen, M., Wang, Y., & Liu, S. (2019). Rule-based vs. AI-based defect detection in industrial settings. *IEEE Transactions on Industrial Electronics*, 66(12), 9876–9885.
- Chollet, F. (2015). *Keras: The Python deep learning library*.
- Chollet, F. (2017). *Deep learning with Python*. Manning Publications.
- Ferri, C., Hernández-Orallo, J., & Modroiu, R. (2009). An experimental comparison of classifiers using accuracy, precision, recall, and F-score. In *Proceedings of the 2009 International Joint Conference on Neural Networks (IJCNN)* (pp. 1–6).
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.
- Holvoet, Antonio, and Henckaert. *Neural Networks for Insurance Pricing with Frequency and Severity data: A Benchmark Study from Data Preprocessing to Technical Tariff*, North American Actuarial Journal, Volume 29, Number 3, 2025.
- JyeJiang Group. (n.d.). Company profile and technology overview. Retrieved June 6, 2025.
- Kingma, D. P., & Ba, J. (2015). Adam: A method for stochastic optimization. *arXiv preprint arXiv:1412.6980*.
- Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). ImageNet classification with deep convolutional neural networks. In F. Pereira, C. J. C. Burges, L. Bottou, & K. Q. Weinberger (Eds.), *Advances in Neural Information Processing Systems* (Vol. 25).
- Laporta, Alessandro G., Susanna Levantesi, and Lea Petrella. 2025. “A Neural Network Approach for Pricing Correlated Health Risks” *Risks* 13, no. 5: 82.
- LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. *Nature*, 521(7553), 436–444.
- Nair, V., & Hinton, G. E. (2010). Rectified linear units improve restricted Boltzmann machines. In *Proceedings of the 27th International Conference on Machine Learning (ICML-10)* (pp. 807–814).
- Park, J., Kim, H., & Lee, J. (2020). Copper foil production and its role in modern electronics. *Journal of Materials Science and Engineering*, 45(3), 123–134.
- R Core Team. (2021). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.
- Srivastava, N., Hinton, G., Krizhevsky, A., Sutskever, I., & Salakhutdinov, R. (2014). Dropout: A simple way to prevent neural networks from overfitting. *Journal of Machine Learning Research*, 15(1), 1929–1958.
- Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. Springer.
- Zhang, Y., Zhou, T., & Xu, D. (2021). Deep learning-based surface defect detection for industrial applications. *Computers in Industry*, 130, 103452.

Why Actuarial Transformation Succeeds—or Stalls

Modernizing actuarial processes can accelerate analysis and improve risk insights, but lasting change depends on people, processes, and leaders who can unite actuarial and IT teams behind a shared vision.

ACTUARIAL TRANSFORMATION IS THE MODERNIZATION OF ACTUARIAL WORK through advanced technology, cloud infrastructure, and automation—freeing actuaries from manual, repetitive modeling and enabling faster, more flexible risk analysis. Actuarial transformation may seem like a technological exercise: shifting day-to-day actuarial tasks from desktops and limited on-premises databases to the cloud, where tools like Python, SQL queries, Databricks, and Dataiku can wrestle diverse data sets containing hundreds of millions of rows into submission.

Among other benefits, actuarial transformation empowers an actuarial team to make more precise, efficient, and profitable risk analyses for existing products. Ideally, the team can also use the extra bandwidth to envision and quantify new product possibilities based on novel connections made possible through expansive data harvests and powerful analytics. This transformation benefits not just actuaries, but also underwriting, pricing, and product development teams that rely on timely insights to adapt to a rapidly changing market and regulatory landscape.

Yet despite actuarial transformation's technological foundations, its success depends far less on technology than it does on old-school strategic thinking, clear communication, and effective change management by actuarial leaders and an insurer's executive team.

Actuaries and IT pros are both focused on risk—just different sorts of risk.

Effective Leadership

Any IT project requires leadership. What makes actuarial transformation particularly challenging is the nature of the actuarial function and its overlap and—potential for conflict—with the IT team that helps make it happen.

Actuaries and IT experts are both technically strong, but their proficiency is



shaped by different functional goals and perceptions of risk. Actuaries want control over their tools, because their grasp of those tools' strengths and weaknesses is critical to producing accurate risk models and reporting, which form the foundation of an insurance business.

The IT team, however, wants control over all of an insurer's IT infrastructure for a host of reasons, not least to prevent security and maintenance headaches that can stem from systems that actuaries are perfectly capable of quietly developing on their own.

It takes deliberate leadership on three levels to resolve that conflict:

■ **Establish an executive champion.** This is change management 101, but it bears repeating: You need to have the right executive sponsoring the project—and early. That person should be the one with the most at stake with actuarial transformation, and the one for whom its success will pay dividends. We've seen

the chief financial officer or chief actuary playing this role. Whoever it is, they must be positioned to bridge business and technical priorities while maintaining enterprise alignment. The champion's first job is to earn the buy-in from executive peers, stakeholders on the actuarial and IT teams, and any others whose support is essential for actuarial transformation to move forward smoothly.

■ **Sell the business case.** Why is actuarial transformation strategically vital? What changes will it involve? How much time, effort, or money will it save? What revenue gains might it generate? How will it position the actuarial team and the company for future growth, acquisition, or business-line divestiture? These are all key messages the project sponsor must convey from the top of the organization down to the actuarial and IT staff who will be doing the work.

Among the most effective messages we've observed is to explain how recent

market shifts—including more complex reinsurance strategies, climate-related exposure modeling, and growing demand for personalized pricing—are making the agility that transformation affords increasingly indispensable to competitive survival.

■ **Make clear what's needed to achieve that business case.** Actuarial transformation takes time, effort, and money. Which new systems will be implemented? What processes will be automated, and in what order? Who's going to do the work, and when? Will outside resources be involved? Who's paying for it all? When will it be done? How will we measure its success?

Answering these questions requires the champion's involvement in rigorous preplanning, readiness assessments, and execution plans—followed by communicating the conclusions of that work to peers, stakeholders, and the teams involved.

We're seeing carriers build transformation playbooks that span 12 to 24 months, with progressive milestones for deliverables such as migrating models to open-source tools, upskilling actuaries in Python, and integrating external data streams.

A Case Study in Actuarial Transformation

For decades, the core actuarial tool has been the spreadsheet. As a result, actuaries often spend significant time copying workbooks, managing data tabs, and plowing through other tedious, inefficient tasks.

Our client, a large national insurance provider, wanted to modernize how actuaries work and identify elements of the workflow that could be automated across the enterprise. The goal of this actuarial transformation effort was to free actuaries from tasks that can be automated, improving the team's ability to provide strategic guidance to the enterprise. To get there, the insurer recognized that it needed both process and technology changes—hallmarks of effective actuarial transformation.

The first step was working with the project stakeholders to understand the vision and map the path forward, so we could develop a proof of concept demonstrating how a surprising amount of inefficient actuary work could, in fact, be automated.

We then worked with a team of actuarial developers to build automations, back-end applications, and user interfaces. The initial release of the application helped the firm's actuaries efficiently evaluate liabilities and assess claims impacts. Future releases will help price products and support long-term financial planning for the business. The processes the project automated previously took a team of two actuarial modelers three days each to complete. Now they're done in four to five hours. That level of efficiency lets the organization reallocate resources across business units more effectively as needed.

Note that, while technology transformation was central to the effort, the project's success depended on people who valued shared communication and a common vision and purpose. The engagement required a strong working relationship between the business and IT; building bridges and collaborating around that vision was critical to the project's success.

Show the Actuarial and IT Teams Some Love

The teams involved in that project needed particular attention, and that's not unique to an actuarial transformation. Conveying just how vital actuarial transformation is to the business's long-term success is just the start. Actuaries must comprehend the value of automating and codifying processes they've been through mental calculations and multiple data-messaging runs with their own combinations of algorithms. They must be convinced that the new solutions are powerful, time-saving, and as reliable—or more so—than their old standbys.

IT staff involved in developing the systems that enable actuarial transformation must be comfortable with the actuarial team's processes and approaches and be able to explain the IT team's needs to them. Not every developer has the right mix of IT skills, business knowledge, and communication abilities needed to do that. Ideally, the selected team members should be embedded within the actuarial function, where they can interact, collaborate, and build trust.

That trust will only deepen as deliverables accrue and the actuarial team sees the value of transformation take shape. That trust building goes both ways: Actuaries should respect the IT organization's development best practices, including scope definition, documentation, version control, testing, and deployment, especially as they gain skills in Python and other tools that enable them to develop or customize their own cloud-based solutions.

Looking ahead, actuarial transformations will likely move beyond infrastructure upgrades. Expect to see machine learning integrated into reserving and pricing, democratized dashboards providing real-time risk monitoring, and cross-functional modeling platforms used across actuarial, underwriting, and finance functions.

These advances, however, will only succeed if people and processes are prioritized as much as the technologies involved.

Many insurers are working on actuarial transformation, but few are getting it right. That takes an understanding that the biggest barriers to success lie in people and incentives, not technology. A motivated, engaged champion who communicates well and smooths the structural friction between actuarial and IT teams is essential to fully realizing the benefits of true actuarial transformation. ▲

TONY SCHWEISS is managing partner, and **ANDERSON OLSON** is a managing consultant at The Gunter Group, a management consultancy based in Portland, Ore.

Gearing Up to Inform and Educate Policymakers on the Hill

SPRING TRADITIONALLY SIGNALS NEW OPPORTUNITIES for growth and development, and this March the Academy is once again embracing that promise by engaging its members and a key stakeholder—Congress—in one of our most direct and dynamic ways.

For years, the Academy's practice councils have held annual Hill visits. These visits—also commonly referred to as fly-ins—have served as an opportunity for actuaries to touch base with federal legislators, legislative staff, and regulators, educating them on timely issues impacting the public and how an actuarial perspective is an essential resource in developing potential solutions.

In 2025, the Academy reimaged the event and how it engages with stakeholders on the Hill.

While in the past, each policy practice council conducted its own separate visits, last year we brought together all five policy practice councils on a single day of joint engagement on the Hill. In several meetings, we had representation from two or more practice areas, and our universal message was simple—The Academy is your trusted source for balanced, objective analysis and perspective on public policy issues that directly impact your constituents and the business community.

Key Policy Issues

Last year's collective effort was a great success (see the April 2025 Actuarially Sound blog post, "Hill Visits Let Volunteers Get the Word Out About the Academy"). With nearly 40 volunteers in town, the Academy had more than 30 meetings in a single day. As we look to build on that success this year, we're once again being guided by the Academy's Policy Forum, an online repository on current policy issues. When Academy

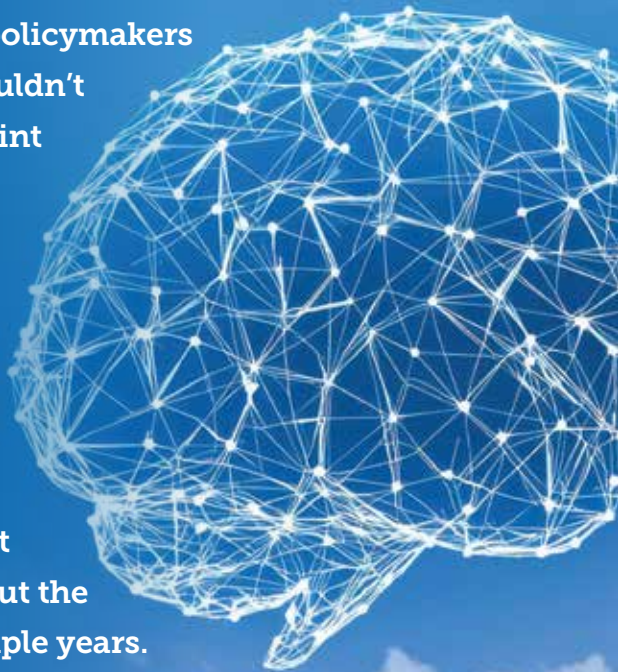
volunteers, senior fellows, and Academy staff return to the Capitol Hill, they will discuss these and more policy issues related to aging and financial security; artificial intelligence (AI) and data; the impact of climate events; investments and financial reporting; and access to and the affordability of insurance.

These issues, along with the policy priorities identified by the Casualty, Health, Life, Retirement, and Risk Management and Financial Reporting

practice councils, will help guide conversations with legislators and their staff, reinforcing the Academy's mission to serve as the preeminent source of actuarial expertise and professional insight for policymakers. (See "Agile and Ready for What's Next" on page 30 to learn more about council priorities for 2026.)

As you read this article, your fellow members and Academy staff will have already developed talking points, practiced navigating congressional offices, and participated in in-person training to ensure that everyone hits the Hill prepared to answer questions and learn more about Congress' priorities during this midterm election year.

Conversations with policymakers during Hill visits shouldn't be seen as the end point of discussions or a once-a-year event. Instead, they serve as an opportunity for volunteers to engage and build the conversations and relationships that we nurture throughout the year and across multiple years.



The Role of Objective Analyses

As an independent, nonpartisan organization, part of our mission is to inform and educate lawmakers, regulators, and their staff by providing actuarial analysis and applying actuarial principles and insights through the work of our volunteer committees. We do this through scores of publications, webinars, events, and other presentations we produce each year. Rather than traditional lobbying, which is carried out by trade organizations and other policy groups promoting specific positions and requests, we provide information and perspective intended to educate and empower decision-makers. This helps them better understand the issues at play and the potential consequences of proposed solutions, and supports them as they seek to make an informed decision, so they can make informed decisions that ideally achieve optimal results for the public.



Academy members—with their expertise in risk assessment, financial modeling, data analytics, and long-term forecasting—provide independent, objective analyses that are essential for addressing complex and pressing policy challenges. Their involvement is particularly critical in areas where long-term financial security, demographic shifts, and emerging risks intersect, including: aging and financial security through the lens of public and private programs; balancing industry solvency with the affordability of insurance products; the impact of climate change on personal and public health, property, and community solvency; and the impact and influence of technology innovations, such as AI and cybersecurity.

What You Can Do

Conversations with policymakers during Hill visits shouldn't be seen as the end point of discussions or a once-a-year event. Instead, they serve as an opportunity for volunteers to engage and build the conversations and relationships that we nurture throughout the year and across multiple years. These visits are part of the broader engagement strategy that the Academy supports, helping us continue expand and grow these relationships.

What can members do to help with this process? Get involved and volunteer for committees of interest and educate themselves on the policy issues that are driving key conversations in the nation's capital. Plan to attend the Policy Forum in March, our in-person event that will offer continuing education opportunities and spotlight some of the issues we'll be talking about during Hill visits. Reading the Actuarially Sound blog, Policy Forum, and *Contingencies*; listening to the Actuary Voices podcast; attending the Academy's in-person events; and staying current with the work of the Academy's practice councils all go a long way toward strengthening the Academy and advancing its core mission of serving the public and informing public policy. ▲

TED GOTSCH is policy content and publications manager at the Academy.

STOCKADOBEL.COM / JOHNNII

Building Trust Is the Key to Success

TIM KOENIG, A 2025 RISING ACTUARY AWARD RECIPIENT, is head of Development, Integration & Innovation at Resolution Life, where he oversees the company's actuarial models and a cloud-based ecosystem for actuarial data and analytics. Koenig, who has been an Academy member since 2017, has held roles at PwC, Voya Financial, and Resolution Life, applying his expertise to financial reporting, modeling, and modernization initiatives. In this Q&A, Koenig, who is a life actuary, shares insights on the value of continuous learning, professionalism, and building trust.

What led you to become an actuary, and what attracted you to the profession?

My dad is a health actuary, so I always knew about the profession. The apple didn't fall far from the tree, though I made sure to pick a different track (life) to avoid completely copying him. While majoring in actuarial science at Penn State, people like [longtime Academy volunteer] Ron Gebhardtsbauer—who was leading the actuarial program at the time—helped me see a clear path forward and get excited about the future. Early on, I could see this was a field where one could apply analytical reasoning in a dynamic, real-world business environment. Years later, that's exactly what it has turned out to be.

Describe a time when your professionalism training has helped you in your career.

Through our continuing education and professionalism training, we often review the Code of Professional Conduct, and Precept 2, which reminds us that we must only perform actuarial services for which we are qualified—these stand out to me, reminding me to continually assess and expand my knowledge base as I take on new roles and responsibilities.



Recently, my team began redesigning some of our experience studies. While I had prior experience in this area, I saw it as an opportunity to revisit foundational concepts and deepen my understanding. This is a simple example, but generally, the need to dive back in not only enhances my own development but also elevates the quality of our team's work product.

Tell us about a time when your actuarial expertise influenced an important decision in your workplace.

I once led an effort to enhance our source of earnings analysis and insights. We had a block of business that consistently underperformed relative to expectations, but our existing tools made it difficult to pinpoint the root causes. Drawing on my actuarial background, we built an automated data pipeline that periodically processed data and mapped reported versus expected results at a granular level. Using visualization tools, we developed interactive dashboards that allowed stakeholders to slice and dice the results.

This new approach became a staple of our quarterly review process and led to actionable insights—prompting updates to our actuarial models and ultimately improving the accuracy of our business plan projections. This experience reinforced the value of combining actuarial expertise with emerging technologies to solve complex business problems in innovative ways.

What's one of the biggest lessons you've learned in your career?

One of the biggest lessons I've learned is that while our work often revolves around numbers—statistics, probabilities, and models—success ultimately comes down to people. Building trust is the most critical component of any professional relationship, and it's also one of the hardest qualities to develop over time. Technical expertise is essential but cultivating trust across the actuarial organization—and beyond—is what truly propels teams toward success.

What advice do you wish you were given at the beginning of your career?

A few years ago, one of our leaders shared some advice with our broader actuarial team along the lines of “your job is more than your job description.” At some point in my career, I realized that some of the most meaningful and valued contributions come from stepping outside my immediate responsibilities—whether that’s offering an idea in a different area, challenging the status quo, or volunteering to help with something that benefits the broader team or company.

People rarely turn down someone who genuinely wants to help or improve things. The sooner one starts thinking beyond a specific role and looks for ways to add value across the organization, the more opportunities will present themselves.

What do you value most about your Academy membership and volunteer work? What does the MAAA designation mean to you?

I appreciate the structure provided by the U.S. Qualification Standards (USQS), especially that we are encouraged to continue learning beyond the exam phase of our careers. I particularly value the requirement for some learning to occur in-person. In-person attendance to industry meetings and conferences is twice as beneficial—not only for deepening understanding on specific topics, but also for the networking opportunities they create across the profession. That’s one of the reasons I continue to volunteer with the Actuaries Club of Philadelphia—I think it’s important to maintain a strong actuarial community, especially at the local level.

What advice would you share with aspiring or new actuaries, or those interested in volunteering for the Academy?

My advice to aspiring or new actuaries is to actively seek out situations that push you beyond your comfort zone. Throughout my career, I’ve made a point to raise my hand for opportunities even when they have felt like “extra work” or unnecessary—going out of

I appreciate the structure provided by the U.S. Qualification Standards, especially that we are encouraged to continue learning beyond the exam phase of our careers. I particularly value the requirement for some learning to occur in-person.

my way to network with another actuary, stepping up to present to senior leadership, taking on roles that span beyond a strictly actuarial domain. Your job is not just the bullets in a job description, but to learn from others and seek out stretch opportunities for growth and development. Leaving one’s comfort zone almost always pays off, helps to build confidence, and open new doors. If you ever feel comfortable in your day-to-day routine—change that! I believe our profession rewards curiosity, initiative, and adaptability.

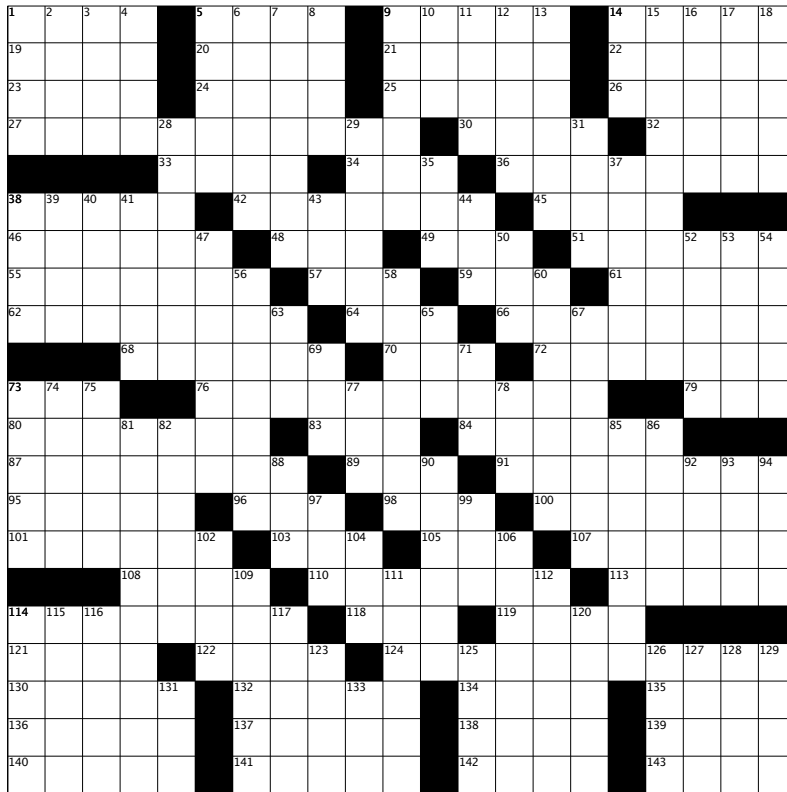
Beyond work—what are your hobbies or personal interests?

I really enjoy staying active—whether it’s running, biking, working out, playing golf, or pickleball. I like to clear my head and keep some balance. I’m also a big Philadelphia and Penn State sports fan, though I’ll admit it’s been a rough couple of months on that front. Luckily, I’m distracted from the pain there, as my wife Abbey and I recently bought a house, so we’ve been quite busy with the new responsibilities. ▲

Help Us Highlight Exceptional Members

Do you know a talented Academy member we should profile? We’re looking for members who are making an impact in their practice areas, contributing to the profession, or inspiring others through their work or volunteer activities. Tell us about them at editor@actuary.org.

New Year's Resolution



Across

- 1 Some library offerings
5 Caesar's sidekick
9 Gate
14 Cul-de-sac
19 Yorkshire river
20 Poker declaration
21 The first string
22 Prepare for takeoff?
23 Musical style
24 "The Son of ___ in weary Night's decline": Blake
25 Keep it under your hat
26 Pet problem?
27 Start of quote
30 Gave bread to
32 "If ___ the Circus": Seuss
33 Spanish wine bag
34 Mozart opera "Die Entführung ___ dem Serail"
36 In a languid way
38 Peak in the Cascades
42 Washington's ___ Peninsula
45 Sgwd yr ___
46 "Hey" band
48 Provencal possessive
49 Bit of kiddie litter
51 Baker's tool

- 55 Asmara is its capital
57 Bottom-line figure
59 Fungo, e.g.
61 Mexican tree used as a source of rubber
62 Having a bearing on
64 Article of the Constitution regarding the Supreme Court
66 Most manly
68 Hardly
70 Ben-Gurion Airport city
72 Apian, in general
73 Parrot, perhaps
76 Quote part 2
79 Nelson Rockefeller was its gov.
80 Coal mine product
83 Pictorial PC display
84 Tailor of yore
87 Hard-wired
89 Beyonce's "Love on ___"
91 Balkan natives
95 Tintin companion
96 Volleyball need
98 Termagant
100 Men's clothing accessory
101 East Indian tree used in shipbuilding

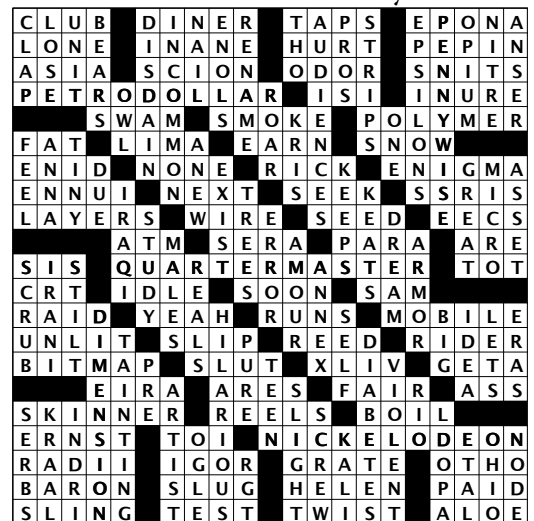
- 103 Peruvian capital?
105 Santa's helper?
107 Cavity common among birds
108 Snake eyes
110 Sources of literature
113 Where Alexander defeated the Persians
114 Course director
118 Bad ___, Michigan
119 Concert boxes
121 Wagner's "Liebestod," for example
122 Change one's story?
124 Quote part 3
130 "And they sat down in ___" (Mark 6:40)
132 Messi and Maradona
134 Kitchen staple
135 Natural gas additive
136 Kind of drum or guitar
137 Ratoon
138 Norse deity who defeated Thor
139 George Eliot hero
140 Tot's rocker
141 Some sandwiches
142 "One more thing..."
143 Well-known street

Down

- 1 Whit
2 Rehab target
3 Chess ending
4 Eve's youngest

- 5 Small group of players
6 Iberian wine city
7 Germ sources
8 One of the Roosevelts
9 Skip
10 Previously GMT
11 Gather in
12 Bar offering
13 Dominion
14 Dixie product
15 End of quote
16 Gestation stations
17 Threaten to surpass
18 Hard to see, maybe
28 Celebrate
29 Family of languages spoken in southeastern Asia
31 Número between um and tres
35 Prepare to play the cello
37 Manifest great pain
38 Impersonator
39 Acute
40 Angle between a leaf and its branch
41 Tiny pests
43 Cry of triumph
44 Pen pal
47 Marine corridor
50 Nigerian culinary staple
52 Walk like a pigeon
53 Exalt to the heavens
54 Home buyers concern
56 Bee genus
58 It's cool, supposedly
60 Low seat without back or arms
63 Ring bearer, maybe
65 Marker
67 Toward the middle
69 Email or ltr.
71 Some NFL linemen
73 Off the mark
74 Old Finnish coin
75 Controversial Starbucks water brand
77 Not in vogue
78 Cockpit stat.
81 Quote part 4
82 Indo-Europeans
85 Cleopatra's Needle, e.g.
86 Affluent people in São Paulo
88 Q follower
90 Stops to smell the roses
92 Quaint plant
93 Aka ICN
94 Things with springs
97 Mouthpiece
99 Some AMA members
102 Tout de ___ (all the same, in French)
104 Tide competitor
106 Jetty's kin
109 Cruelty named for a marquis
111 Fills space
112 Memory triggers
114 Acerbic
115 Greek poetry muse
116 JD Vance accessory
117 Cranny
120 Alfresco locale, often
123 Complete idiot
125 Without a clue
126 Piece of one's mind?
127 ___ man
128 Actions at auctions
129 Lord ___ (son of Queen Elizabeth, in "Richard the Third")
131 Like Stallone?
133 Decalogue adverb

Previous Puzzle: Show Me the Money



Solvers: Steve Altschuld, Dean Apps, Jon Barry, Jared Dashoff, Todd Dashoff, Clive Keatinge, Ken Kudrak, George Levine, Jim Muza, Ray Niswander, Madhumathi Windsor, and Wendy Windsor

Solutions may be emailed to puzzles@actuary.org. In order to make the solver list, your solutions must be received by Feb. 1, 2026.

American Academy of Actuaries

New Membership Requirements 2026

What are the new requirements?

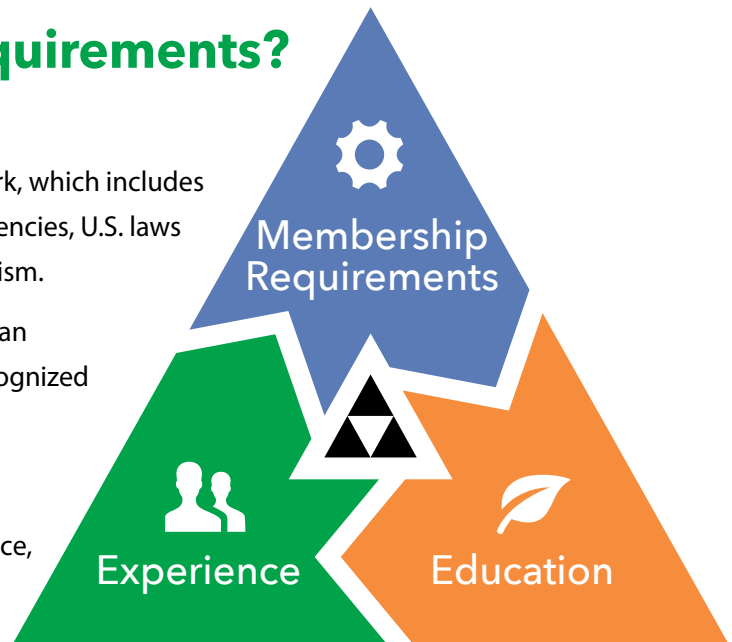
Education

Compliance with the Competency Framework, which includes baseline knowledge of key actuarial competencies, U.S. laws and practices, and U.S. actuarial professionalism.

Achievement of an actuarial credential from an actuarial organization, both of which are recognized by the Academy.

Experience

Three years of responsible actuarial experience, including at least one year of responsible U.S. actuarial experience.



Why it matters

The new requirements will be effective **starting Jan. 1, 2026**, and aim to ensure that the Academy continues to maintain high standards in support of fulfilling its mission to serve the public and the U.S. actuarial profession.

Visit actuary.org/membership-requirements to read our FAQ and learn more.



AMERICAN ACADEMY
of ACTUARIES

"With these new requirements, Academy membership will continue to represent the expertise and professionalism expected by our stakeholders in our ever-changing environment."

—Lisa Slotznick, Academy President (2023-24)

AD DUO UNUM



IN THIS ISSUE, WE HAVE A PUZZLE BY A NEW CONSTRUCTOR. Nate Worrell contacted me a few months ago with an idea for a puzzle. After a few email exchanges, we refined his original idea and came up with this puzzle, Ad Duo Unum, which is the best I could do for punning on our nation's motto.

The protruding letters along each border will spell out a word. Actually, two words. The border clues define these words, in both their one-word and two-word senses. Of two, one. The solver will have to decide which clue goes with which border, but that won't be too hard, especially because if you actually solve the puzzle, you don't actually need the border clues. But they won't hurt. And they might help.

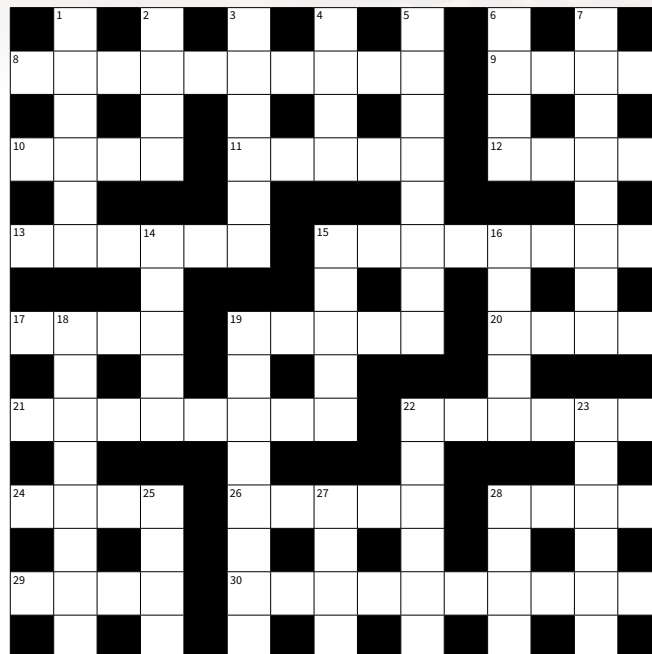
There are three proper nouns. Everything else is playable in Scrabble.

Thanks to Jerry Miccolis for test-solving and his editorial suggestions.

Across

8. Legal mess when fiancé loses head defining fidelity
9. Mail lost in the City of Fog
10. Fills tanks with spinning toys
11. Beyond the principles of Aristotelian beliefs, Olympic virtues endure
12. Bard returns uninspired
13. Rock singer rules
15. A librarian at closing consumed fiction, stirred tea and split
17. Pacific Island has zero appeal at first, leads to hotel upgrade
19. Secure a group of retail stores
20. Fat Tuesday shenanigans from one to four
21. Heaven is calling a couple of Shakers
22. Top talent discovered in notable stats
24. Dithers in stitches
26. Measure of wind speed (but not in Kansas)
28. Protagonist Homer is confused without Marge's lead
29. Painful call made by young entrepreneur initially, assuming IPO's not completed
30. Unending needs consuming pharmacy's closing and operating room backup. Page counter rep for small dispenser

TOM TOCE is an FCAS and a seasonal director at KPMG. He is a member of the Jeopardy Hall of Fame. Solutions may be emailed to ttoce@nyc.rr.com. In order to make the solver list, you should send him your solutions by Feb. 1, 2026.

**Down**

1. Cozy nook in natural cover
2. Beginners losing essential petitions
3. Rhode Island v. Alabama, earliest of spurious contests
4. Data connects uncertain forecast
5. Empty space as Georgia leaves delegation
6. Happy at home in Bangladesh
7. Prep for fight as Dorothy's aunt meets winged creature. Let chaos ensue
14. Travel on the fourth of January, taking a couple of danishes and some Dutch cheese
15. Sleepless? Initiating Ambien will always kill energy
16. Nascent criminal at the border is squealing
18. A California media disaster for college community
19. Pick each mixture for hummus ingredient
22. Drive in reverse to follow a beat-up bus—it's crazy!
23. Surge buffer terminals for Internet browser
25. So, I hear smuggling potassium is out of line
27. Unlimited lovers? Isn't that too many?
28. Aim for Elizabeth to help Charlie, ultimately

Border Clues

- Accomplice to one who shoots craps
- Cut off a connection to either side
- Shrink size of a prize
- Bloke who hands a cheque to a guard at The Clink

Solvers: Steve Alpert, Dean Apps, Steven Berman, Jack Brauner, Bob Campbell, Lois Cappellano, Priscilla Cho, Laura Cremerius, Jared Dashoff, Todd Dashoff, Christopher Dickens, Mick Diede, David Handelman, Jason Helbraun, Pete Hepokoski, Max Jackson, Ruth Johnson, Joe Kilroy, Paul Kolell, Mike Kosciuk, Ken Kudrak, George Levine, Tim Luker, Ben Lynch, Michael Manos, Mathew Marchione and Marika Brown, Dave McGarry, Jon Michelson, Jim Muza, David and Corinne Promislow, Alan Putney, Ram Raman, Chase Rawlins, Danny Rhodes, Jay Ripps, Bill Scott, Andrew Shewan, Bob and Shannon Schriver, Sally Smith, Zig Swistunowicz, Tim Tebbe, T. O. C. E. (Josh DenHartog and Sean Donohoe), James and Betsy Uzzell, and Bonnie Veenschoten

Solution to Previous Issue's Puzzle—Hallucinations

A lot of solvers went back and forth between the two sets of clues. I'm showing solutions only to the set I created. For some of the AI-generated ones, I can't begin to fathom the wordplay.

REGULAR CLUES

Across

1. MACHINE LEARNING
9. PERCOLATE—Anagram of “to replace”
10. APPLE—Outside of “appealing single” (and Fiona Apple)
11. PICASSO—Inside of “priapic associations”
12. THREATS—Anagram of “hatters”
13. LEO—Double definition
14. READS—Homophone of REEDS (“oboes and bassoons”)
16. NITRO—Anagram of “Intro”
17. FUSED—Anagram of “feuds”
19. ERASE—ERAS (“Swift tour”) + E (“a bit of eroticism”)
20. OAK—(S)OAK (“steep top cut off”)
21. SEMINAR—Anagram of “Remains”
23. HITTING—(F)ITTING (“after losing opener, apt”) following H (“Pittsburgh's closer”)
26. YERBA—Inside of “player badly”
27. INTERFACE—INTER (“bury”) + FACE (“Brook”)
28. EXISTENTIAL RISK

Down

1. MOP UP—MO (“Missouri”) + PUP (“dog”)
2. CURACAO—Homophone to some, nearly so to others, of CURE A SOW (“Heal a pig”)
3. ICONS—Anagram of “coins”
4. ELABORATE—Anagram of “Are oblate”
5. EVENT—EVEN (“just”) + T (“Thursday”)
6. REARRANGE—REAR (“behind”) + RANGE (“Ken”)

1	M	A	2	C	H	3	I	N	4	E	L	5	A	6	R	N	7	I	N	8	G
	O		U		C		L		V				E		M					U	
9	P	E	R	C	O	L	A	T	E				10	A	P	P	L	E			
	U		A		N		B		N				R		L				S		
11	P	I	C	A	S	S	O			12	T	H	R	E	A	T	S				
			A					R						A		N			W		
13	L	E	O				14	R	E	A	D	15	S		16	N	I	T	R	O	
	I					E				T		P		G						R	
17	F	U	18	S	E	D			19	E	R	A	S	E			20	O	A	K	
	E		A		U							G					R				
21	S	E	M	I	N	A	22	R				23	H	I	T	T	I	N	G		
	T		U		D		E			E		Y		G						R	
26	Y	E	R	B	A		27	I	N	T	E	R	F	A	C	E					
	L		A		N		G			T		O		M						E	
28	E	X	I	S	T	E	N	T	I	A	L	R	I	S	K						

7. IMPLANT—Reverse word bank from “Limp lantana”
8. GUESSWORK—GUES(T)S (“attendees {not including those at the opening}”) + WORK (“performance”)
13. LIFESTYLE—Anagram of “feet flying”
14. REDUNDANT—REDUN (Anagram of “Under”) + alternate letters in “dear, not”
15. SPAGHETTI—Reversal of IT + TEHGAPS (Anagram of “the” + GAPS)
18. SAMURAI—Reversal of I (“One”) + A (“first-class”) + RUM AS
20. ORIGAMI—OR (“On the other hand”) + I + G (“ultimately bag”) + A + M (“thousand”) + I (“a little bit of ingenious”)
22. REIGN—Homophone of RAIN (“Storms”)
24. TYROL—Inside of “Pretty rollicking”
25. GREEK—G (“General”) + REEK (“stink”)

Happy New Year

IT IS MID-NOVEMBER, AND I ALREADY HAVE MY 2026 CALENDAR. It's the Your Daily Epsilon of Math Wall Calendar 2026 from the American Mathematical Society. At almost 2 feet by 1 foot, it is about 80% larger in area than the calendar the Humane Society sent me last year. See the top illustration. The Humane Society calendar has 12 pictures of animals (dogs, cats, deer, bears, horses, a monkey, two rhinos, etc.). Almost all of them have appealing eyes.

My 2026 calendar has 365 math problems—one for each day of the year—to keep my mind sharp. Indeed, I am not concerned with the answer, since the answer is the day of the month on which the problem appears. I only need to figure out how to get the answer, as you can see in the bottom illustration.

The directions say, "If a problem has no directions, solve for x ."

This month, I have some problems for you in the style of my new calendar, but without the day of the month (i.e., without answers). In fact, I will label them A, B, C, D, and E so you won't be tempted to use the problem number as the answer. You can assume the answers are positive integers—probably less than 32 and distinct. You should show how you got your answer.

Problem A: $\sqrt{y} + x = 28$, $\sqrt{x} + y = 14$

Problem B: Find the number of factors of 1152.

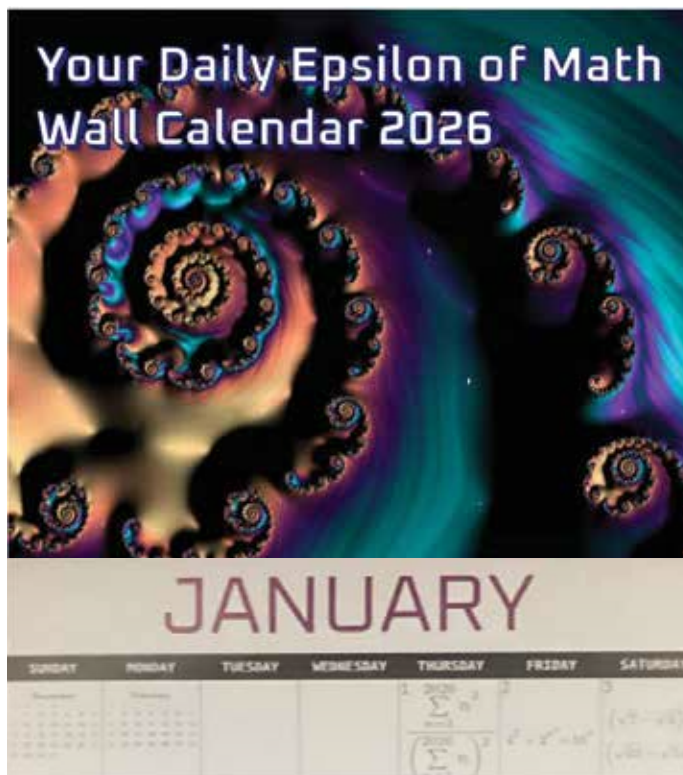
Problem C: How many integer partitions of 8 are there?

Problem D: Find the Frobenius number of $\{4, 10, 13\}$

Problem E: Find the count of triangular numbers among the following base nine numbers: 11_9 , 111_9 , ..., 111111111_9 .

Solutions may be emailed to puzzles@actuary.org.

In order to make the solver list, your solutions must be received by Feb. 1, 2026.

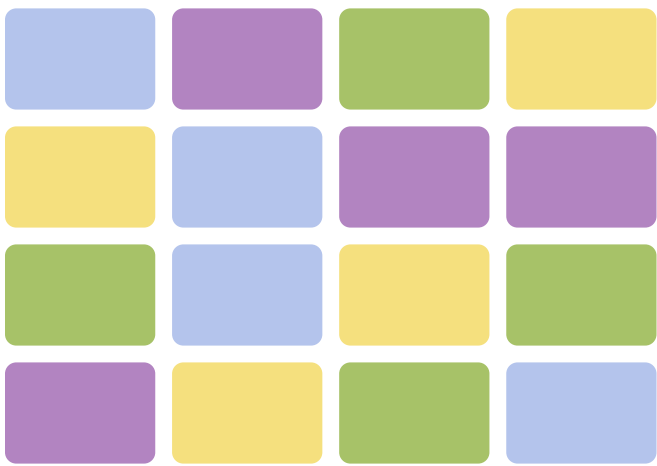


ARY		
THURSDAY	FRIDAY	SATURDAY
$\frac{\sum_{n=1}^{2026} n^3}{\left(\sum_{n=1}^{2026} n\right)^2}$	$4^2 \times 2^{x^2} = 16^x$	$(\sqrt{7} - \sqrt{6}) \cdot (\sqrt{63} + \sqrt{54})$

Connections Solutions

1. What is the probability of solving the puzzle without making any mistakes? The first of your 16 guesses can be anything. Only 3 of the 15 remaining squares will connect with your first choice, and then only 2 will connect for your guess after that, and then 1 after that. Once you are down to 12 squares, the process starts anew, but with fewer squares remaining. This simplifies $(3/15) \times (2/14) \times (1/13) \times (3/11) \times (2/10) \times (1/9) \times (3/7) \times (2/6) \times (1/5) = 0.000038\%$.
2. With 16 squares remaining, what is the probability your guess will have 3 right answers with 1 wrong answer? There are three cases where this can happen, where your second, this or fourth pick is wrong. If your second pick is wrong (12/15 chance), then for your 3rd pick 6 of the remaining 14 squares will create a match. Finally, only 3 of the remaining 13 squares create a final match, so the probability is $(12/15) \times (6/14) \times (2/13)$. If your second guess is wrong, that is just $(3/15) \times (12/14) \times (2/13)$. If the final guess is wrong, the probability there is $(3/15) \times (2/14) \times (12/13)$. Summing these 3 probabilities = 10.55%. The same logic applies to the case with only 12 squares remaining: $(8/11) \times (6/10) \times (2/9) + (3/11) \times (8/10) \times (2/9) + (3/11) \times (2/10) \times (8/9) = 19.39\%$
3. What is the probability of winning the game before your 4th wrong guess? We first need to compute the probabilities of getting a connection with 16, 12 and 8 squares remaining. After we do that, the next step is to figure out all the paths to lead you to winning the game, realizing that your last guess must be correct and that you have at most 3 wrong guesses. So for example, one path could be X,O,O,X,X,O, where X is a wrong guess and O is a right guess. Once you have the paths you can multiply the probabilities and then sum everything, to get an answer of approximately 0.0007%.
4. What is the probability of correcting your one away guess? First, you need to guess which of your four original guesses was wrong (1/4), and then you need to replace that wrong guess with a right guess (1/12). Multiplying this leads to 1/48. If you weren't 1 away, you can eliminate 49 wrong guesses, so your new probability is $4/(1820-49) = 0.00226$, where 1820 is the number of possible guesses, where 4 of which are correct.
5. How does the answer change if there are 12 words remaining? Applying the logic from part 4 leads to $(1/4) \times (1/8) = 1/32$.

Solvers: Rui Guo, Clive Keating, David Promislow, Bob Conger, Jason Shaw, Don Onnen, Mike Schachet, Daniel Wade



AD INDEX

To add our company's name to this list, call Jeff Rhodes, MCI USA at 410-316-9857, or email jeff.rhodes@wearemcigroup.com.

Actuarial Careers Inc.	5
914-285-5100 actuarialcareers.com	
American Academy of Actuaries	13, 51
202-223-8196 actuary.org	
Andover Research Ltd.	C2
800-ANDOVER andoverresearch.com	
Ezra Penland	1
800-580-3972 ezrapenland.com	
Milliman	C4
646-473-3110 integrate.milliman.com	
Pauline Reimer/Pryor Associates	C3
516-935-0100 ppryor.com	

Are We Close to the Tipping Point Yet?

PUBLIC DEBT IS ENORMOUS. As of Sept. 30, 2025, the U.S. federal debt stood at approximately \$37.8 trillion, with about \$30.1 trillion held by the public (roughly 125% of gross domestic product [GDP]; the International Monetary Fund [IMF] recently projected gross debt could reach 143% by the end of the decade). It continues to climb, with the unified U.S. federal deficit projected to reach about \$1.8 trillion this year, and interest payments now exceeding \$1 trillion.

But U.S. debt isn't limited to the federal government. There are also state and local government debt (\$3.6 trillion) and household and nonprofit debt (\$20.5 trillion), which includes mortgages (\$12.9 trillion), auto and student loans (\$1.7 trillion each), and credit card debt (\$1.2 trillion), along with nonfinancial business loans (\$22.3 trillion). Altogether, U.S. debt totals about \$83.8 trillion.

It's tempting to think we can outgrow this problem, but it's not simple. Over the past decade, the fastest-growing category of debt has been federal government debt held by the public (about 130% growth), followed by credit card debt (77%), nonfinancial business debt (64%), auto loans (58%), mortgages (57%), and state and local government debt (20%).

Not only have interest rates on household loans increased, but home and auto prices have also surged, significantly raising the total amount of this debt. Many borrowers didn't feel the impact of these payments while interest rates were at historic lows. Now, however, the effects are catching up with us.

The public debt-to-GDP ratio for all advanced economies combined is now about 110%, up from 70% to 80% before the 2008 financial crisis, while it stands at around 92% for all countries, compared to 60-65% before 2008. The IMF projects the global total will exceed 100% in 2029. Debt is the nearly universal factor behind every major financial crisis (Andrew Ross Sorkin, "The Lesson of 1929").

While much of this debt growth is driven by investments for the future, if not managed carefully, it could lead to a dangerous debt spiral. When will the federal government face its tough choices—when its debt reaches 150% or 175% of GDP? The country's credit rating has already been downgraded once.

Some nations have addressed this issue through austerity or efforts to combat waste, fraud, and abuse, with mixed results. Ultimately, investors holding our debt may demand a premium to lend or even rollover existing debt.

Unless society's demand for public services drops significantly, we'll have to accept the reality that we need to increase revenue. In any case, those responsible for spending should always be accountable and act transparently. Many seniors adapt to reduced resources by downsizing and being more frugal or selective—can we?

Today, our vast and growing debt often elicits a yawn. Instead, we should focus on financial sustainability. For example, if Congress takes no action over the next eight years, the depletion of the Social Security trust funds is projected to add another \$2.7 trillion to the federal debt held by the public. Social Security alone could soon contribute nearly half a trillion dollars annually to the deficit.

Several theoretical methods for addressing our upcoming debt challenge include:

- Extraordinary economic growth.
- Government default.
- Large-scale money creation.

- Substantial spending cuts.
- Large tax hikes.

Nevertheless, the likelihood of any of these occurring is low. Today's national debt represents a major inter-generational wealth transfer.

Over the last 20 years, governments, businesses, and households have been heavily borrowing, encouraged by low interest rates. Now that rates have increased, concerns about sustainability have grown. Governments are hesitant to make unpopular decisions, such as raising taxes or cutting services. If policymakers want to keep their economies sustainable, they may have little choice but to pursue these measures or continue borrowing. Central banks will continue to be pressured to decrease interest rates.

Over the past year, global net interest payments on government debt increased by 11.2% to \$2.72 trillion; this trend is expected to continue. Interest costs, driven by aging populations and health care costs in the U.S., now exceed defense budgets, contributing to ever-increasing government debt. The recent federal government shutdown and the next debt ceiling showdown further underscore these sustainability concerns, serve as reminders of the fiscal and political pressures underlying current budget debates—and how difficult it has become to achieve consensus on policies that could restore long-term financial stability.

The IMF warns that the U.S. needs to get its finances in order "sooner rather than later." Kicking the can down the road is not a sustainable strategy. A major unanswered concern for actuaries is when will a debt tipping point be reached—and what follows after. ▲

SAM GUTTERMAN is chairperson of the Social Security Committee and member of the Retirement Practice Council.

The Perfect Fit...

**It Takes One to
Know One...
An Actuary
Placing Actuaries**

To have Pauline personally advise you on finding your perfect fit, please contact her at:

- ✉ pauline@ppryor.com
- 🌐 www.ppryor.com
- ☎ (516) 935-0100 x 307 or
(866) 6-ACTUARY

For five decades, local, national, and international insurance communities have benefited from Pryor's exceptional recruitment services.

Our renowned Actuarial, Risk, and Modeling Division has been directed by Pauline Reimer, ASA, MAAA, for the past thirty-five years.

Milliman Integrate

Your complete life technology solution for a world at risk.

We have you covered:

- VM22 valuation and pricing
- Strategic Asset Allocation and ALM
- Bermuda Economic Balance Sheet
- Enterprise risk management/stress testing
- Open architecture
- Advanced asset modeling

For more information, visit
integrate.milliman.com

