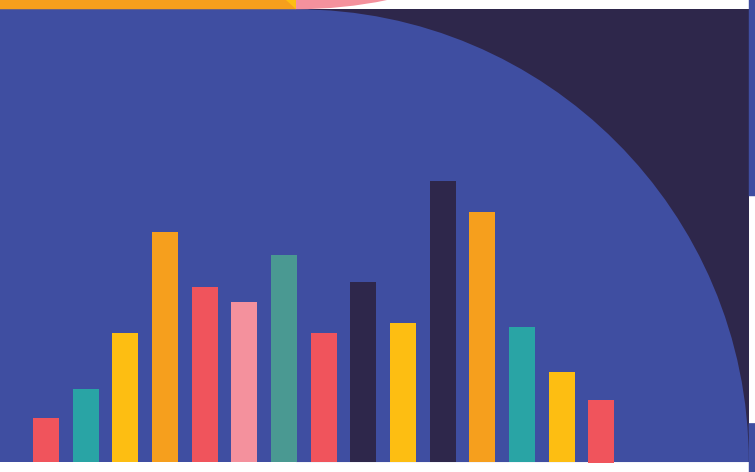
CONTINGENCIES

INSIGHTS *and* IDEAS FROM THE AMERICAN ACADEMY OF ACTUARIES

THE CODE AT 25









NOV
DEC
26



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

Ezra Penland.
Celebrating 15 Years

A **15-year commitment** to strengthening and serving the **actuarial profession**

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

IN THIS ISSUE



12 **The Code at 25**
A principles-based framework built 25 years ago continues to guide a profession in constant evolution.
By Virginia Hulme

20 **Tales from the Dark Side: What Would You Do?**
Five hypothetical case studies from the Actuarial Board for Counseling and Discipline illustrate the professionalism challenges actuaries may face in the workplace—and how to respond.

26 **Adapting to an Aging World**
Low fertility may be harder to reverse than policymakers hope. Aging societies need to build systems resilient enough for the demographic future that is taking shape.
By Xinyi (Cindy) Hu

31 SPECIAL SECTION—ACTUARIAL TECHNOLOGY

32 **Your Next Coworker May Not Be Human**
Agentic AI is moving into the workplace. Here's what actuaries need to know about working alongside a new kind of digital colleague.
By Beth Baker

38 **Human Oversight of Thinking Machines**
As AI becomes more deeply embedded in decision-making, organizations must rethink what effective governance and accountability require.
By Baskar Sundararajan and Srivathsan Karanai Margan

44 **Modernizing Actuarial Operations in Reinsurance**
Actuarial systems are becoming a strategic differentiator—enabling faster deal evaluation, stronger pricing confidence, and smoother integration.
By Poojan Shah

50 **12 Rising Stars Look Ahead**
The 2026 Rising Actuary Award recipients share their perspectives on careers, mentorship, AI, the future of the profession, and the value of Academy membership.

CONTINGENCIES

NOV | DEC 2026
VOL. 38 | NO. 6
WWW.CONTINGENCIES.ORG

2026 NATIONAL SILVER AWARD
2026 REGIONAL SILVER AWARD
2026 REGIONAL BRONZE AWARD
2026 APEX

EDITOR-IN-CHIEF
Preeti Vasishtha

MANAGING EDITOR, MEMBER CONTENT
Michael G. Malloy

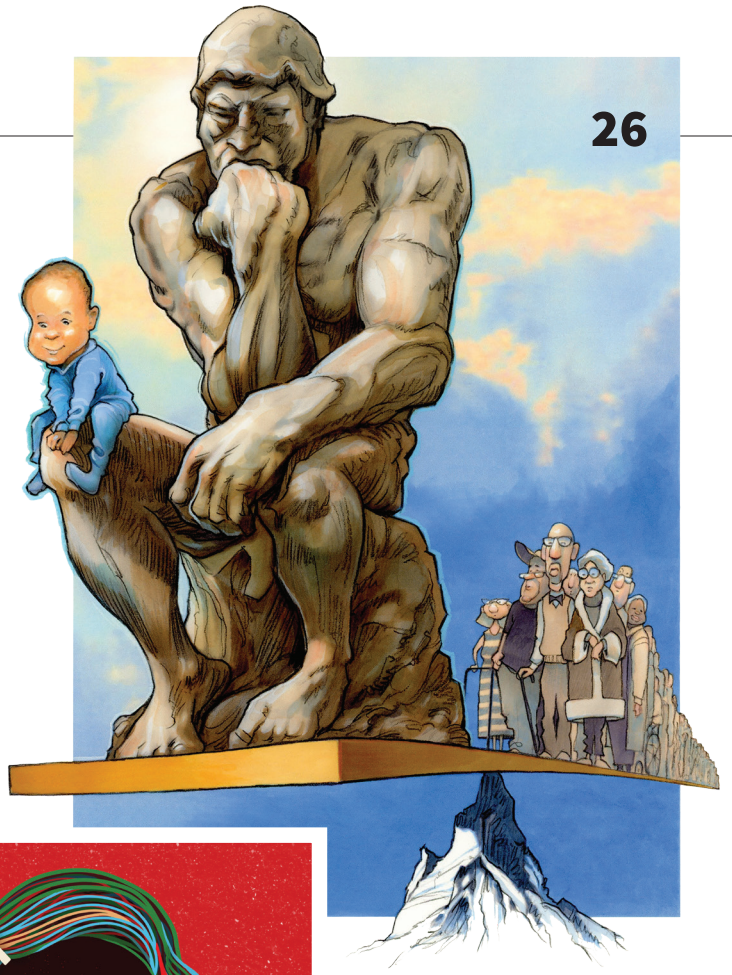
CONTRIBUTING STAFF
Barbara Bryant

DEPARTMENT EDITORS
Joshua Feldman
Sam Gutterman
Warren Manners
Tom Toce

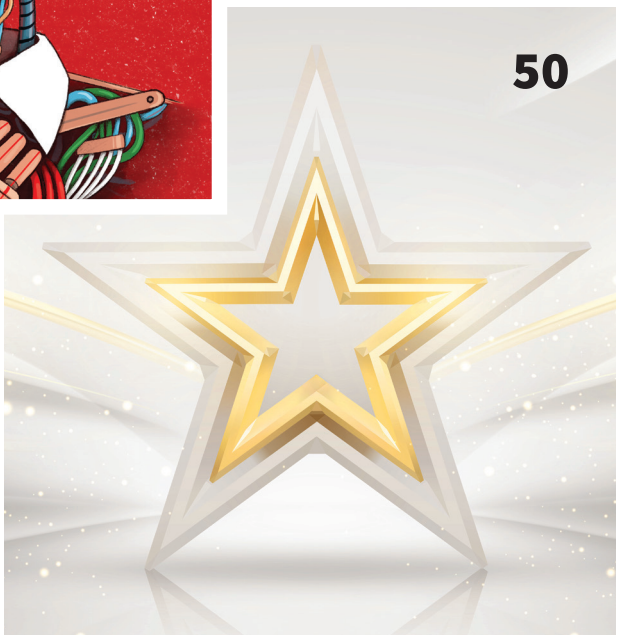
CREATIVE LEAD
Laurie Young

PUBLICATION DESIGN & PRODUCTION
BonoTom Studio Inc.
www.bonotom.com

ADVERTISING
Jeff Rhodes
410-316-9857
jeff.rhodes@wearemci.com







COVER: STOCK.ADOBE.COM / ARTERNOON / BOHDAN / MARINA ZLOCHIN / VECKTORWORLD

DEPARTMENTS

4 **EDITOR'S NOTE**
The Little Blue Book That Flew Off the Table
Preeti Vasishtha

6 **PRESIDENT'S MESSAGE**
Ode to the Code
Tricia Matson

7 **LETTER TO THE EDITOR**
A Thoughtful Approach to Retirement Planning
Ken Steiner

8 **CEO INSIGHTS**
The Framework Behind Public Trust
William J. Michalisin

10 **UP TO CODE**
Earning Self-Regulation Through Professionalism
Edward Lee

62 **POLICY COMPASS**
MAAA Credential Offers a Strong Standard for Public Policy
Ted Gotsch

64 **MEMBER SPOTLIGHT**
Kevin Wade
The Work Behind the Work

66 **CROSSWORD**
27th Letter of the Alphabet
Warren Manners

68 **CRYPTIC PUZZLE**
Miranda Rights
Tom Toce

70 **PUZZLES**
New Beginnings
Josh Feldman

72 **AUTHOR APPRECIATION**
Our 2026 Writers

75 **LAST WORD**
The Search for Efficiency
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.



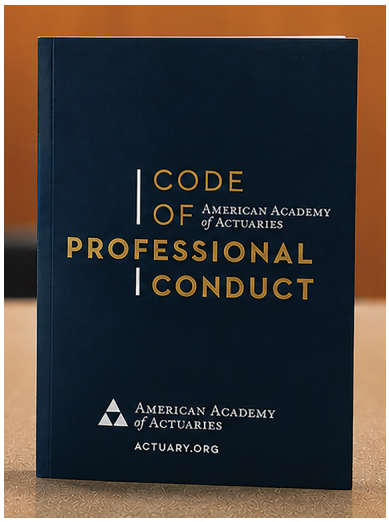
The Little Blue Book That Flew Off the Table

I WAS ATTENDING AN ACTUARIAL CONFERENCE where the Academy had a booth in the exhibit hall. The little blue books seemed to fly off our booth table as quickly as we could put them out. The little blue book, of course, is the *Code of Professional Conduct*. Many of the actuaries who took a copy already had one. They wanted another to keep handy, they said.

Just in case.

The Code sets out some of the profession's most fundamental principles: honesty, integrity, competence, and accountability. It also defines an actuary's professional responsibility—to the public, to employers and clients, and to the actuarial profession itself.

Although actuaries may not check the Code every day, its principles should always be top of mind. And when the answer isn't obvious or a difficult judgment has to be made, the Code provides a foundation for deciding what to do. For 25 years, those principles have guided the profession even as the work itself has changed.



And a lot has changed in those 25 years. The profession has evolved, technology has transformed how actuaries work, and the amount of information available today would have been difficult to imagine then—and that pace of change has only accelerated.

Artificial intelligence (AI) may be the most significant change yet. Twenty-five years ago, an actuary's tools were slower but more visible. A calculation ran on a machine that an actuary could see, and an assumption sat in a spreadsheet the actuary had built. Today, an actuary might receive an answer from an AI model within seconds—without being able to see how that answer was reached.

That invisibility makes AI feel different from earlier tools. We're already seeing AI change how actuaries work, from writing code and analyzing data to generating recommendations. Some of this work once took days but now takes minutes. As AI takes on increasingly complex tasks, it also raises questions about what remains the responsibility of the actuary.

The answer is not simply what AI can or cannot do. It is the judgment required to determine whether the work is sound, whether its limitations are understood, and whether the result is something the actuary can stand behind.

That judgment has always been part of actuarial work. The tools may change, but actuaries still have to decide how to approach a problem, what assumptions and methods to use, and when the work needs a closer look. Sometimes the hardest part is not finding an answer. It is recognizing when an answer needs to be questioned.

AI does not eliminate that responsibility. If anything, increasingly capable tools may make it more important. A tool can identify a pattern, write a piece of code, or make a recommendation. It can produce an answer in seconds. That can be useful. But it can also make it tempting to move on before asking whether the answer is right. The actuary still has to question it, understand what went into it, and decide whether it is appropriate to use.

That is the enduring value of the Code. It doesn't give actuaries an answer for every situation. It gives them a way to think through difficult situations—and reminds them that the decisions they make carry responsibility.

The articles in this issue look back at the Code's 25-year history and its role in a profession that has changed considerably. They also look ahead, examining the human role in an increasingly AI-enabled workplace and what AI agents could mean for actuarial practice. Along the way, they explore some of the same questions raised here about professional judgment and responsibility.

And that's what I saw at our booth that day. Those actuaries weren't taking another copy of the little blue book because they expected to refer to it every day.

They wanted it close because they knew there might come a moment when they would need it.

Just in case.

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



ACTUARIAL CAREERS, INC.®

Enter our online salary survey . . .

actuarialcareers.com/holiday-drawing-2026

Enter Now – Your Data Is Important

Don't miss out this year!
Just complete our online Salary Survey to be eligible to win one of: **Five (5) $250 Amazon Gift Cards**

Go to our website, www.actuarialcareers.com and enter now. Responses are confidential and the more responses we receive the more you benefit.

Are you earning what you're worth?
Our unique, online, interactive survey results allow you to dynamically and easily compare your skills, experience, education and field of expertise to those of other actuaries. The results represent responses to our Salary Survey, which is emailed to over 45,000 actuaries.

You can select and change the criteria to see the comparisons that are meaningful to you. See results by selecting combinations of Designation, Specialization, Years of Experience, Region and State.

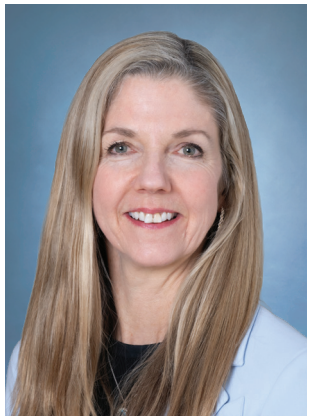


You can see samples of some of the screens above, but you must go to our website to query our dynamic charts, and see the actual survey results: **www.actuarialcareers.com/salaries/**

Our Actuarial Careers Salary Survey results make it easy to discover what others in the actuarial profession are earning. Enter your data now.

actuarialcareers.com/holiday-drawing-2026

ACTUARIAL CAREERS, INC.®
Tel: 914-285-5100 | Toll Free: 800-766-0070
www.actuarialcareers.com
E-mail: jobs@actuarialcareers.com



Ode to the Code

AS I WRITE MY FINAL *CONTINGENCIES* ARTICLE as president of the American Academy of Actuaries, I want to share that it has been the privilege of a lifetime to serve in this role. I am deeply grateful for the amazing opportunity to work alongside dedicated volunteers, members, staff, regulators, policymakers, and fellow leaders across the actuarial community. Again and again, I have been inspired by the generosity of actuaries who give their time, judgment, and experience in service of something larger than themselves. Their work is often quiet, careful, and performed behind the scenes, but its impact is profound.

This has also been a year of meaningful accomplishment. The Academy continued to elevate the U.S. actuarial perspective on issues central to financial security, including Social Security, health care, insurance, retirement, climate risk, cyber risk, artificial intelligence, and professionalism.

We reinforced the value of actuarial expertise in public policy conversations, advanced professionalism education, enhanced understanding of the meaning of the MAAA credential, and strengthened member engagement and benefits.

We implemented processes to monitor how well we are serving our key stakeholders, identify and respond to disruptive events, and monitor risks to the reputation of the profession. Most importantly, we did this while remaining grounded in the Academy's mission—to serve the public and the U.S. actuarial profession.

I find myself thinking about time—how quickly a year can pass, how much a profession can accomplish in a generation, and the commitments we must uphold if we are to continue earning the public's trust.

This year also brings a fitting milestone: the 25th anniversary of the Code of Professional Conduct, which took effect on Jan. 1, 2001, and was adopted by each of the five U.S.-based actuarial organizations. The Code defines what it means for an actuary to act as a professional and reminds us that our obligations extend not only to clients and employers, but also to the public and to the profession itself. The Code is a living framework that guides how we practice, communicate, qualify, disclose conflicts, respect confidentiality, cooperate with professional discipline processes, and uphold the reputation of the profession. It can fit in your pocket, but it is not small. Its precepts connect the daily decisions of individual actuaries to the collective credibility of all actuaries.

At its heart, actuarial professionalism is stewardship. We are entrusted with work that affects promises people may depend on for decades: insurance protection, retirement income, health care financing, public programs, and the financial resilience of institutions and communities. The Code helps ensure that our technical work is anchored in integrity, qualification, communication, and accountability. It reminds us that public trust is not something we claim once; it is something we must constantly earn through the quality of our work and the character of our conduct.

In light of the Code's 25th anniversary, I decided to poetically honor its critical importance as part of this final article:

Not merely words on folded pages,
Nor rules preserved from earlier ages,
But quiet vows we choose to keep
When paths are difficult and steep.

To speak with care, to know our ground,
To let our judgment be clear and sound;
To serve the public, earn its trust,
And do hard work because we must.

In every forecast, choice, and view,
The Code reminds us what to do.
Take the high, not easy, road
With conscience guided by the Code.

Thank you to all the actuaries out there who are reinforcing the public trust every day. I am proud to be part of this great profession.

TRICIA MATSON is president of the Academy.

STOCK.ADOBE.COM / WISNU

LETTER TO THE EDITOR

A Thoughtful Approach to Retirement Planning

I was particularly pleased to read Mark Shemtob's article, "The Roth Question," in the September/October 2026 issue of *Contingencies*. His emphasis on building models that incorporate relevant assumptions is exactly the kind of disciplined framework that can help retired households make better financial decisions. As noted by Mark, this work is squarely in the "wheelhouse" of actuaries and reflects the valuable experience actuaries can bring to household retirement planning.

—Ken Steiner





Here's what we're working on:

- Academy Plans for Members and Stakeholders in 2027
- Broader Council Priorities
- An Interview with Incoming President Frank Todisco
- Why Communication Skills Matter for Actuaries
- Enabling Humans to Oversee Thinking Machines

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.

NOV | DEC 2026 ▲ VOL. 38 | NO. 6

AMERICAN ACADEMY of ACTUARIES

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 & CEO
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
Geralyn Trujillo

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, jeff.rhodes@wearemci.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*, 1850 M Street, NW, Suite 300, Washington, D.C., 20036.



The Framework Behind Public Trust

ACTUARIES HELP ADDRESS SOME OF SOCIETY'S MOST CONSEQUENTIAL QUESTIONS, from the financial security of families and the sustainability of retirement and health systems to the soundness of insurance markets. People who rely on those judgments need to know not only that actuaries are technically capable, but that they are qualified, accountable, and guided by clear professional expectations.

The foundation that the U.S. actuarial profession relies on to show its integrity is its professionalism framework. Its four interconnected elements—the Code of Professional Conduct, the Actuarial Standards of Practice, the U.S. Qualification Standards, and the counseling and discipline process—guide actuaries practicing in the U.S. and strengthen confidence in their work.

Each element provides distinct value. Together, they establish the expectations that allow actuaries to exercise professional judgment—and give the public confidence in that judgment.

Rooted in the Academy's Founding

The American Academy of Actuaries was created in 1965, at a time when actuaries were represented primarily through organizations focused on particular practice areas. Those organizations and the broader profession recognized the need for a national body capable of establishing and maintaining standards of qualification, conduct, and practice applicable across the U.S. actuarial profession.

The Academy was also created to represent the profession in public policy matters and to provide objective actuarial expertise to government officials and others making decisions with significant financial and societal consequences.

That dual purpose remains central to the Academy's mission today. From its beginning, the Academy has provided the framework and support necessary for credible self-regulation: shared expectations, consistent standards, appropriate qualifications, and meaningful accountability.

Four Elements, One Framework

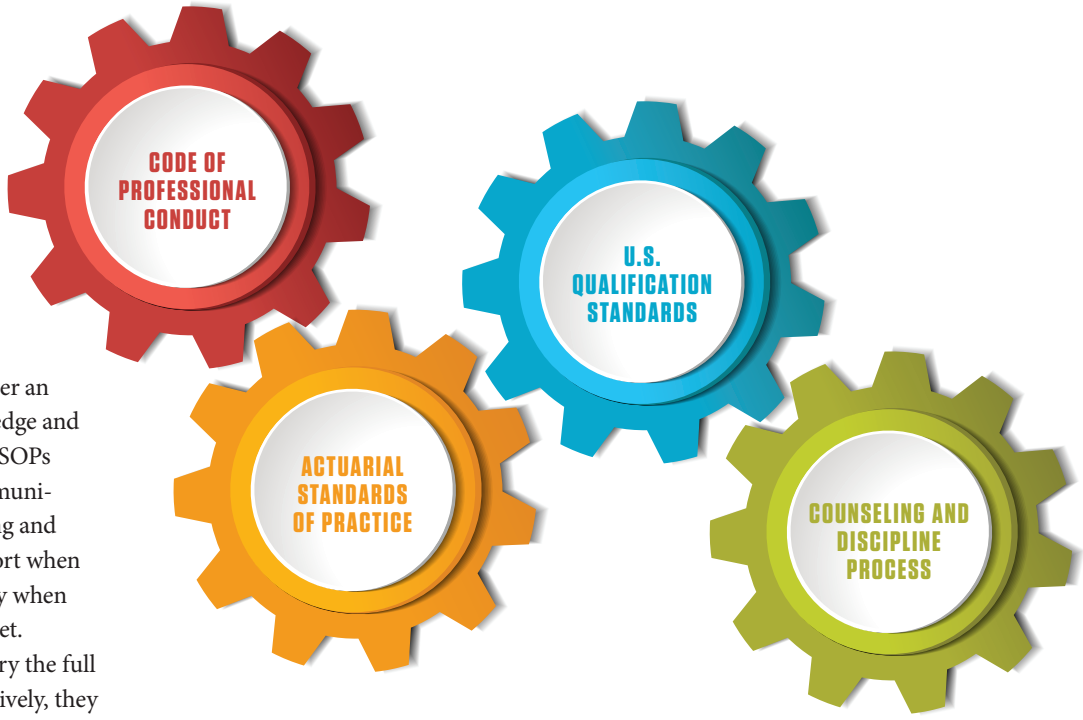
1. The **Code of Professional Conduct**, which has been jointly adopted by all five U.S.-based actuarial organizations, establishes the ethical responsibilities of actuaries. It sets expectations for integrity, competence, communication, disclosure of conflicts, and cooperation with the profession's counseling and discipline process. It gives actuaries a common ethical compass and assures those who rely on their work that professional responsibilities extend beyond an individual assignment to the broader public trust.

2. The **Actuarial Standards of Practice**, or ASOPs, guide how actuarial services should be performed. Developed through the Actuarial Standards Board's (ASB) deliberative and transparent process, they identify what actuaries should consider, document, and disclose when performing covered assignments. The standards do not replace professional judgment; they provide a disciplined framework for exercising and communicating it. The standards also evolve as actuarial practice, risks, technologies, and stakeholder needs change. The ASB monitors and takes action as appropriate through its independent oversight of the ASOPs.

3. The **U.S. Qualification Standards**, or USQS, establish the minimum requirements that actuaries must meet before issuing statements of actuarial opinion in the United States. They address education, experience, continuing education, and, in certain areas, specific qualifications. The USQS, which are guided by the Academy's Committee on Qualifications with the Academy Board's oversight, reinforce an important distinction: Holding a credential is only the starting point. An actuary must also be qualified for the specific work being performed and maintain that competence over time through continued education and professional judgment.

4. The **counseling and discipline process**, administered through the Actuarial Board for Counseling and Discipline (ABCD), provides both guidance and accountability as an independent entity. The ABCD offers confidential guidance to actuaries facing difficult professional situations through the request for guidance process. It also reviews complaints involving possible violations of the Code. When warranted, it recommends discipline to the appropriate actuarial membership organizations, which are then responsible for disciplining their members. The purpose of this process is not simply punitive; counseling, education, remediation, due process, and accountability all contribute to stronger professional practice.

These four elements are designed to work together. The Code requires actuaries to be qualified and follow applicable standards.



The USQS help determine whether an actuary has the necessary knowledge and experience to be qualified. The ASOPs guide the performance and communication of the work. The counseling and discipline process provides support when questions arise and accountability when obligations may not have been met.

No single component can carry the full weight of self-regulation. Collectively, they create an integrated system of principles, qualifications, practice standards, guidance, and accountability that supports and strengthens the U.S. actuarial profession's ability to serve the public.

The Academy's Unique Role

The Academy provides the institutional foundation, structure, and support that enable this framework to effectively serve the U.S. actuarial profession and the public while maintaining the U.S. actuarial profession's self-regulatory status.

The Academy promulgates the USQS and provides the organizational home and professional support for the Actuarial Standards Board and the Actuarial Board for Counseling and Discipline. Both are independent boards within the Academy's structure and bylaws. The Academy also helps actuaries understand and apply the Code, ASOPs, USQS, and counseling and discipline process through education, resources, and professionalism programming and continuing education.

The ASB and ABCD perform their defined responsibilities through structures designed to preserve the independence, objectivity, and credibility of their work. The Academy supports these bodies while respecting the independence essential to trusted standards-setting and counseling and discipline processes.

These four elements are designed to work together. No single component can carry the full weight of self-regulation. Collectively, they create an integrated system of principles, qualifications, practice standards, guidance, and accountability that supports and strengthens the U.S. actuarial profession's ability to serve the public.

This role is a direct continuation of why the Academy was created more than six decades ago. The Academy provides the structure, expertise, continuity, and national reach needed to maintain and strengthen the profession's professionalism framework.

Value Built on Trust

For actuaries, the framework provides clarity, guidance, and a common professional foundation across practice areas and workplaces. For employers and clients, it reinforces confidence that actuarial services are being performed by qualified professionals working within recognized ethical and practice standards.

For the public, the framework helps safeguard trust in actuarial judgments that affect financial security and essential systems. For legislators, regulators, and other public decision-makers at the state and federal levels, it provides a credible basis for relying on actuarial expertise and demonstrates that the profession has established mechanisms to maintain qualifications, define appropriate practice, and address misconduct.

Self-regulation is not simply a privilege. It is a responsibility that must be continually earned and protected through rigor, transparency, responsiveness, and accountability.

As risks grow more complex and the demand for actuarial insight increases, this professionalism framework will remain central to the value actuaries provide. By sustaining that framework, the Academy helps ensure that the U.S. actuarial profession remains prepared to serve its principals, stakeholders, and the public with competence and integrity.

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

ISTOCK / KUBKOO

Earning Self-Regulation Through Professionalism

IN EARLY 2019, LATE ON A SUNDAY NIGHT, I RECEIVED A VOICEMAIL from an old friend, Brian Jackson. Brian and I had first met during the summer of 1993 while serving as U.S. Marine Corps lawyers in North Carolina. I was—and still am—a stickler for organization. My desk was always immaculate, with every file neatly arranged.

Brian was the complete opposite. His desk looked as though a grenade had exploded on it. If you ever visit the Academy offices and peek into his office, you'll see that not much has changed. Despite the apparent chaos, Brian always knew exactly where everything was. I've read articles suggesting that people with messy desks are geniuses—or at least smarter than those of us who prefer things organized. There may be some truth to that theory, although whenever Brian and I disagree or butt heads, I tend to think it's complete nonsense.

Before that, Brian had been unexpectedly promoted from counsel to the Actuarial Board for Counseling and Discipline (ABCD) to the Academy's general counsel. He had been scrambling to find a new ABCD counsel when his wife suggested he call me. At that point in my career, I had stepped away from practicing law and was operating my own executive search firm, placing lawyers with leading law firms and companies across the United States and Asia. After listening to Brian's voicemail, I assumed he wanted me to conduct a search for a new ABCD counsel and agreed to meet him at the Academy offices.



JOE SUTLIFF

At the meeting, I was surprised to learn that he wasn't recruiting me to conduct a search—he was recruiting me to become the Academy's next ABCD counsel. As Brian explained the ABCD complaint process, much of it felt familiar because the procedures and due process considerations were similar to the courts-martial and military administrative hearings I had worked on during my military career. As for the actuarial profession, however, I knew very little. In fact, I don't think I had ever met anyone who introduced themselves as an actuary. Nevertheless, Brian's enthusiasm for the work, his respect for actuaries, and his appreciation for the important role they play convinced me to join the Academy.

A New Appreciation

Now entering my eighth year as ABCD counsel, I have found working with actuaries, the dedicated members of the ABCD, and the Academy staff to be both professionally rewarding and personally enjoyable. It has been a privilege to play a small role in helping preserve the actuarial profession's tradition of self-regulation.

Over those years, I've also watched technology, particularly artificial intelligence, become an increasingly prominent part of both professional and everyday life. Like many people, I've become curious about what these tools can—and cannot—do.

I've come to rely on ChatGPT for personal research. I've used it to plan

vacations, compare state tax burdens while considering retirement, and even get advice on how to train my very sweet—but stubborn—dachshunds. Recently, out of curiosity, I asked ChatGPT a simple question: **"Which U.S. professions are purely self-regulated?"**

Here is part of its response:

> "Very few professions in the United States are purely self-regulated. Most licensed professions are regulated by state governments through licensing boards, even if professional associations also impose ethical standards.
>
> **Actuaries are the closest example.** The actuarial profession is unusual because there is generally no state license required to call oneself an actuary or perform most actuarial work. Instead, the profession relies on:
>
> - The U.S. Qualification Standards (USQS)
> - The Code of Professional Conduct (Code)
> - The Actuarial Standards Board (ASB)*
> - The Actuarial Board for Counseling and Discipline (ABCD)
> - Discipline imposed by professional organizations such as the American Academy of Actuaries, Society of Actuaries, Casualty Actuarial Society, Conference of Consulting Actuaries, and American Society of Pension Professionals & Actuaries."
>
> *The ASB promulgates actuarial standards of practice (ASOPs).

The Work Behind Self-Regulation

Tens of thousands of hours have been—and continue to be—devoted by Academy volunteers and staff to developing, maintaining, and improving the professionalism framework that guides actuaries in producing high-quality work for their clients and the public. This framework also helps preserve the profession's ability to regulate itself through the judgment of experienced actuaries rather than relying primarily on government regulators who may not possess the same specialized expertise.

If ChatGPT is correct that actuaries are among the closest examples of a purely self-regulating profession in the United States, it is because generations of actuaries have worked diligently to make—and keep—it that way.

The vast majority of actuaries will never interact with the ABCD as either a complainant or a subject actuary. Many, however, will use the ABCD's confidential request for guidance process to better understand their professional obligations under the Code, the USQS, and the ASOPs. Regardless of an actuary's personal involvement with the ABCD, I can confidently say that the profession is extremely fortunate to have dedicated volunteers who willingly accept the difficult responsibility of evaluating potential violations of the Code, protecting the profession's reputation, and ultimately serving the public interest.

Closer to Home

When I joined the Academy in 2019, my daughter was midway through her freshman year of high school. She would occasionally ask about my work, and I would explain that most of what I did was confidential. What I could share was how impressed I was by actuaries' commitment to professionalism, their high-quality work, and their sense of responsibility to the profession as a whole. Just as Brian's respect for actuaries impressed me during our first conversation about the ABCD, my own respect for the profession eventually influenced my daughter. She intentionally chose to attend a university with a strong actuarial science program. She graduated this past summer having passed both the FM and P exams and is now working at an actuarial consulting firm where, as she happily tells me, she "loves her job."

A Reputation Earned

Looking back, I feel fortunate to have played a small role in supporting a profession that takes professionalism so seriously. The actuarial profession has earned its reputation for effective self-regulation through the dedication of countless volunteers, the commitment of its practitioners, and a shared belief that serving the public interest comes first.

If ChatGPT is correct that actuaries are among the closest examples of a purely self-regulating profession in the United States, it is because generations of actuaries have worked diligently to make—and keep—it that way.

EDWARD LEE is the ABCD counsel.



THE CODE AT 25

A principles-based framework built 25 years ago continues to guide a profession in constant evolution.

BY VIRGINIA HULME

Professions are distinguished by the specialized knowledge, training, and experience their practitioners possess—qualities that most people lack. The public must *trust* that professionals will be honest and perform services competently. To help foster that trust, most professions have a code of conduct.

The actuarial profession is no different. A standard of conduct is needed to protect the public from bad actuarial work, preserve trust in the profession, guide professional judgment, reinforce accountability, and provide a standard against which to measure actuaries and discipline those who fall short.

"Because actuaries' work impacts the financial well-being of millions of people, our work is rightfully scrutinized by regulators and others," says Nancy Behrens, vice president of professionalism and a former member of the Actuarial Board for Counseling and Discipline (ABCD). "By enforcing a code of professional conduct, we demonstrate that we will monitor the work of actuaries and take action when their work does not meet the high standard the profession supports."

STOCK.ADOBE.COM / ARTERNOON / BOHDAN / MARINA ZLOCHIN / VECKTORWORLD

The Origins of the Code

The various U.S. actuarial societies began adopting guides to conduct as early as 1957. But the profession recognized that a single voice for the profession was needed: Enter the Academy. In 1965, the Academy was founded and issued its first standard of conduct, "Guides to Professional Conduct," which established a common ethical framework for all Academy members regardless of which other actuarial organizations they belonged to.[1]

In 1972, the Academy began efforts to encourage consistent codes across all U.S. actuarial organizations. Although these codes achieved consistency several times over the decades, they also became inconsistent after each adoption, creating confusion and complicating the disciplinary process for actuaries who were members of more than one organization.[2]

"Self-regulation is a privilege. If we do not hold ourselves to a clear standard, someone else will, and outside regulation tends to bring more rigidity and less nuance. The Code, paired with the ASOPs and the ABCD, gives us the structure to set our own expectations, counsel one another, and act when conduct falls short. It shows the public that we are serious about managing our own ethical standards."

—Yukki Yeung

In the 1990s, the Academy spearheaded an effort to create a single, unified code of conduct that would be adopted by all U.S. actuarial organizations. Chaired by Jack M. Turnquist[3], the Joint Committee on the Code of Professional Conduct (JCCPC) was established in 1997 and worked tirelessly through two rounds of exposure and comment.[4] The Code of Professional Conduct that we know today was adopted by all five U.S. actuarial organizations effective Jan. 1, 2001. The fact that the actuarial profession has managed to maintain this uniform Code for two and a half decades is not something to be taken lightly, says Behrens.

The Basis for Self-Regulation

The Code of Professional Conduct defines what it means for an actuary to act as a professional and identifies the responsibilities that actuaries have to the public, to their clients and employers, and to the actuarial profession. Through the Code, actuaries are held to standards of qualification and practice, and are subject to the counseling and discipline process. These elements allow the profession to regulate itself—but only as long as actuaries follow the standards and participate in the counseling and discipline process. So far, the profession has been successful.

"Having the Code as the foundation, including the requirement that actuaries follow the relevant actuarial standards of practice (ASOPs), is well recognized and reinforced by the courts. They see that our self-regulation is working well and defer to it," ABCD Chairperson William Hines says, citing the recent Supreme Court decision in *M & K Employee Solutions, LLC, et al. v. Trustees of the IAM National Pension Fund*, which extensively cited ASOP No. 27, *Selection of Assumptions for Measuring Pension Obligations*, as providing the appropriate guidance to actuaries in that situation.

"Self-regulation is a privilege," says Yukki Yeung, a member of the Academy's AI, Data Science, and Analytics Committee. "If we do not hold ourselves to a clear standard, someone else will, and outside regulation tends to bring more rigidity and less nuance. The Code, paired with the ASOPs and the ABCD, gives us the structure to set our own expectations, counsel one another, and act when conduct falls short. It shows the public that we are serious about managing our own ethical standards."

A Shared Ethical Commitment

A single code benefits the public, the profession, and individual actuaries. As former Academy President Tom Wildsmith wrote, "The Code unifies and strengthens our profession by defining our shared ethical commitments to the public and to each other. This is vital, because professionalism is not just mechanical compliance with a checklist of technical rules; it is a moral commitment to doing the right thing. By creating a common understanding of this commitment, the Code

Upholding the Code: The Role of the ABCD



The Actuarial Board for Counseling and Discipline (ABCD) was established within the Academy and launched in 1992 with two main functions: 1) to provide counseling to actuaries to help them uphold standards of conduct, practice, and qualification, and 2) to investigate potential violations of the Code of Professional Conduct and, where warranted, recommend discipline to the actuarial organizations to which the actuary belongs. The ABCD itself does not impose discipline—that authority lies with the membership organizations. (See also, "Tales from the Dark Side: What Would You Do?" on page 20.)

These two functions are vital to the profession. The counseling function—very rare, if not unique, among professions—offers a confidential sounding board to actuaries facing difficult professional issues. ABCD members fielding requests for guidance help actuaries think through issues through the lens of the Code and other applicable standards—whether qualification or practice standards—and help them reach a conclusion about what their next steps should be. The goal of the counseling function, according to a person involved in setting up the ABCD, was to prevent the need for discipline by helping actuaries avoid violations in the first place.

The second function—investigating potential violations—shows that the profession takes the responsibility for enforcing its own standards seriously, thereby helping maintain the public's trust in the profession. However, the ABCD must rely on individual actuaries to help fulfill this second function. Precept 13 requires actuaries to report "apparent, unresolved, material" violations of the Code to protect the public and the profession against poor actuarial work. Though it may be uncomfortable to do so, you have an obligation under Precept 13 to address any poor work you see.

creates the foundation we need to build a culture of professionalism."[5]

For the public, who may not be aware of the different types of actuaries and the different organizations they belong to, a single code ensures that all actuaries practicing in the U.S. are held to the same standard. "Each of the membership organizations serves different purposes and segments of the profession," says Hines. "If we were each held to a different code of conduct, it would not be clear what standards of ethics and practice we hold ourselves to and what the public can expect from an actuary's work. … Thus, it is important for us as individual actuaries and for the public we serve to have a single code of professional conduct that applies to all members of actuarial organizations practicing in the U.S."

Lisa Slotznick, chairperson of the JCCPC, echoes this sentiment, adding, "By having a single code, we … present a united ethical path. This strengthens our overall reputation as actuaries."

Having one code also simplifies requirements for actuaries. "From a practical standpoint, many of us are members of more than one of the five U.S. actuarial organizations. Having a single code simplifies our personal approaches to professionalism," Slotznick continues. A single code also avoids multiple, possibly conflicting, codes applying to an actuary's work, adds Hines.

Another benefit of a Code that applies across practice areas is that "it also makes the profession portable," says Yeung. "As actuaries move across pension, life, health, casualty, or newer areas like data science and AI, the ethical foundation does not change."

Finally, when it comes to discipline, a single code is a huge benefit. Former Academy President Ken Kent, a member of the joint committee that drafted the Code adopted in 2001, recalls, "Before adoption of our single code, each of the organizations had some form of a code of conduct. However, the smallest differences in description of the ethical obligations of a member of our profession can result in a difference in interpretation by each of the member organizations." Such differences would also make it more difficult for the ABCD to consider different codes and arrive at consensus. "There should be no difference in the fundamental ethical obligations of actuaries," he says.

STOCK.ADOBE.COM / BOHDAN

A Stronger Profession

The Code strengthens the profession by setting expectations for high standards of conduct—and not just for actuarial work. "The Code gives actuaries a basis for good conduct, holding us up to a high standard not just in our qualifications, standards, and discipline but also in other aspects of our outward-facing behaviors—communication, advertising, and overall integrity," Slotznick says. "This basis impacts our behavior, which in turn strengthens the profession and its reputation."

Through the Code, actuaries are subject to standards of qualification and practice. Thus, the Code "provides assurance to our principals and the public at large that actuarial work will be performed with integrity and only by those who are qualified to do so, free from hidden conflicts and incentives, and according to standards of practice developed for each kind of work," notes Hines. "It is something those we serve and we as actuaries can rely on in each actuarial work product."

A Framework for Professional Judgment

The Code embodies key professionalism principles—honesty, transparency, integrity, and competence—and defines an actuary's professional responsibility to the public, to employers and clients, and to the actuarial profession. To help ensure that actuaries meet this responsibility, it requires actuaries to adhere to the high standards of conduct, practice, and qualifications of the actuarial profession. By establishing a framework that requires actuaries to meet these standards, backed up by a counseling and discipline process, the Code helps create and maintain public trust.

"The Code is the backbone of the public's trust in us," says Yeung. "It signals that being an actuary is about more than passing exams. It is a commitment to integrity, competence, and service to the public interest. It also gives us a common language. When I raise a concern, I can point to a shared standard rather than just my own opinion. That shared foundation is what lets the profession speak with one voice and hold itself accountable from within."

The Code is the foundation of the ethical framework that supports actuaries in making the right choices even when facing pressure to compromise ethics. If the Code is the foundation on which actuarial professionalism is built, Precept 1—which establishes that professional competence, honesty, and integrity are fundamental professionalism requirements—is the foundation of the Code, the core idea from which all professionalism requirements flow.

Precepts 2 and 3 establish two more foundational requirements—the requirement to be qualified and

Just for Fun: What's Your Favorite Precept?



■ **Nancy Behrens:** I actually have two! The first and the last. Precept 1 because it sets the tone for the entire Code of Professional Conduct: "An actuary shall act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public and to uphold the reputation of the actuarial profession." We can view the other 13 precepts as spelling out some specifics of what Precept 1 requires.

Precept 14 because, while I was a member of the Actuarial Board for Counseling and Discipline (ABCD), it was almost comical to see the lengths to which some actuaries would go to avoid cooperating with the ABCD. I wish that everyone would view the ABCD process not as onerous but as an important part of maintaining the reputation of the actuarial profession and our status as a self-regulating profession.

■ **Lisa Slotznick:** Annotation 1-1, Skill and Care, says it all.

■ **William Hines:** Precept 8 is my favorite. It is focused on control of the actuary's work product. Throughout my career, I have produced financial projections for blocks of insurance products for a given purpose. I have often been asked if those projections could be used for another purpose for which they were never intended. Sometimes people have taken my projections and used them for another purpose without my knowledge. Precept 8 provides excellent direction for actuaries on their responsibility to discourage unintended and misleading use of their work product. That is important for any actuary in any capacity.

■ **Yukki Yeung:** Precept 1, integrity. It is the foundation everything else rests on. Competence, communication, and control of work products all matter, but they only mean something if integrity comes first. To me, it captures the whole idea in one word: Do the right thing, especially when no one is watching.

the requirement to follow standards of practice. Precept 2 requires actuaries to be qualified based on basic education, experience, and continuing education. Precept 3 requires actuaries not only to follow standards of practice themselves, but also to ensure that actuarial work done under their direction meets those standards of practice. Precepts 2 and 3 are parallel in some respects: They both require the actuary to meet the standards of the jurisdiction in which the actuary is rendering actuarial services, and they both require the use of professional judgment, not only in determining which standard applies but also in determining whether the actuary is qualified (also known as the look-in-the-mirror test) and how to follow a standard of practice. Precept 3 even allows the actuary to use professional judgment to deviate from a standard of practice, as long as the actuary can justify the deviation.

The next few precepts concern transparency and honesty. Precepts 4 and 5 cover communications, which must be clear and appropriate to the circumstances and intended users. They require the actuary to identify the responsible actuary and the principal for whom the work is being done. Precepts 6 and 7 address conflicts of interest, requiring the actuary to disclose compensation in certain situations, pertinent relationships that may not be apparent, and any conflict of interest. The actuary may proceed with an assignment only when any conflicts of interest have been disclosed to the principals involved, the principals have agreed that the actuary may do the work, and the actuary's ability to act fairly is unimpaired.

Precept 8 covers control of work products and requires actuaries to take steps to ensure their work is clear, fair, and includes limitations on use and distribution to reduce the risk of the work product being used to mislead other parties. Precept 9 requires actuaries to maintain confidentiality of nonpublic information they become aware of during work for a principal. Both these precepts help reinforce trust in the profession by reducing the misuse of actuarial work and fostering trust between actuaries and their principals.

Precept 10, covering courtesy and cooperation, could be called the actuary's golden rule. It recognizes that disagreements may arise between actuaries and requires discussions of differences to be conducted with courtesy and respect. Precept 10 also demands courtesy and respect in more uncomfortable situations, such as when a principal engages another actuary for a second opinion or replaces one actuary with another.

Precepts 11 and 12 return to basic honesty and integrity. Actuaries may not engage in false or misleading advertising or business solicitation activities, nor may they use actuarial titles and designations in a manner not authorized by the issuing actuarial organization.

The Code embodies key professionalism principles—honesty, transparency, integrity, and competence—and defines an actuary's professional responsibility to the public, to employers and clients, and to the actuarial profession. To help ensure that actuaries meet this responsibility, it requires actuaries to adhere to the high standards of conduct, practice, and qualifications of the actuarial profession.

Precepts 13 and 14: Key to Self-Regulation

The last two precepts, 13 and 14, are key to maintaining the actuarial profession's reputation and independence. Precept 13 recommends that actuaries who become aware of an "apparent, unresolved, material" violation of the Code try to resolve the issue through discussion with the other actuary. If the issue is not resolved through discussion, or a discussion is not attempted, the actuary is required to report the possible violation to the appropriate counseling and discipline body, with exceptions for confidentiality and law. Precept 14 requires cooperation with the appropriate counseling and disciplinary body of the profession, again subject to restrictions for confidentiality and law. Regarding these obligations, Wildsmith wrote,



"A conversation with a fellow actuary about a potential violation of the Code may be uncomfortable. But even in such difficult situations, or perhaps especially in such difficult situations, upholding and enforcing our own standards is vital to maintaining public trust and integrity—and the independence of our profession. … This is why the Code gives each of us the responsibility not just to follow the Code and standards ourselves, but to speak up when we see possible violations of them."[6]

Using the Code: New Ethical Frontiers

Actuarial work has changed tremendously in the past 25 years. The profession has seen not only actuaries moving into new roles and new areas of practice, but also the rise of modeling, predictive analytics, and AI, which have driven concerns about bias, fairness, and transparency in actuarial work.

"The toolkit has changed enormously," says Yeung. "We have gone from spreadsheets and deterministic models to stochastic modeling, big data, and now AI and machine learning embedded in pricing, underwriting, and reserving."

These new tools and methods raise ethical issues for actuaries. "The hardest issues sit where actuarial judgment meets AI and advanced analytics," Yeung says. "These tools are powerful, but they often operate as black boxes, which raises real questions about transparency, bias, accountability, and the limits of our own expertise. We are increasingly asked to interpret and sign off on outputs from models we did not fully

The Code in Action

■ **Nancy Behrens:** When I was still working, I kept the small blue Code booklet on my desk to refer to when questions arose. On more than one occasion, a member of my staff would pick it up and read the relevant precept or annotation to me to help determine the best path forward on a particular project.

While I was a member of the ABCD, the first question I would ask when a member called for a request for guidance (RFG) was "What are the relevant precepts and annotations that apply to the work in question?" This often led the requestor to reach their own conclusions about whether a precept had been violated and helped me provide options and alternatives for the requestor's next steps.

■ **Lisa Slotznick:** The precepts of the Code that I am mindful of daily relate to integrity, performing work with skill and care, being qualified, following standards, and communicating appropriately. While the Code addresses these in the context of performing actuarial services, I keep these precepts in mind beyond the strict performance of actuarial services, particularly confidentiality and courtesy considerations.

■ **William Hines:** Precepts 4, 5, 7, 8, and 9 have been a key focus for my work for the past 20 years. And the more I work, the more important I think they are in serving our principals. I find it very important to define what the work product is, who the intended audience is, and what role the authors played, including what they are responsible for in the report.

Documentation and disclosure play a pivotal role in any actuarial work product, and those provisions of the Code help me be sure I am communicating what is important for my clients to understand about what I have done and what I have not done.

I have had to turn to the Code for support a few times. The most common situation involved potential conflicts of interest, where my firm might be working with more than one potential buyer and a seller of a block of business. Precept 7 gives clear guidance on how to deal with that situation, and we have found our clients to be receptive to its provisions requiring full disclosure to all parties and having all parties agree.

■ **Yukki Yeung**: When I assess actuarial models and processes, I lean on Precepts 1, 3, and 8 to keep my findings fair, accurate, and defensible. The Code also shapes how I teach. With my data science students at Northwestern, I try to model the mindset behind the Code: Ask the hard question, communicate uncertainty honestly, and stay aware of who your work affects.

In my own work, I have had plenty of gray-area moments, especially on cross-functional teams where actuarial judgment meets business strategy, audit, and data science. In those cases, I revisit the Code and the relevant ASOPs … to make sure I am framing my work fairly and defensibly. Sometimes just rereading the precepts reinforces how I want to show up. It is less about what I must do and more about what I ought to do.

STOCK.ADOBE.COM / ARTERNOON

Because the Code provides principles-based guidance and a broad framework for exercising professional judgment, it remains relevant even for actuaries on the cutting edge of practice.

build. The Code does not offer a formula for these situations, but it does offer a framework: Stay within your competence, take responsibility for your work product, and be clear about limitations and uncertainty."

"Change is nothing new," adds Hines. "When the personal computer became a tool for actuarial work, there was a concern that actuarial work would change dramatically and that our old ways of thinking about what we do would no longer apply. The same is being said of AI today. Yet, the Code is agnostic with regard to tools and topic. It provides a professional and ethical framework within which we can work with all types of tools and subject matter."

Other issues facing actuaries today include affordability and access to insurance, climate change, geopolitical risk, and the rapid pace of business. "The Code is broad enough to cover these issues if we keep in mind providing services with skill and care, being qualified, and communicating appropriately," says Slotznick.

Looking Ahead: Balancing Innovation With Professional Responsibility

Because the Code provides principles-based guidance and a broad framework for exercising professional judgment, it remains relevant even for actuaries on the cutting edge of practice. "The Code is not anti-innovation," Yeung says. "If anything, it frees us to innovate responsibly. It does not tell us which tools to use, so we are free to adopt new methods, but it does ask us to understand what we are using, stay within our competence, and own the results. That balance matters most when the pressure for speed and efficiency is high. The Code is the reminder that being faster or more automated never removes our responsibility for the judgment behind the work."

Hines agrees: "The Code applies in every project an actuary may do regardless of the subject matter or the tools used. It does not constrain the actuary from using new tools or techniques or from moving into a new subject matter or jurisdiction. Instead, it provides the framework for how to work as a professional and maintain appropriate ethics."

While the profession and its tools will continue to evolve, the core principles underlying the Code—integrity, competence, objectivity, and accountability to the public—remain foundational. "Precept 1, Annotation 1-1, emphasizes that the actuary is to provide services with skill and care," regardless of whether the practice is in an emerging area or the actuary is using new tools or innovative methods, Slotznick notes.

While new tools and financial products may pose new risks, "that does not change our obligation to operate with honesty, integrity, and competence, abide by relevant qualification standards and standards of practice, communicate clearly, reveal potential conflicts of interest, take reasonable steps to control our work product, and maintain confidentiality," says Hines. "That framework will always work for us."

Crediting the drafters of the Code for having the foresight to create such an enduring document, Behrens says, "It is amazing that the Code has stood the test of time as business has evolved and as actuaries are taking on so many new roles. This is a testament to the careful work of the original JCCPC. The Code remains durable and relevant because the precepts are principles-based, allowing them to apply to evolving types of work and changing applications. While the work has changed, our professional responsibilities have not. … The principles-based nature of the precepts has allowed the Code to remain relevant for 25 years and counting."

Slotznick also commends the writers of the Code for its principles-based nature and enduring value. "The Code covers areas where potential issues could arise, but the wording is broad enough to fit evolving practice," she says.

"That flexibility is exactly why it still fits a profession that looks very different than it did in 2001," Yeung says.

VIRGINIA HULME is the Academy's assistant director, professionalism.

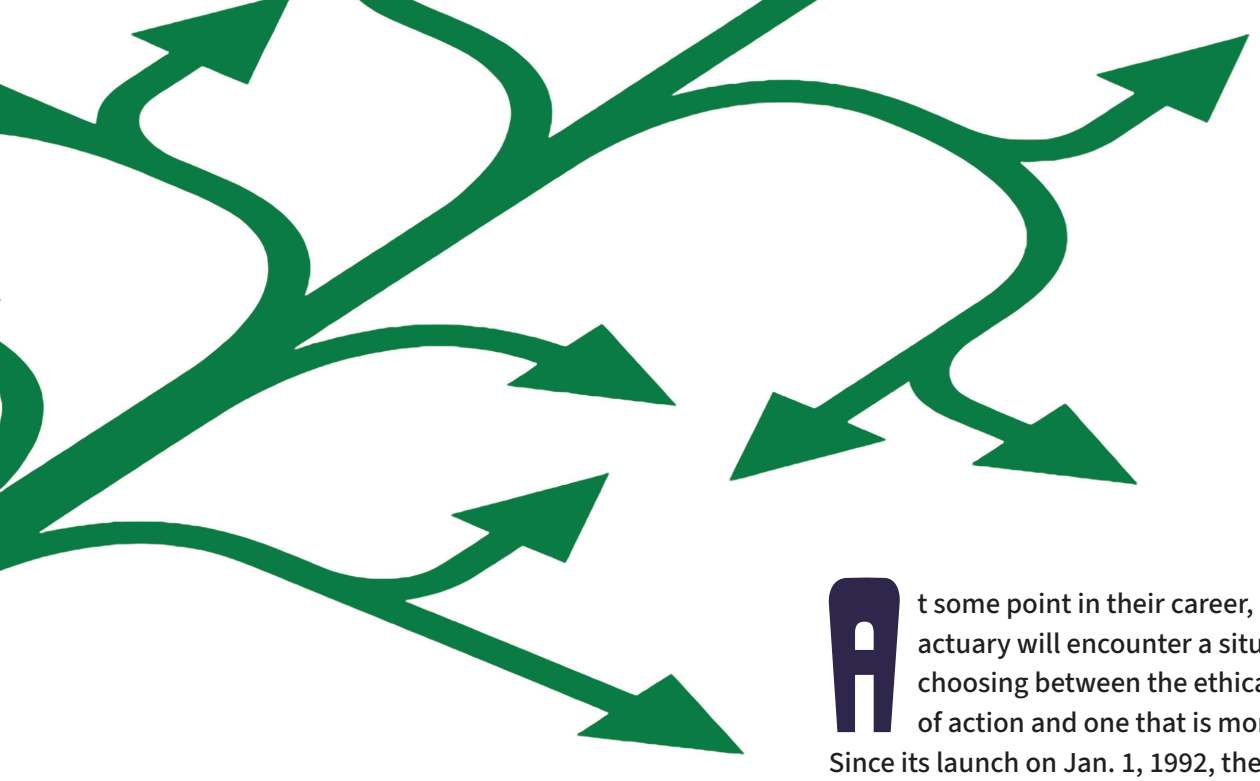
Endnotes

1. Wildsmith, Thomas. *The Academy and the Web of Professionalism—Key Elements of the Professionalism Infrastructure of the U.S. Actuarial Profession*, p. 4.
2. Wildsmith, p. 5.
3. Awarded the Jarvis Farley Service Award in 2001 for these efforts. The Academy's largest conference room bears his name.
4. Code memorandum.
5. Wildsmith, p. 7.
6. Ibid.



Tales from the Dark Side

What Would You Do?



Five hypothetical case studies from the Actuarial Board for Counseling and Discipline illustrate the professionalism challenges actuaries may face in the workplace—and how to respond.



At some point in their career, nearly every actuary will encounter a situation that requires choosing between the ethically correct course of action and one that is more convenient. Since its launch on Jan. 1, 1992, the Academy's Actuarial Board for Counseling and Discipline (ABCD) has served as the profession's primary resource for addressing questions of professional conduct and ethics. Its responsibilities include considering and investigating complaints about potential violations of the Code of Professional Conduct; providing confidential guidance to actuaries facing ethical dilemmas; recommending disciplinary action when warranted; and mediating disputes involving professional conduct.

Demand for that guidance, which is provided confidentially by ABCD members, has grown substantially. In 1993, the ABCD received just eight requests for guidance (RFGs). By 2024, that number had climbed to 96.

This article is based on the five hypothetical case studies featured in the ABCD's 2025 webinar, Tales from the Dark Side. Although fictional, the scenarios reflect the kinds of ethical and professionalism challenges actuaries may encounter in practice. Each case poses the same question: If you were in that actuary's shoes, what would you do?

STOCK.ADOBE.COM / STOKKETE / BONOTOM STUDIO, INC.

Case 1: The Reserve Report & the Disappearing Autonomy

The situation: Judy is a newly credentialed FSA and the sole actuary at Harmony Health Insurance Co. Because she lacks the experience to serve as appointed actuary, the company has engaged a consulting actuary to review and certify the reserves. Harmony recently acquired a smaller carrier to expand its product line, and Judy's boss, Sam—a sales executive with no actuarial background—asks her to produce a reserve calculation broken out by product line. He wants to show the board how each product contributes to profitability.

When Judy's numbers don't tell the story Sam was hoping for, he announces his decision to shift reserves between product lines so that every line looks profitable. He believes that the effect will be negligible because it won't change total reserves or affect statutory financial statements. But Judy is aware that the board could make resource-allocation decisions based on this report, so she contacts the ABCD for guidance.

Professionalism considerations: What should Judy do?

Precept 1 requires actuaries to act honestly and with integrity and competence. Annotation 1-4 prohibits any professional conduct involving dishonesty, fraud, deceit, or misrepresentation or acts that reflect adversely on the actuarial profession. Precept 3 requires the actuary to ensure that his or her actuarial services satisfy applicable standards of practice. And Precept 8 calls on the actuary who performs actuarial services to take reasonable steps to ensure those services are not used to mislead other parties; Annotation 8-1 calls on the actuary to take reasonable steps to present actuarial communication clearly and limit its improper use.

To meet her obligations under the Code, Judy could take the following actions:

- Indicate in the introduction to her report that the purpose of the reserve calculation was to determine the contribution to the company's profitability of each product line;
- Include the methods, procedures, assumptions, and data she used clearly enough that an actuary in the same practice area could objectively appraise the reasonableness of her work;
- Indicate that any mention of the report's findings must also reference the availability of the full report.

Demand for guidance, which is provided confidentially by ABCD members, has grown substantially. In 1993, the ABCD received just eight requests for guidance (RFGs). By 2024, that number had climbed to 96.

It might also be helpful for Judy to explain to Sam that she is required to adhere to professional standards—including taking steps to prevent her work being used inappropriately—to maintain her credentials. And she could consider reaching out to the consulting actuary to support her position. The consulting actuary might also raise additional concerns later if it appears that Sam's report to the board is inconsistent with the statutory filings.

Case 2: The Software Switch & the Problem with 'Good Enough'

The situation: Mary is an FSA and enrolled actuary with a decade of experience performing client relationship management, benefit calculations, and annual valuations for nonqualified retirement programs. Her team has long used Bullseye, an established pension valuation system. Management wants to migrate to DoubleRing, a newer package that comes bundled with software the firm already owns—at no additional cost.

ASOP No. 56, *Modeling*, section 3.2 states that, when communicating a model's results, the actuary should understand its important aspects; the weaknesses of its assumptions, methods, and other limitations that have material implications; and data and time constraints or other practical considerations that could materially affect the model's ability to meet its intended purpose. In addition, section 3.4 requires an actuary who relies on a model designed by others to disclose the extent of reliance on it and attempt to

More Tales from the Dark Side

The Academy will host its popular ABCD webinar, Tales from the Dark Side, on Dec. 18, 2026. Speakers will present examples of ethical problems based on cases and requests for guidance that have been brought before the ABCD. For more information, visit actuary.org.

understand the model's original intended purpose, operation, major sensitivities and dependencies, and its key strengths and limitations.

To help her understand how the new software works and its limitations, Mary runs parallel calculations, and the results concern her. She finds that DoubleRing's valuations are consistently 3% to 6% higher than Bullseye's across her client base. After reviewing sample lives, she traces the discrepancy to a shortcut in how DoubleRing derives annuity factors. Mary raises her concerns with management, which suggests a compromise: She should use DoubleRing only for smaller plans, where the dollar impact of any error is presumably lower.

Professionalism considerations: What should Mary do?

The ABCD identified two potential steps Mary could take. She could continue serving her small-plan clients but clearly disclose the model's known limitations and provide a quantitative estimate of its impact on the results. Or she could perform the valuations using alternative tools, even if the process is more time-consuming.

Each approach is consistent with established guidance: Precept 1 states, "An actuary shall perform actuarial services with skill and care." And the discussion of materiality in ASOP No. 1, *Introductory Standard of Practice*, requires the actuary to "consider the purpose of the actuary's work and how … it will be used by intended users." Precept 8 calls on the actuary to "take reasonable steps to ensure that [their actuarial] services are not used to mislead other parties." Finally, ASOP No. 56, *Modeling*, section 4.1(d) requires disclosure of a model's weaknesses.

Requests for Guidance

Actuaries can request confidential guidance from the ABCD when they:

- Need guidance on an actuarial matter that may affect their obligations under the Code of Professional Conduct.
- Seek confidential advice from an individual ABCD member on appropriate professional practice.

Send your request to guidance@abcdboard.org.

Case 3: The Opposing Expert & the Question of When to Act

The situation: Mona Lisa Vito, MAAA, ACAS, is serving as an expert witness for a plaintiff policyholder in a contentious federal insurance lawsuit. Before being retained, she signed a nondisclosure agreement. The defendant's expert is Kim Wexler, MAAA, ACAS. In reviewing Kim's expert report, Mona Lisa concludes that it violates ASOP No. 23, *Data Quality*, and materially violates Precepts 1, 3, and 8 of the Code. The judge has issued a gag order. Trial is a year away.

Two questions arise: Does Precept 13 require Mona Lisa to contact Kim immediately over the perceived violations? And does this guidance require her to file a complaint with the ABCD?



STOCK.ADOBE.COM / STOKKETE

Actuarial Standards

The U.S. actuarial profession has established standards of conduct, qualification, and practice, which are housed, maintained, and promulgated by the Academy.

1. The Code of Professional Conduct identifies actuaries' ethical responsibilities to the public, to clients and employers, and to the actuarial profession.
2. The U.S. Qualification Standards specify requirements for basic education, experience, and continuing education that must be met by actuaries issuing statements of actuarial opinion (SAOs).
3. Actuarial Standards of Practice (ASOPs) provide a framework for performing professional assignments and offer guidance on recommended practices, documentation, and disclosure.

The actuarial profession's three sets of standards don't operate in isolation—they work together to uphold professionalism. That relationship is reflected in the Code, whose stated purpose is "to require actuaries to adhere to the high standards of conduct, practice, and qualifications of the actuarial profession, thereby supporting the actuarial profession in fulfilling its responsibility to the public." The Code also requires actuaries to comply with applicable standards of practice and qualification standards. The ABCD request for guidance process helps actuaries stay on the right side of these standards.

Professionalism considerations: What should Mona Lisa do?

Precept 13 says an actuary with knowledge of another actuary's apparent, unresolved, material violation of the Code "should consider" discussing the situation with the other actuary but is not required to do so.

To address the second question: If Mona Lisa does not attempt to discuss the matter with Kim, or that discussion is unsuccessful, Precept 13's second sentence applies: She "shall" disclose the violation to the ABCD. But the precept also mentions two caveats. Disclosure is not required if it would (1) be contrary to law or (2) divulge confidential information. It is possible that the judge's gag order and the NDA Mona Lisa signed could make it inadvisable for her to share the matter with the ABCD. Both caveats warrant careful legal analysis.

In short, Mona Lisa is not required to act immediately, and the gag order may delay her obligations further. But when the legal proceedings conclude and those constraints lift, the mandatory disclosure obligation under Precept 13 will likely apply—unless the violation has been otherwise resolved.

Case 4: The Resolved Violation & What 'Resolution' Actually Means

The situation: Charles is an FSA hired by Ajax Life and Health Insurance Co. to conduct an independent reserve analysis as part of a company reorganization. As he digs in, he becomes concerned that the previous appointed actuary, Susan, succumbed to management's pressure when developing reserves. By the time Charles completes his work, Susan has been transferred to another department and most senior management has been replaced.

Charles speaks with Susan directly about the issue. She acknowledges that some reserves were probably too low, reflecting optimistic assumptions the company expected would hold. Charles and the new management have since strengthened the reserve position. But Charles is still wrestling with a nagging question: Under Precept 13, which requires reporting of unresolved Code violations, does he need to report Susan? And what does it mean for something to be "resolved" when what occurred in the past cannot be changed?

Professionalism considerations: What should Charles do?

Whether an apparent violation has been resolved depends on the facts, circumstances, and the actuary's professional judgment.

Susan's acknowledgment that the reserves were probably too low is meaningful, but not automatically sufficient. The relevant question for Charles is whether he has reason to believe the underlying problem has genuinely been addressed—not just the numbers, but Susan's understanding of where her professional obligations lie. If Charles comes away from their conversation confident that Susan now recognizes that yielding to management pressure on reserve assumptions was inappropriate, and that she will not allow that pattern to repeat, he may reasonably conclude the matter is resolved. And he has ensured that the reserves were strengthened, addressing the material concern.

If, on the other hand, Susan's attitude suggests that she views the prior approach as defensible and may repeat it under similar circumstances, Charles faces a harder call. Resolution in the Precept 13 context involves not merely correcting past numbers



The ABCD's guidance function is a rare, if not unique, resource, serving as a standing reminder that the profession takes professionalism seriously—and that actuaries are expected to do so as well.

but a reasonable expectation that the inappropriate behavior will not recur. Charles is not required to file a complaint if he genuinely believes the cause and effects of the violation have been resolved, but his decision must be based on the pertinent facts and circumstances of the case and his professional judgment.

Case 5: The Actuary-Turned-Advocate

The situation: Jim is an MAAA and FSA who has spent his career as a health actuary. Recent developments in health care policy have motivated him to get more involved. He wants to create a website advocating for changes to the health care system, potentially displaying his actuarial credentials, and he may decide to run for office to address the issues he cares about. He wonders whether these activities are subject to the Code or ASOPs.

Professionalism considerations: What should Jim do?

According to the Code, actuarial services are defined as professional services provided to a principal—a client or employer—by an individual acting in the capacity of an actuary. Jim's website advocacy, which is directed at the public, not issued to or on behalf of a client or employer, does not fit that definition. He is not performing actuarial services in the technical sense, and therefore, the ASOPs do not apply.

However, Annotation 1-4 prohibits professional conduct that involves dishonesty, fraud, deceit, or misrepresentation, or any act—professional or otherwise—that reflects adversely on the actuarial profession. In short, Jim should ensure that his advocacy is accurate and responsible. If he intends to use his actuarial credentials on the website to establish subject-matter authority, Precept 12 states that designations of a recognized actuarial organization may be used only in the manner authorized by that organization. Thus, he cannot use his FSA or MAAA to imply that his policy positions carry the profession's endorsement.

Jim also would be wise to explicitly state that he is not issuing a statement of actuarial opinion in his advocacy role and that the views he states are personal, not a formal actuarial analysis or conclusion.

The Bigger Picture

The five scenarios above cover a range of situations—from reserve manipulation to software shortcuts to expert witness conflicts—but they share a common thread. In each case, the actuary faces a difficult choice.

The Code exists precisely because professional obligations are sometimes difficult to honor. The ABCD's guidance function is a rare, if not unique, resource, serving as a standing reminder that the profession takes professionalism seriously—and that actuaries are expected to do so as well.

Actuaries who find themselves in uncertain territory are encouraged to submit a request for guidance and use the ABCD as a confidential, professional resource.

STOCK.ADOBE.COM / STOKKETE

Adapting to an Aging World

BY XINYI (CINDY) HU

ON A RECENT TRIP BACK TO CHINA, I noticed something that seemed minor at first glance but hinted at a much larger story: empty kindergartens. Some were quiet; others appeared underused, as if built for a future that had already been revised downward.

For actuaries, that is not just a social observation. It is a leading indicator.

Low birth rates first show up in maternity wards, then daycare centers, then kindergartens. A few years later, the pressure reaches K–12 schools. Then universities. Then employers. Eventually, it reaches pension systems, health care, long-term care, public finance, and the assumptions sitting inside models that were designed for a very different age structure.

For decades, governments have tended to treat low fertility as a trend to reverse[1], largely because a shrinking future workforce can strain pay-as-you-go retirement systems, reduce economic dynamism, intensify fiscal pressure, and change the social contract between generations. But the evidence increasingly suggests that higher birth rates may be much harder to engineer than policymakers hope.[2]

It may be time to borrow a concept from another global risk: climate adaptation. Climate policy has not abandoned mitigation. But as the odds of avoiding significant warming have narrowed, the world has increasingly accepted that reducing emissions must be paired with adaptation[3]: sea walls, heat-resilient cities, drought planning, insurance redesign, and climate-resilient infrastructure. According to United Nations Environment Programme's *2025 Emissions Gap Report*, current pledges still leave the world on course for roughly 2.3°C to 2.5°C of warming this century, while current policies point toward as much as 2.8°C. The report also says that exceeding 1.5°C is very likely within the next decade.[4]

Demographics deserve a similar shift in mindset. Pro-natal policy can still have a role. But aging societies should no longer be treated as a temporary deviation from a normal path. In many countries, aging is the path.

The Limits of Buying Births

Around the world, governments are trying to make parenthood more affordable through policies such as child care subsidies, child benefits, paid parental leave, and direct support for childbirth and child-rearing.[5] These policies are valuable. They reduce hardship, recognize caregiving's economic contribution, and may help families who already want children have them sooner or reach their intended family size.[6]

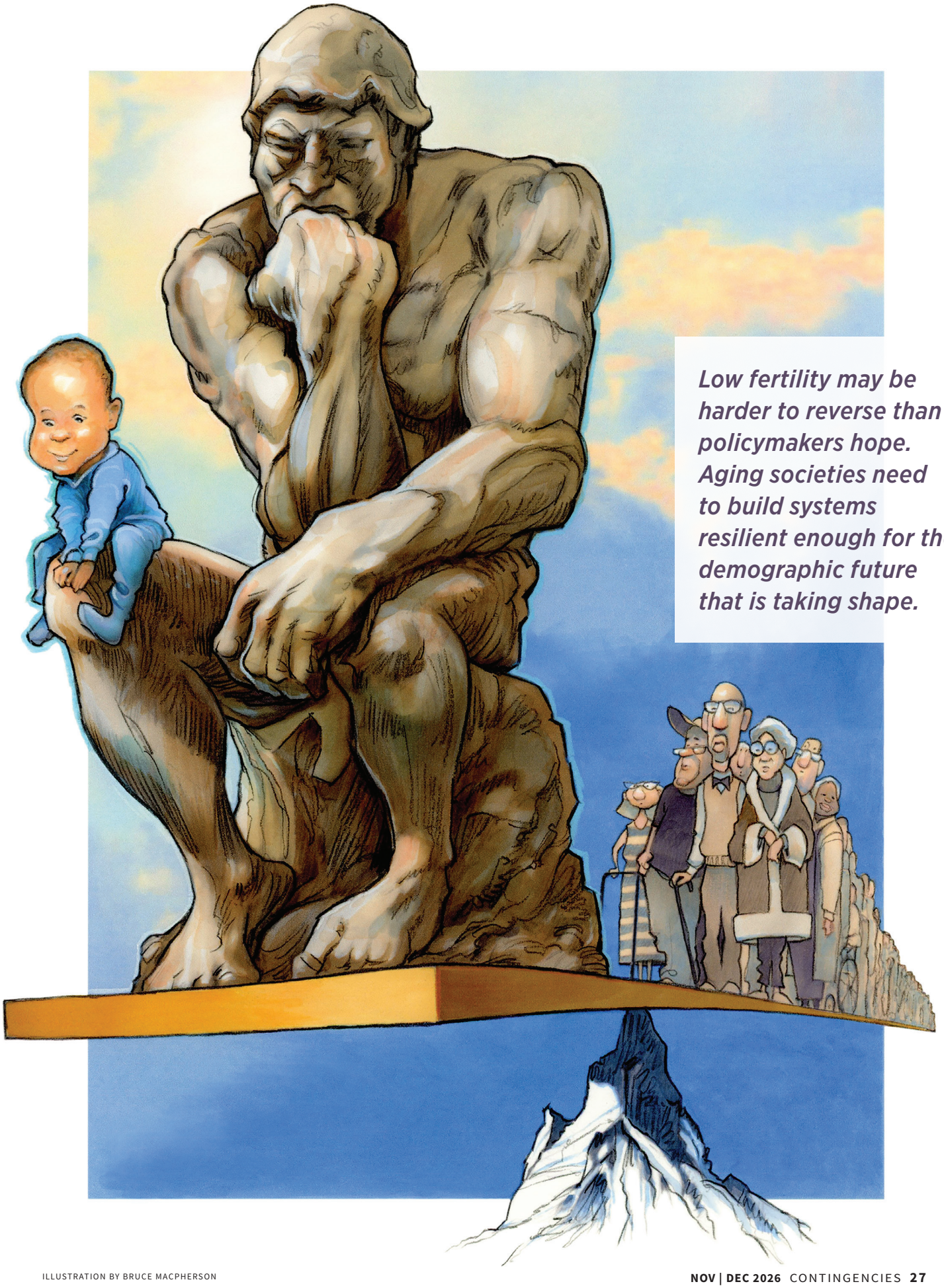
But the more important public policy question is this: Can these incentives raise fertility enough to change the demographic trajectory?

The answer is far from clear.

Hungary offers one of the clearest tests of whether generous pro-natalist policy can reverse demographic decline.[7] Over the past decade, the government has introduced an expansive package of family supports, including tax exemptions, subsidized loans, housing assistance, and other benefits aimed at encouraging larger families.[8] Yet after earlier gains, Hungary's fertility rate fell again in 2024, to roughly 1.38 children per woman, down from 1.51 in 2023, according to Hungary's statistical data and demographic analysis.[9] The reversal is important because Hungary is often cited as one of the world's most ambitious experiments in financial pro-natalism. If such an extensive package struggles to produce a durable rebound, it raises doubts about whether less generous programs elsewhere can meaningfully change long-term fertility.

Such programs may help many households. But a benefit that supports families is not the same as a benefit that reverses national fertility decline.

One reason is that cash incentives often reach families who were likely to have children anyway.[10] These policies may shift the timing of births, ease some of the direct costs of raising



Low fertility may be harder to reverse than policymakers hope. Aging societies need to build systems resilient enough for the demographic future that is taking shape.

ILLUSTRATION BY BRUCE MACPHERSON

children, or encourage second and third births at the margin.[11] Those are meaningful outcomes. Yet they are not necessarily enough to push fertility back toward replacement level, especially when the underlying reasons for remaining childless or having fewer children are not purely financial.

Pew Research Center's 2024 survey of U.S. adults without children illustrates the point.[12] Among adults under 50 who do not have children and say they are unlikely to ever have them, 57% said a major reason is that they simply do not want children. Other leading reasons included wanting to focus on other things, concerns about the state of the world, and affordability. Affordability matters—but it ranked behind several reasons that are far more difficult for policymakers to influence.

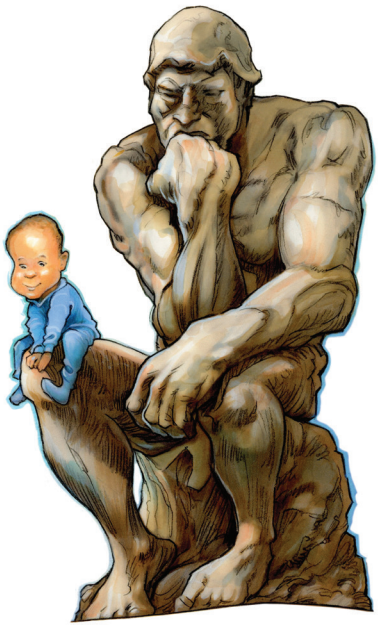
None of this means economics is irrelevant. Housing, child care, job insecurity, health care costs, and work-life balance all shape family decisions. A society that makes parenting easier may be more effective than one that simply offers cash transfers.[13] But even generous support runs up against a deeper reality: Parenthood is increasingly viewed as a personal choice, rather than a default life stage.[14]

That is a profound cultural shift. It cannot be reversed by a tax credit alone.

The Trend Is No Longer Limited to Developed Countries

Low fertility was once discussed mainly as a problem of rich countries: Japan, Italy, Germany, South Korea. That framing is now outdated.

India, long associated with concerns about overpopulation, has seen fertility fall to roughly two children per woman, with UNFPA India emphasizing the country's sharp decline from nearly five children per woman in 1970 to about two today.[15] China, once the world's most



A demographic adaptation agenda would not mean giving up on families. Quite the opposite. It would mean reframing family policy to support choice, opportunity, and dignity rather than treating every birth as a unit of national production.

populous country, is now shrinking. Reuters reported that China's population fell for a fourth consecutive year in 2025, as births dropped to 7.92 million and fertility remained among the world's lowest, at around one birth per woman.[16] South Korea shows how far the trend can go. Its fertility rate rose from 0.75 in 2024 to 0.80 in 2025, but that still leaves it far below replacement and among the lowest in the world.[17]

The United States is somewhat different because immigration has helped sustain population growth despite below-replacement fertility. The U.S. Census Bureau reported that net international migration accounted for 84% of U.S. population growth between 2023 and 2024, accounting for 2.8 million of the nation's total population increase of 3.3 million.[18] But immigration cannot be a universal solution. If many countries plan to import younger workers to offset aging, the obvious question is: Where will they come from?

As far as I know, we are not receiving immigrants from other planets.

Jokes aside, the global picture is one of widespread fertility decline. Pew Research Center, summarizing UN data, notes that fertility rates have declined in every world region since 1950, and that Asia, Latin America and the Caribbean, Northern America, and Europe are already below replacement level.[19]

Some theories suggest fertility may rebound at very high levels of human development.[20] That remains possible in some places. But the world's richest societies do not yet provide much evidence that prosperity alone restores replacement-level fertility. Across the OECD, fertility averaged only 1.5 children per woman in 2022, well below replacement level, and Israel was the only OECD country above replacement fertility.[21]

From Reversal to Resilience

A demographic adaptation agenda would not mean giving up on families. Quite the opposite. It would mean reframing family policy to support choice, opportunity, and dignity rather than treating every birth as a unit of national production.

Paid leave, child care, maternal health care, fertility treatment access, flexible work, and housing affordability are worth pursuing because they improve people's lives and make it easier for those who want children to have them under healthier, more secure, and more supportive conditions.[22] They may raise fertility somewhat. But they should not be the only pillar of demographic strategy.

The larger task is to redesign institutions for an older age structure.

That begins with pension reform. Many retirement systems were built for eras with more workers per retiree, shorter

retirements, and faster labor-force growth.[23] Those assumptions are weakening, and rapidly aging populations are expected to continue putting pressure on pension systems.[24] Policymakers will need to consider automatic stabilizers, later and more flexible retirement ages, better coverage for nontraditional workers, and benefit formulas that are sustainable across generations.

It also means keeping older adults in the workforce longer—but not simply by asking them to work longer. Longer working lives require age-friendly workplaces, retraining, ergonomic design, phased retirement, enforcement of age-discrimination laws, and health systems that preserve functional capacity rather than merely treating illness after it appears.[25]

Health care and long-term care may be the most urgent adaptation frontier. Aging societies will need more caregivers, more home- and community-based care, better dementia planning, improved chronic disease management, and financing models that recognize long-term care as a predictable social risk.[26] This is an area where actuarial expertise is especially important: the liabilities are long-duration, correlated, politically sensitive, and highly exposed to morbidity trends.

Cities and housing will also need to change. An aging society needs more accessible housing, safer sidewalks, reliable public transportation, mixed-use neighborhoods, and designs that reduce isolation.[27] Many countries built suburbs for young families with cars. Today, they need communities that work for older adults living alone, older couples, multigenerational households, and caregivers moving between work and family obligations.

Technology will matter, but it should not be treated as magic. China offers one example: As its workforce ages, Beijing is investing heavily in AI and robotics, including plans to use robots in sectors facing labor shortages and to expand industrial automation.[28] Automation, artificial intelligence, robotics, and productivity-enhancing tools can help societies cope with fewer young workers by raising output per worker and supporting overstretched sectors.[29] But productivity gains do not distribute themselves evenly[30], and technology cannot replace every human function. This is especially true in care work, where trust, judgment, emotional presence, and intimate knowledge of individual needs remain central.[31]

Immigration should remain part of the toolkit, particularly for countries able to integrate newcomers successfully and ethically. The United States is a useful example: Despite recurring political backlash, it has historically been unusually successful at absorbing immigrants and their children into its economy, schools, and civic life.[32] Recent U.S. policy, however, has moved in a more restrictionist direction, with the Trump administration expanding immigration enforcement, limiting asylum access, and threatening action against local officials who resist federal immigration measures.[33]

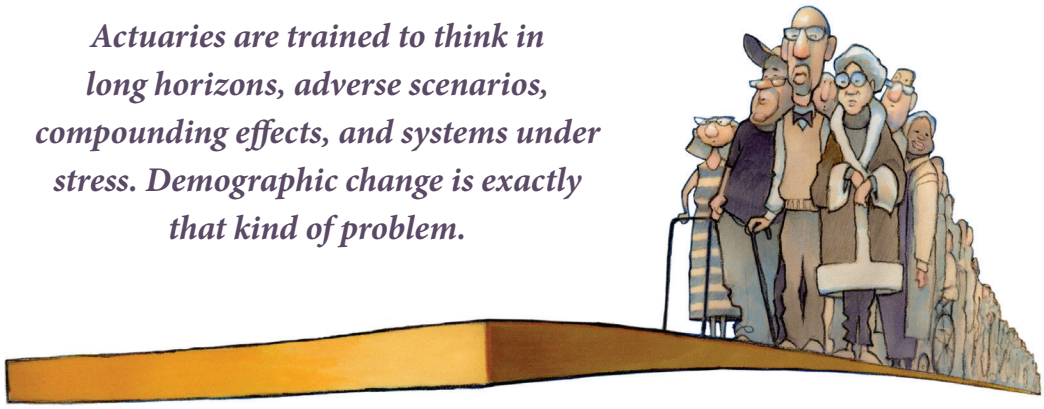
That tension illustrates why migration policy must be strategic rather than merely reactive. Immigration can help aging societies buy time by adding workers and slowing population decline, but it also intersects with housing, education, labor markets, credential recognition, and social cohesion.[34] And because fertility decline is becoming more widespread globally, migration cannot by itself solve aging; it can ease demographic pressure in receiving countries, but it must be paired with broader reforms in work, care, housing, productivity, and integration policy.[35]

Finally, demographic adaptation must include intergenerational fairness.[36] Younger workers cannot be expected indefinitely to finance promises made under outdated demographic assumptions. Older adults cannot be treated as a burden after contributing for decades. Families with children should be supported without stigmatizing those without children. And people without children will still need care networks, financial security, and social belonging in old age.

An Actuarial Problem Hiding in Plain Sight

Actuaries are trained to think in long horizons, adverse scenarios, compounding effects, and systems under stress. Demographic change is exactly that kind of problem. The risk is not that one

Actuaries are trained to think in long horizons, adverse scenarios, compounding effects, and systems under stress. Demographic change is exactly that kind of problem.



year's fertility rate disappoints. The risk is that institutions continue to price, fund, and govern themselves as if the traditional population pyramid will reappear on its own.

Aging is not a shock in the conventional sense. It is slow, visible, and measurable. That makes inaction harder to excuse. We can see the kindergarten closures before the university consolidations. We can see the smaller incoming labor cohorts before the pension strain peaks. We can see the future dependency ratios long before they arrive.

Climate adaptation teaches a useful lesson: mitigation and adaptation are not opposites. They are complements. Likewise, supporting families and adapting to aging should not be opposing camps. Governments can help people have the children they want while also preparing for a future in which fertility remains low.

The uncomfortable truth is that a population rebound may not arrive on schedule. Some countries may experience modest recoveries. Some policies may work better than expected. Cultural norms may shift again. But hope is not a funding strategy, and optimism is not a demographic model.

An aging society is not necessarily a failing society. It can be healthy, productive, innovative, and fair. But it will not become those things automatically.

The next stage of demographic policy should start with a simple premise: Low fertility may be partially responsive to policy, but aging is already here. The task is not only to ask how many children might be born tomorrow. It is to build systems capable of serving the people who are alive today—and the smaller generations already moving through the pipeline.

In other words, it is time to move from demographic reversal to demographic resilience.

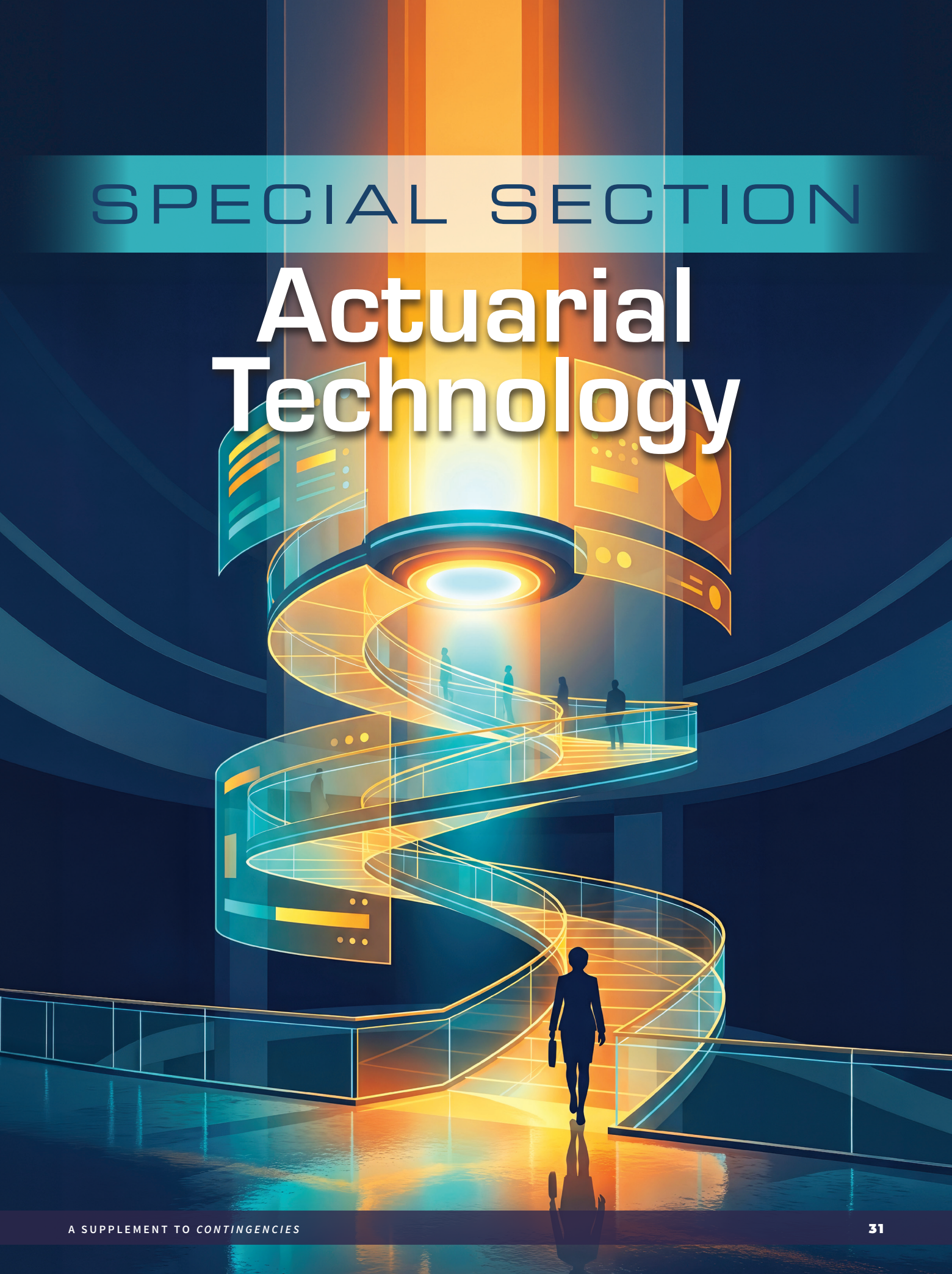
XINYI (CINDY) HU, MAAA, ASA, is an actuarial associate at Mutual of Omaha specializing in Medicare Supplement and Group Insurance. She can be reached at xinyihu68@gmail.com.

Endnotes

1. "World Population Policies 2021: Policies Related to Fertility"; United Nations Department of Economic and Social Affairs, Population Division; 2021.
2. "Why Paying Women to Have More Babies Won't Work"; *The Economist*; May 23, 2024.
3. "Climate Change 2023: Synthesis Report"; Intergovernmental Panel on Climate Change; 2023.
4. "Emissions Gap Report 2025: Off Target—Continued Collective Inaction Puts Global Temperature Goal at Risk"; United Nations Environment Programme; 2025.
5. "Society at a Glance 2024: OECD Social Indicators"; OECD Publishing; 2024.
6. Ibid.
7. "Viktor Orbán's Pro-Natalist Policies Are Not Working"; *The Economist*; March 19, 2026.
8. "Vital Events, December 2024"; Hungarian Central Statistical Office; Jan. 31, 2025.
9. Ibid.
10. "Policy Responses to Low Fertility: How Effective Are They?"; United Nations Population Fund; 2019.
11. Ibid.
12. "The Experiences of U.S. Adults Who Don't Have Children"; Pew Research Center; July 25, 2024.
13. "Can Policies Stall the Fertility Fall? A Systematic Review of the (Quasi-)Experimental Literature"; *Population and Development Review*; 2021.
14. "The Experiences of U.S. Adults Who Don't Have Children"; Pew Research Center; July 25, 2024.
15. "UNFPA India Press Release | State of World Population Report 2025"; United Nations Population Fund India; June 10, 2025.
16. "China's Population Drops for Fourth Year as Fewer Babies Born"; Reuters; Jan. 18, 2026.
17. "South Korea's Birthrate, the World's Lowest, Rises Again Amid Signs of Easing Demographic Crisis"; Reuters; Feb. 24, 2026.
18. "Net International Migration Drives Highest U.S. Population Growth in Decades"; U.S. Census Bureau; Dec. 19, 2024.
19. "5 Facts About Global Fertility Trends"; Pew Research Center; Aug. 15, 2025.
20. "Advances in Development Reverse Fertility Declines"; *Nature*; 2009.
21. "Society at a Glance 2024: OECD Social Indicators"; OECD Publishing; 2024.
22. "The Real Fertility Crisis: The Pursuit of Reproductive Agency in a Changing World"; United Nations Population Fund; 2025.
23. "Pensions at a Glance 2025: OECD and G20 Indicators"; OECD Publishing; 2025.
24. "Rapidly Ageing Populations Will Continue to Put Pressure on Pension Systems"; OECD; Nov. 27, 2025.
25. "OECD Employment Outlook 2025: Can We Get Through the Demographic Crunch?"; OECD Publishing; 2025.
26. "Ageing and Long-Term Care"; OECD.
27. "Global Age-Friendly Cities: A Guide"; World Health Organization; 2007.
28. "China's New Five-Year Plan Calls for AI Throughout Its Economy, Tech Breakthroughs"; Reuters; March 4, 2026.
29. "G20 Background Note on the Implications of Aging and Migration on Growth and Productivity"; International Monetary Fund; July 2025.
30. "The Impact of Artificial Intelligence on Productivity, Distribution and Growth: Key Mechanisms, Initial Evidence and Policy Challenges"; OECD Publishing; 2024.
31. "What Are the Most Pressing Challenges and Significant Opportunities in the Use of Artificial Intelligence to Provide Physical and Emotional Care to People in Need?"; Stanford University, One Hundred Year Study on Artificial Intelligence; 2021.
32. "The Integration of Immigrants into American Society"; National Academies Press; 2015.
33. "Trump Steps Up Immigration Crackdown, Warns City, State Officials Against Interference"; Reuters; Jan. 22, 2025.
34. "Indicators of Immigrant Integration 2023: Settling In"; OECD Publishing; 2023.
35. "The Fiscal Impact of Population Ageing: How Can We Afford Getting Older?"; OECD ECOSCOPE; Nov. 7, 2025.
36. "Setting the Scene: Demographic Change, Economic Growth and Intergenerational Inequalities"; In OECD Employment Outlook 2025: Can We Get Through the Demographic Crunch? OECD Publishing; 2025.

SPECIAL SECTION

Actuarial Technology





Agentic AI is moving into the workplace. Here's what actuaries need to know about working alongside a new kind of digital colleague..

Your Next Coworker May Not Be Human

BY BETH BAKER

Throughout history, technological shifts have transformed the way we work. Desktop computers replaced manual table lookups, spreadsheets automated complex calculations, and cloud computing enabled unprecedented access to data. With every major technological shift, innovations initially sparked skepticism before widespread adoption, ultimately enhancing rather than replacing the actuary's essential role. Today, we stand at another inflection point: the emergence of agentic artificial intelligence (AI).

While actuaries have long used statistical models and software tools and are gaining familiarity with generative AI, agentic AI represents something different. These systems are capable of autonomously pursuing goals, making decisions, and iteratively solving problems with minimal human intervention. The insurance industry continues to embrace this technology. According to PwC's "Insurance Executives Say Agentic AI Is Leading Industry Transformation," 57% of insurance executives prioritized both generative and agentic AI as top technology investments in 2026. Actuaries must prepare for significant changes in how we work.

What Is Agentic AI?

Agentic AI refers to artificial intelligence systems that autonomously pursue goals and make decisions without constant human direction. Their capabilities outpace traditional AI tools, which require explicit programming or prompting for each task, and surpass traditional automation, which relies on rigid rule-based algorithms. Agentic AI can plan, execute, and adapt its approach based on feedback and changing circumstances. Additionally, these systems respond to natural-language inputs, eliminating the need for users to code to make them function.

The key characteristics that define agentic AI include autonomy in decision-making, goal-oriented behavior that persists across multiple steps, and iterative problem-solving that learns from outcomes. Think of it as the difference between a calculator that performs operations when you press buttons and an assistant who understands your goal to analyze reserve adequacy. The calculator is a useful tool, but the assistant independently gathers data, runs scenarios, identifies anomalies, and presents findings, allowing you to focus on other priorities until its work is complete and ready for review.

These abilities represent a fundamental shift from assistive to autonomous AI. AI agents exist on a spectrum from augmentation (assistants that enhance productivity) to automation (handling single- or multistep workflows) to fully AI-native enterprises that weave intelligent systems throughout their operations. For actuaries, this means technology that doesn't just speed up existing processes; agentic AI can fundamentally reimagine workflows.

Agentic AI in Practice

To understand agentic AI's potential, consider applications across industries. Customer service agents now resolve complex issues end-to-end, both diagnosing problems and coordinating solutions across multiple systems. Research assistants autonomously gather information from diverse sources, synthesize findings, and produce analytical reports. Software

ISTOCK / PHENOMARTLOVER

development agents like Devin.ai write, test, and debug code with minimal human oversight.

In financial services, AI agents investigate market trends, identify anomalies, and generate detailed analysis reports. What makes these systems "agentic" isn't their sophistication alone but their ability to operate autonomously toward defined goals, making intermediate decisions and adapting strategies as needed.

From an actuarial perspective, agentic AI promises significant benefits across multiple dimensions of practice. Industry experts, including projections from McKinsey and others, indicate that insurers deploying AI agents in core functions such as claims processing could reduce processing time by as much as 70% to 80% for routine claims. Actuarial data preparation tasks that once took days can now be completed in hours through automated data extraction and validation.

Time Savings and Enhanced Focus

The most immediate benefit of agentic AI is operational efficiency and time reclamation. Gartner predicts that by 2029, 80% of common customer service issues will be handled autonomously by agentic AI. For actuaries, AI agents that handle routine tasks such as data extraction, report drafting, data visualization, and documentation free up an actuary's time to perform more complex tasks. Instead of spending hours compiling mortality rates, claims frequencies, and policy counts, actuaries receive clean, structured data ready for modeling. This shift allows us to focus on what truly requires actuarial judgment: evaluating assumptions, considering emerging risks, and providing strategic guidance.

Consider statutory filings, which traditionally require pulling data from multiple sources and formatting according to annually changing requirements. An AI agent can execute this process, apply current reporting rules, and flag items for actuarial review. What once took a team three weeks might now take three days, with actuaries spending time on exceptions rather than routine calculations.

Enhanced Accuracy and Pattern Recognition

Agentic AI systems excel at consistency and can identify patterns in massive datasets that might escape human notice. In claims analysis, AI agents can process thousands of first notices of loss, extract key data points, categorize severity, and flag unusual patterns for investigation. This enhanced pattern recognition can improve fraud detection, risk identification, risk segmentation, and underwriting functions, enabling more precise pricing and reduced adverse selection.



ISTOCK / PHENOMARTLOVER / BONOTOM STUDIO, INC.

Professional judgment about assumption appropriateness, consideration of emerging risks, ethical implications of pricing decisions, and communication with stakeholders all require distinctly human capabilities.

For pricing reviews requiring detailed experience studies across multiple dimensions, such as coverage type, geography, industry, and policy size, AI agents can break down data and perform preliminary analysis, allowing actuaries to focus on the interpretive work: Are the patterns we're seeing meaningful? Do our trend factors remain appropriate given market changes? Should we adjust our segmentation approach?

Understanding reinsurance programs requires reading treaty wordings, tracking cessions, and modeling various loss scenarios. AI agents such as Nomad Data's Doc Chat can extract treaty terms from agreements, identify coverage gaps or overlaps, and simulate how different loss patterns would impact net retention. This capability proves particularly valuable for complex programs with multiple layers and facultative placements, freeing actuaries to focus on strategic decisions about risk transfer and capital optimization.

The Critical Partnership: Human-in-the-Loop

Despite agentic AI's impressive capabilities, fields requiring professional judgment benefit from keeping humans in the loop to actively oversee, guide, and validate the system's decisions. Human oversight may be required to maintain regulatory compliance and public trust. As a comparison point, think of AI agents functioning like entry-level staff who facilitate processes while experienced actuaries maintain supervisory authority.

Human oversight operates at different levels depending on the task's risk and complexity. For routine data extraction and formatting, monitoring with periodic spot-checks may suffice. For pricing decisions or reserve analyses, human approval before implementation becomes critical. For complex strategic decisions involving multiple assumptions and significant financial impact, deep human involvement throughout the process remains essential.

The actuarial profession's fundamental responsibility—protecting the public interest through sound risk assessment—cannot be delegated to algorithms. Professional judgment about assumption appropriateness, consideration of emerging risks, ethical implications of pricing decisions, and communication with stakeholders all require distinctly human capabilities. AI agents should augment these capabilities, not replace them.

Building effective human-AI workflows requires clear delineation of responsibilities, robust feedback mechanisms, and continuous evaluation. Like managing human staff, this includes setting clear expectations, providing guidance on edge cases, reviewing outputs systematically, and adjusting the system based on performance. The most successful implementations treat AI agents as team members requiring onboarding, job descriptions, and ongoing development.

Essential Safeguards and Risk Management

The deployment of agentic AI in actuarial work demands rigorous safeguards. Recent Gartner research suggests that up to 40% of early agentic AI projects may be abandoned by 2027, often due to inadequate governance and risk management frameworks. Successful implementations require multiple layers of protection and direction, including governance, compliance, risk controls, technical safeguards, monitoring, auditing, and strategic implementation.

Model validation and output verification protocols must be established before deployment. This includes testing AI agents against known scenarios, comparing outputs to traditional methods, and establishing clear thresholds for acceptable performance. Due to their complexity, AI systems can become black boxes, preventing the transparency that's valuable in actuarial work. This tension demands enhanced validation procedures, not abandonment of technology.

Bias detection and fairness testing require particular attention. AI systems can inadvertently perpetuate or amplify biases present in training data, potentially leading to discriminatory outcomes in pricing or claims handling. Regular audits examining outcomes across demographic groups, geographic regions, and policy characteristics are essential. Industry observers were expecting regulatory scrutiny of AI fairness to intensify significantly this year.

Comprehensive audit trails and explainability requirements ensure accountability. Every AI agent decision should be traceable: what data was used, what logic was applied, what alternatives were considered. This documentation serves multiple purposes: regulatory compliance, error diagnosis, continuous improvement, and stakeholder communication. The European Union's AI Act and similar regulatory frameworks increasingly mandate such transparency.

Data security and privacy protections cannot be overlooked. AI agents often require access to sensitive information, and their autonomous nature creates new attack surfaces. Robust access controls, encryption, and monitoring for unusual activity are essential. The insurance industry has seen cyber threats specifically targeting AI systems, making this area of particular concern for 2026 and beyond.

Finally, clear error handling and fallback mechanisms must be designed upfront. What happens when an AI agent encounters unexpected situations? How are errors escalated? What manual processes can continue if AI systems fail? These considerations, while unglamorous, prove critical to maintaining operational resilience.

Why Actuaries Need to Be Aware Now

The pace of AI advancement demands immediate attention from actuaries. ChatGPT reached 100 million users within two months, outpacing the adoption curves of both the internet and personal computers. Within two years of ChatGPT's launch, generative AI achieved a 39.5% adoption rate, a milestone that took the internet a decade to reach. A Celent survey found that 22% of insurers expect to have agentic AI in production by the end of 2026, with many industry observers believing the actual number will be higher.

Early adopters will gain significant competitive advantages. Organizations implementing AI agents across actuarial functions may experience substantial improvements in analytical capacity, faster response to market changes, and enhanced ability to identify emerging risks. These advantages

compound over time as organizations refine their systems and build institutional knowledge around AI deployment.

Professional responsibilities and standards are evolving alongside this technology. Actuaries must understand AI capabilities and limitations to fulfill their professional obligations effectively. This includes being able to evaluate AI-generated analyses, understand when human judgment is essential, and communicate both the strengths and limitations of AI-augmented work to stakeholders.

Client and stakeholder expectations are shifting rapidly. As AI adoption accelerates across industries, clients will expect faster turnaround, more sophisticated analyses, and deeper insights. Organizations that leverage AI agents to meet these expectations while maintaining actuarial rigor will have significant advantages in client relationships and market positioning.

The regulatory landscape is changing as well. Regulators worldwide are developing frameworks for AI governance, with implications for transparency, fairness, and accountability. Actuaries familiar with these frameworks and experienced in implementing compliant AI systems will be valuable resources for their organizations.

Challenges and Considerations

Despite the compelling benefits, significant challenges accompany agentic AI adoption. The learning curve for actuaries and their organizations should not be underestimated. Understanding AI capabilities, limitations, and appropriate applications requires investment in education and training. Our professional organizations are responding actively: the Casualty Actuarial Society (CAS) offers programs such as the AI Fast Track On Demand; the Society of Actuaries (SOA) provides AI-focused courses, certificates, symposia, and bulletins; the American Academy of Actuaries (Academy) publishes professionalism guidance, develops public policy resources and comment letters, and hosts educational webinars through its AI, Data Science, and Analytics Committee; and the International Actuarial Association (IAA) advances global competency through its AI Task Force, educational resources, governance frameworks, and the recently launched website, aiforactuaries.org.

Integration with existing workflows and legacy systems presents practical difficulties. Many actuarial teams still rely on spreadsheets, proprietary databases, and aging policy administration systems. Connecting AI agents to these systems, ensuring data quality, and maintaining operational continuity during transition require careful planning and execution.

Cost considerations extend beyond software licensing. Successful AI implementation demands investment in computing and data infrastructure, technical expertise, change management, and ongoing monitoring and refinement. Organizations must evaluate whether these investments align with their strategic priorities and whether they have the resources to sustain long-term AI operations.

Governance and privacy regulations add complexity. Different jurisdictions impose varying requirements on AI use, particularly regarding personal data and algorithmic decision-making. Multinational insurers must navigate this patchwork of regulations while maintaining consistent operational standards. In the United States, regulations vary by state, creating additional complexity.

Managing stakeholder trust and transparency becomes more complex with AI systems. Explaining how AI agents contribute to actuarial conclusions, maintaining confidence in results, and addressing concerns about algorithmic bias or errors require thoughtful communication strategies. The actuarial profession's credibility depends on maintaining transparency about methods and limitations.

Perhaps most importantly, actuaries must maintain professional skepticism. AI agents can produce confident-sounding results that are nonetheless incorrect, the "hallucination" problem in generative AI. Critical evaluation of AI outputs, cross-checking against alternative methods, and questioning unexpected results remain essential actuarial skills.

The Future of the Actuarial Profession

The integration of agentic AI signals evolution, not obsolescence, for the actuarial profession. History provides reassurance: every technological revolution results in displacement, transformation, and new roles. Desktop computers didn't replace actuaries; they freed them from mechanical calculations to focus on more sophisticated analyses. Cloud computing didn't eliminate the profession; it enabled actuaries to work with larger datasets and more complex models.

Agentic AI will similarly expand the actuarial role rather than diminish it. As AI handles routine data processing and preliminary analyses, actuaries can dedicate more time to strategic thinking, complex risk assessment, ethical considerations, and stakeholder communication. The profession will shift toward higher-value activities requiring judgment, creativity, and deep domain expertise.

This evolution will require new skills. Actuaries of the future will need to understand AI capabilities and limitations, evaluate AI-generated analyses, design effective human-AI workflows,

communicate about AI systems to technical and nontechnical audiences, and navigate evolving regulatory frameworks around AI. Technical fluency with AI systems, while not requiring deep programming expertise, will become as fundamental as spreadsheet proficiency is today.

Yet the enduring value of actuarial expertise remains unchanged. AI cannot replicate professional judgment informed by years of experience, ethical reasoning about fairness and equity in insurance systems, ability to identify novel risks not captured in historical data, communication skills for explaining complex analyses to diverse audiences, and understanding of the broader business and regulatory context. These distinctly human capabilities will remain central to actuarial value.

Preparing for this AI-augmented future requires proactive engagement. Actuaries should seek opportunities to work with AI systems in low-risk environments, participate in professional education programs, contribute to developing best practices and ethical guidelines, advocate for responsible AI adoption within their organizations, and maintain the critical thinking skills that distinguish human judgment from algorithmic processing. For those in leadership roles, providing a clear adoption strategy, demonstrating the benefits of use cases, and offering a supportive skill development program will alleviate staff concerns about job loss.

An Opportunity to Lead

Agentic AI represents a transformative force in actuarial practice, offering unprecedented capabilities for data analysis, pattern recognition, and workflow automation. This technology promises substantial benefits: time savings through automation of routine tasks, enhanced accuracy and consistency, ability to analyze larger and more complex datasets, improved risk identification, and more time for strategic work and client interaction.



The actuarial profession stands at a unique vantage point. Our training in probability, statistics, and risk management positions us well to understand the capabilities and limitations of AI systems.

However, realizing these benefits requires careful attention to essential safeguards: robust validation protocols, bias detection and fairness testing, comprehensive audit trails, data security and privacy protections, and clear error handling mechanisms. The human-in-the-loop principle must remain central, ensuring that professional judgment guides AI deployment and that actuaries maintain ultimate accountability for their work.

Our role in this transition is essential: Embrace the possibilities, prepare for the future, and adapt our role accordingly. Begin exploring AI capabilities through pilot projects and professional education. Develop frameworks for evaluating AI systems and integrating them responsibly into actuarial workflows. Contribute to the profession's collective understanding of how to leverage AI while maintaining actuarial standards and ethics.

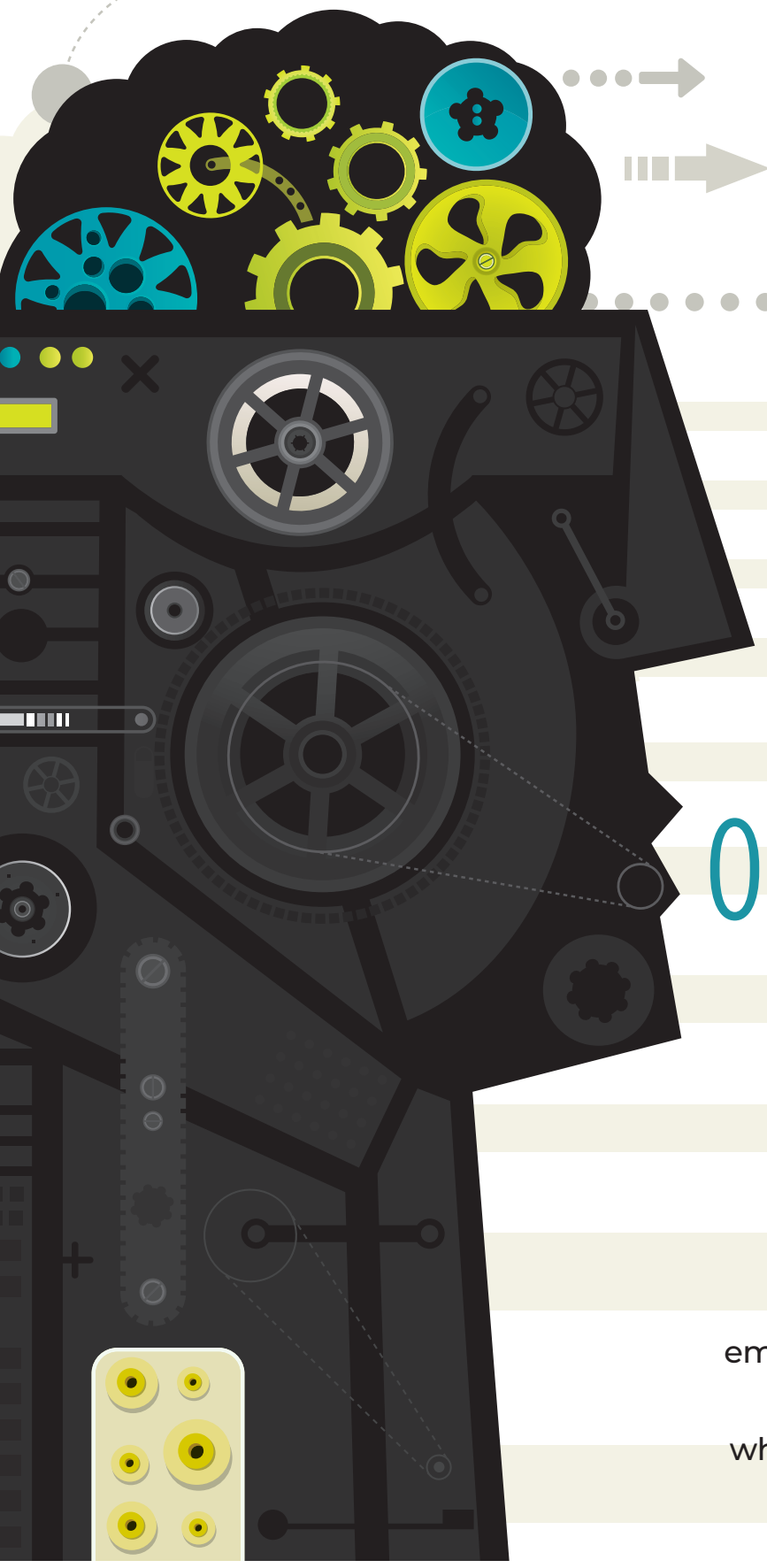
The actuarial profession stands at a unique vantage point. Our training in probability, statistics, and risk management positions us well to understand the capabilities and limitations of AI systems. Our professional standards emphasize transparency, fairness, and public protection, aligning naturally with principles of responsible AI adoption. Our experience navigating technological changes throughout history demonstrates our profession's adaptability.

Your next coworker may indeed not be human, but that colleague will work under your supervision, follow your guidance, and augment rather than replace your professional judgment. By engaging thoughtfully with agentic AI now, actuaries can shape its development, establish best practices for its use, and ensure it serves the profession's fundamental mission: protecting the public interest through sound risk assessment.

The opportunity to lead in the responsible adoption of AI is ours to seize.

BETH BAKER, MAAA, FSA, FCA, MBA, is founder and chief actuary of Naxara.

ISTOCK / PHENOMARTLOVER / BONOTOM STUDIO, INC.



Human Oversight of **Thinking Machines**

As AI becomes more deeply embedded in decision-making, organizations must rethink what effective governance and accountability require.



BY BASKAR SUNDARARAJAN AND SRIVATHSAN KARANAI MARGAN

ISTOCK / DRAFTER123

Editor's Note: Artificial intelligence is transforming decision-making and creating new oversight responsibilities. In Part 1 of this two-part series, the authors explain why human oversight has become essential, the regulatory frameworks shaping it, and what it means for business subject matter experts.

You can't fully grasp AI if you don't do at least a little coding yourself and take a closer look at the technical aspects; you also can't fully understand AI without closely examining the philosophical and ethical aspects.

—Murat Durmus

In recent years, discussion about artificial intelligence (AI)—especially its generative and agentic variants—has dominated conversations across every industry. Questions about how to use it, for what purpose, and to what effect have driven companies to experiment with the technology through pilots and deployments.

Generative and agentic AI systems have yet to overcome epistemic unreliability, loss of controllability, security vulnerabilities, and goal misalignment. These unresolved challenges can lead to extremely risky outcomes, and the opacity of AI decision-making limits interpretability and accountability, compelling regulators worldwide to mandate human oversight.

This article discusses what human oversight means and how it applies to business subject matter experts (SMEs) responsible for making day-to-day AI-driven decisions in the insurance industry.

Humans in AI Oversight

Three modes of human oversight are defined for AI-driven decision-making, namely human-in-the-loop (HITL), human-on-the-loop (HOTL), and human-in-command (HIC). The choice depends on the required level of oversight, decision rights, and risk ownership.

- **HITL:** The HITL model applies when a task is high-risk, low-volume, and irreversible, requiring nuanced judgment and accountability. HITL validates each decision, and no automated decision is implemented without explicit approval. The AI provides a recommendation or initial analysis, and the workflow proceeds only after human review and authorization. This model provides maximum control and is designed to catch errors before they take effect.

■ **HOTL:** The HOTL model applies where individual errors are reversible and not catastrophic, either because volume necessitates automation or because errors can be corrected afterward. Transactions are time-sensitive and high-volume, making per-transaction review impractical while making unguided automation too risky. The AI operates independently within preset thresholds, and humans monitor behavior and outcomes as supervisors, intervening when the AI encounters uncertainty, exceptions, or errors. Monitoring occurs in real time or through periodic review. This approach controls system behavior through intervention thresholds and catches errors during or after execution.
■ **HIC:** Unlike HITL and HOTL, which govern human involvement during decision execution, HIC operates as a governance-level control framework. HIC functions at a strategic level, establishing objectives, scope, constraints, and accountability arrangements that shape how an AI system is conceived, deployed, and controlled. Under this model, senior leaders, designated authorities, or formal committees retain responsibility for authorizing AI use, determining permitted purposes and contexts, setting limits on autonomy, and defining the conditions under which reliance on the system is acceptable. HIC also encompasses escalation pathways, role-based accountability, and the authority to suspend or withdraw AI systems when risk exceeds defined thresholds.

Beyond these three models, there is an outlier, human-out-of-the-loop (HOOTL) model that removes the human from the execution path entirely, allowing the system to operate autonomously. It is appropriate for low-risk, well-tested processes where errors are harmless and result in a retry rather than an escalation. The SME's role under HOOTL is confined to the system design stage and includes defining process boundaries, setting autonomous execution thresholds, and documenting the conditions under which human intervention is not required.

Existing literature on HITL, HOTL, and HIC focuses mostly on technically trained practitioners. In practice, however, AI system effectiveness depends on how business SMEs who manage customer requests and processes on the operational floor perform each oversight role.

Business SMEs in Oversight

A business SME holds deep knowledge of a specific domain, interprets business rules, evaluates outputs against real-world context, and exercises authority to approve, modify, or reject decisions for correctness, compliance, and operational relevance. In insurance, the SME may be an actuary, underwriter, claims adjudicator, fraud analyst, regulatory analyst, or customer service executive. Depending on the oversight model applied, SME involvement varies across the AI lifecycle phases, spanning development (design, data preparation, model training, and evaluation), deployment (contextualization and defining guardrails), and operation (monitoring, output validation, and feedback).

The rise of generative and agentic AI is closing the gap between business and technology, yet an SME rooted in business knowledge may find this capability gap increasingly difficult to manage. The practical requirement is to build a working familiarity with AI concepts and engage directly in selected technical activities. In the development phase, SMEs provide domain expertise to identify use cases, label training data or validate data quality, and define business rules that the model must respect. They validate models by testing edge cases and flagging violations of business or regulatory expectations. After deployment, SMEs review, supervise, or intervene in AI recommendations and actions depending on the risk profile and operational context.

In personal insurance lines, AI use cases span customer onboarding, data extraction, triage, risk assessment and scoring, underwriting, policy verification, coverage analysis, damage assessment, fraud detection, claims adjudication, settlement, and customer servicing. In commercial lines, the scope extends to account-level risk aggregation, loss review, manuscript policy generation, excess and surplus lines placement, project monitoring, and trade credit or surety bond evaluation.

HITL and HOTL are not mutually exclusive and often work together within a given process, with some steps requiring HITL and others better suited to HOTL. High-impact or less-validated use cases may begin with HITL, while lower-risk and tightly bounded ones may begin with HOTL. As predictability and accuracy improve, oversight may shift from HITL to HOTL and from HOTL to HOOTL.

Oversight in Practice

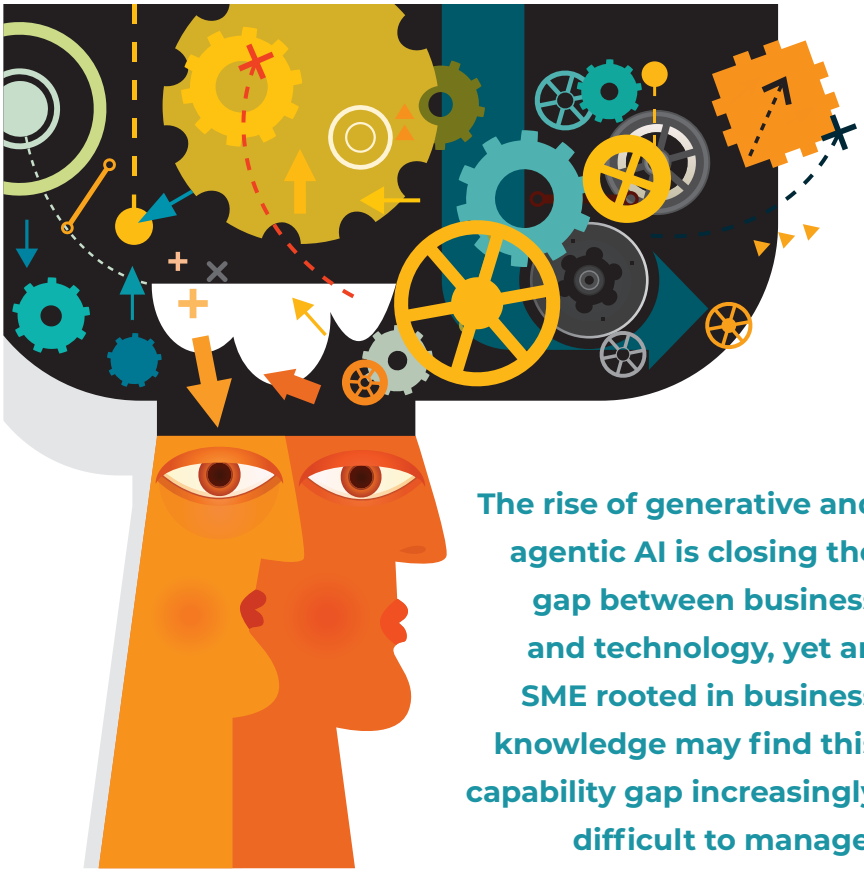
The oversight model determines SME engagement. Under HITL, the SME is a required gate, and no recommendation proceeds without explicit review and approval. Under HOTL, the SME operates as a supervisory control, intervening when defined thresholds are breached or performance indicators signal drift. The sections below describe how each oversight mode applies across insurance functions, with differences for commercial lines noted where exposure, contractual complexity, or regulatory requirements differ materially from personal lines.

Underwriting

In personal lines underwriting, the underwriter must validate and be accountable for every decision involving declinations, significant premium loadings, and policy exclusions. AI can suggest risk categories and decisions, but human validation is required to ensure

adherence to underwriting standards and regulatory requirements. The underwriter reviews edge cases, overrides anomalies, and applies judgment where data is insufficient. In commercial lines, HITL requirements are broader, with complex or large exposures, manuscript endorsements, and risks outside filed forms requiring underwriter sign-off before binding.

Under HOTL in personal lines, the underwriter monitors the submission queue for volume anomalies such as risk concentrations in emerging categories, new construction types, or geographic clusters affected by perils for which the model was not trained. These patterns may signal concept drift and require model recalibration. The underwriter also monitors the triage queue to assess how submissions are categorized and prioritized, and reviews cases outside standard parameters or above defined complexity thresholds. At a portfolio level, the underwriting manager monitors average risk scores by segment and deviations from expected loss ratios. In commercial lines, the underwriting manager additionally monitors line-of-business concentration limits, treaty reinsurance utilization rates, and submissions referred to specialist markets or declined.



The rise of generative and agentic AI is closing the gap between business and technology, yet an SME rooted in business knowledge may find this capability gap increasingly difficult to manage.

Claims

In personal lines claims, initial notifications of bodily injury, fatality, or high-severity loss require human contact. HITL applies when the claim involves coverage or benefit interpretation, assessment of loss or injury, or the applicability of policy constraints such as exclusions, riders, sub-limits, and caps. AI may make claims decisions only when the claim amount falls below a preset threshold and within defined confidence bands. Claims that breach those thresholds or fall outside those confidence bands escalate to HITL, as do disputes over loss assessments, benefit determinations, or settlement recommendations. In commercial lines, the HITL threshold is typically lower relative to total insured value. Large property losses, business interruption claims, and third-party liability matters require a dedicated claims handler or senior adjuster at first notification. Coverage interpretation on commercial policies, particularly where manuscript wording or bespoke endorsements apply, must be reviewed by a qualified professional before any coverage position is communicated to the insured.

Under HOTL, the operations manager monitors first notice of loss (FNOL) queue in real time for intake volume, loss type classification, severity estimation, triage accuracy, policy verification, and coverage analysis, and intervenes when submissions are misrouted or severity distributions indicate an event the AI has not encountered before. The claims supervisor monitors straight-through-processing throughput and tracks the proportion of AI decisions that adjusters reverse as a leading indicator of model error. Continuous divergence between AI-estimated and actual settlement amounts indicates model drift. In commercial lines, the claims manager additionally monitors incurred but not reported (IBNR) development patterns on long-tail liability lines, tracks litigation rates for AI-settled claims, and reviews whether AI triage correctly distinguishes between primary and excess layer exposures.

Fraud Detection

AI systems identify fraud patterns, but the special investigation unit (SIU) investigator must evaluate the broader context and evidence AI may miss. When a claim is flagged, the investigator must independently assess the evidence before recommending referral to law enforcement or initiating a suspicious activity report, as these actions carry legal consequences and must be made by a named human. In commercial lines, fraud indicators can involve staged contractor invoices, inflated business

ISTOCK / DRAFTER123

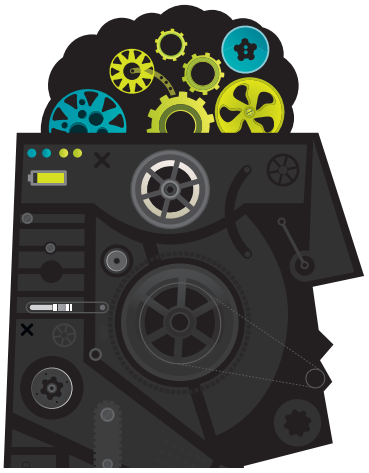
interruption losses, or collusive broker-claimant arrangements, and the investigator must review financial records and vendor relationships before reaching a conclusion.

Under HOTL, fraud detection systems analyze every claim for duplicate submissions, inconsistent damage patterns, billing anomalies, and network linkages at a scale that no human team can match. The SIU manager monitors the alert queue and initiates dedicated investigations when alerts spike from a specific provider network or geographic cluster, or when claims of a particular type signal an emerging fraud ring. In commercial lines, the SIU manager additionally monitors for coordinated business interruption claims, inflated contractor invoices across multiple accounts, and abnormal claims frequency within a specific industry segment or broker portfolio.

Actuarial and Pricing

HITL applies to rate filing and certification, where AI output serves as input to the formal actuarial attestation process. Any decision involving a protected class or demographic characteristic requires heightened review for disparate impact, and this responsibility cannot be discharged by algorithmic compliance checking. The actuary must attest that the AI system meets all applicable regulatory standards, including fairness, nondiscrimination, and documentation requirements. In commercial lines, the underwriting actuary or pricing analyst must review AI-generated loss cost projections and exposure assessments before pricing and terms are finalized.

Under HOTL, actuaries monitor pricing models in production for performance and compliance, comparing actual and expected loss ratios by segment and detecting concept drift resulting from changes in the risk environment, new perils, shifts in claims patterns, or regulatory changes. They also monitor whether AI models or external data act as proxies for protected classes or produce adverse effects over time. In commercial lines, the pricing actuary additionally monitors rate adequacy by industry class and account size, and tracks whether AI-generated rate indications diverge from manual benchmarks on complex or large accounts.



Humans must be able to justify decisions, explain outcomes, and remain accountable under regulatory and institutional scrutiny.

Policy Servicing

In policy servicing, an AI-generated endorsement containing a coverage error creates contractual risk at the time of loss. HITL is required for changes that materially affect coverage, such as adding or removing a named insured, changing limits or deductibles, adding exclusions, modifying riders or endorsements, and reinstating or canceling coverage. A human must confirm that the change has been correctly implemented and that the updated policy reflects the original service request. In commercial lines, mid-term changes to insured values, the addition of newly acquired locations, changes to the named insured schedule, and modifications to umbrella or excess layers all require a qualified underwriter or account manager to review and confirm before the endorsement is issued.

Under HOTL, policy servicing covers address changes, payment processing, routine endorsements, certificate issuance, and standard renewals. These are high-volume, low-risk transactions where supervisory oversight is more appropriate than per-item review. The operations manager monitors queue throughput, exception rates, and customer satisfaction signals, such as repeat contacts on the same policy, which may indicate that AI is not resolving queries on first contact. In commercial lines, the account manager monitors automated certificate issuance for accuracy against the underlying policy schedule, tracks changes to scheduled locations or vehicles on fleet and property policies, and reviews whether AI-generated renewal packages reflect negotiated conditions for accounts with bespoke endorsements.

Customer Communications

HITL applies to any customer communication constituting a formal complaint, whether related to a coverage dispute, benefit determination, underwriting decision, policy cancellation or nonrenewal, premium increase, denial of service, or claim settlement. The response must be drafted by, or reviewed and approved by, a qualified professional before it is sent. In commercial lines, communications involving coverage declinations, material changes to structures, or responses to

ISTOCK / DRAFTER123

reservation-of-rights letters must be reviewed by a senior underwriter or legal counsel before being sent.

Under HOTL, standard customer responses cover FAQs, coverage and claims status updates, billing and payment queries, policy document issuance, and routine correspondence. The contact center supervisor monitors sentiment scores, first-contact resolution rates, escalation rates by query type, and complaints received after AI-handled interactions. In commercial lines, the account manager monitors whether AI-generated responses to broker queries accurately reflect coverage terms and premium allocations, and flags cases where the AI response may have introduced ambiguity into the coverage position.

Compliance and Regulatory Reporting

An AI-generated regulatory filing containing an error creates institutional liability that far exceeds the cost of human review. HITL is compulsory for all regulatory submissions and adverse outcome disclosures, including rate submissions, adverse decision notifications, and supervisory responses. A human compliance officer must personally review and sign off on every submission made to the regulator.

Under HOTL, compliance and regulatory reporting focus on continuous model governance and supervisory monitoring. The compliance team monitors model outputs for bias by reviewing decision rates across demographic segments against expected baselines and flagging statistical deviations that may indicate emerging disparate impact. They also monitor model changes, data updates, and threshold adjustments to ensure continued regulatory alignment. In commercial lines, the compliance team additionally monitors market conduct requirements for large commercial policyholders, surplus lines regulations, and whether AI model changes require regulatory notification or refiling in multiple state jurisdictions.

SME in Command

Under HIC, domain experts authorize each AI use case before deployment, supported by documented risk assessments, clear accountability, and defined bias testing protocols. They establish requirements for model validation, ongoing oversight, and emergency intervention. In commercial lines, the SME on the board or at senior leadership level must define AI governance standards applicable to AI-assisted broker interactions, delegated underwriting authority arrangements, and managing general agent operations where AI tools are used by a third party on behalf of the carrier.

At the enterprise level, the SME in command approves AI use cases and defines the deployment scope. They set the risk appetite and escalation thresholds and retain authority to intervene at a system level. They also retain accountability for AI-driven outcomes under regulatory and institutional scrutiny.

The Boundary of Human Oversight

Human oversight in an AI-enabled organization is not a temporary safeguard. It is a control requirement arising from the fundamental characteristics of generative and agentic AI systems. These systems operate probabilistically, produce outputs that are not always verifiable at source, and cannot assume responsibility for their decisions. The burden of correctness, compliance, and accountability remains with humans, and the HITL, HOTL, and HIC models define how that burden is distributed across decision-making layers.

Whether a human intervenes before execution, supervises ongoing operations, or governs system design and deployment, the expectation is the same. Humans must be able to justify decisions, explain outcomes, and remain accountable under regulatory and institutional scrutiny. Across insurance processes, AI systems cannot independently establish correctness in ambiguous situations, interpret regulatory nuances, or accept responsibility for adverse outcomes. These functions remain the responsibility of domain experts who serve as the control points within the system. AI supports human decision-making at scale but does not replace the need for human oversight.

BASKAR SUNDARARAJAN is chief technology officer for BFSI at Tata Consultancy Services. **SRIVATHSAN KARANAI MARGAN** is an insurance domain consultant at Tata Consultancy Services.

References

DeepScribe. (2024, July 9). *Optimizing human-AI collaboration: A guide to HITL, HOTL, and HIC systems*.

Endsley, M. R. (1996). Automation and situation awareness. In R. Parasuraman & M. Mouloua (Eds.), *Automation and human performance: Theory and applications* (pp. 163–181). Lawrence Erlbaum.

FinTech Global. (2026, January 14). *Why human-in-the-loop is key for insurance AI*. FinTech Global.

Gouraud, J., Delorme, A., & Berberian, B. (2017). Autopilot, mind wandering, and the out of the loop performance problem. *Frontiers in Neuroscience*, *11*, Article 541.

Ito, A. (2025, September 7). *From HITL to HOOTL—A complete guide to human involvement models in the AI era*. Medium.

National Association of Insurance Commissioners. (2023, December 4). *NAIC model bulletin: Use of artificial intelligence systems by insurers*.

Parasuraman, R., & Manzey, D. H. (2010). Complacency and bias in human use of automation: An attentional integration. *Human Factors*, *52*(3), 381–410.

Starmind. (2025, August 28). *What human in the loop really means in insurance*. Starmind.

Tech Jacks Solutions. (2026). *Human-in-the-loop*. Tech Jacks Solutions.



Modernizing Actuarial Operations in *Reinsurance*

BY POOJAN SHAH

Actuarial systems are becoming a strategic differentiator—enabling faster deal evaluation, stronger pricing confidence, and smoother integration.



As life insurance and reinsurance markets continue to evolve, a company's competitive edge is no longer determined solely by access to capital or the ability to identify attractive transactions. Increasingly, it is defined by execution, which rests heavily on the strength of an insurer's actuarial and financial operations.

Operational and technology capabilities are now among the most important drivers of post-deal value creation, reinforcing the growing importance of execution in determining transaction outcomes, according to West Monroe's 2024 insurance M&A report. For example, during a reinsurance transaction, actuarial teams must process detailed policy data, run reserve, capital, and earnings projections across multiple economic scenarios, and reconcile outputs across various reporting bases within compressed diligence timelines. Modernized actuarial platforms enable these analyses to be performed rapidly and consistently, whereas legacy systems often require manual intervention that can delay decision-making and reduce execution flexibility.

Yet many insurers continue to rely on legacy actuarial processes that were not designed to support today's fast-paced transaction environment. These outdated practices can slow valuations, increase operational risk, and limit agility.

As the volume of reinsurance transactions continues to grow, deals are no longer isolated financial events; instead, they are integral tools for capital optimization, risk management, and portfolio repositioning, according to West Monroe. They must be priced, executed, and managed through an insurer's operational infrastructure.

For example, once a reinsurance transaction closes, actuarial teams must integrate the ceded block into valuation and projection models, update reserve and capital calculations, and ensure that policy and financial data flow correctly into ongoing reporting and risk management processes. These activities require systems that can incorporate new data, run projections efficiently, and produce reliable outputs across multiple reporting frameworks. If that infrastructure is outdated, these tasks become time-consuming and manual, creating bottlenecks that delay decisions, increase operational risk, and potentially jeopardize the timely execution and intended benefits of the transaction. Conversely, insurers leveraging modern actuarial platforms, integrated data architecture, and automated workflows can onboard reinsured blocks more efficiently, produce timely financial and risk insights, and fully realize the strategic and economic value of the deal.

STOCK.ADOBE.COM / MUTIMUL

Industry data underscores this trend. In a survey of 250 private equity and insurance executives conducted in the second quarter of 2024, more than two-thirds of respondents identified enhanced technology and insurtech capabilities as critical drivers of post-deal value creation, according to the West Monroe report. Similarly, in "Insurance Transformation: The New Agenda" (2025), KPMG found that only a minority of firms consider their transformation and cost initiatives highly successful, underscoring the persistent challenges of operational execution.

These findings point to a growing consensus: Modernizing actuarial operations through integrated systems, streamlined workflows, and advanced analytics is no longer merely a back-office initiative—it has become a strategic differentiator.

A Multidimensional Transformation

Modernizing actuarial operations is a multidimensional transformation. At its core, it involves leveraging technology, data, and process improvements to make actuarial work faster, more accurate, and more insightful. For instance, when evaluating a potential reinsurance transaction, actuaries must project reserves, capital, and earnings under multiple deal structures. Modernized systems enable these projections to be generated rapidly using automated data feeds and scalable modeling platforms, allowing management to assess alternative structures and negotiate terms with confidence and speed. This transformation goes beyond simply upgrading systems; it's about fundamentally rethinking how actuarial teams function, collaborate, and drive strategic decisions.

- **Data integration and a single source of truth.** No transformation succeeds without clean, consistent data. This means that breaking down data silos is foundational. Centralized data repositories consolidate policy, claims, investment, expense, and customer data into a single platform. The goal is to create a "single source of truth" that integrates operations, customer, product, finance, actuarial, and investment data. Automated feeds from administrative and financial systems ensure continuous updates, enabling actuaries to focus on analysis rather than reconciliation, such as manually extracting and validating policy data, aligning actuarial model inputs with general ledger balances, and resolving differences in reserves and account values across reporting frameworks. Standardizing data definitions across products and cleansing historical records may seem tedious, but it lays the groundwork for automation and reliable analytics. The time invested here pays off through faster, more accurate decision-making, benefiting both cedents and reinsurers by enabling consistent assumptions for pricing and negotiation.
- **Cloud computing and scalable modeling platforms.** Actuarial modeling often requires significant computational power to perform stochastic simulations, stress tests, and scenario analyses. For example, calculating stochastic reserves or capital requirements for variable annuities or fixed indexed annuities may require running thousands of economic scenarios and projecting cash flows over multidecade horizons. Cloud-based platforms provide elastic capacity, enabling these simulations to run in parallel and significantly reducing execution time. This allows actuaries to rapidly iterate pricing assumptions, evaluate alternative treaty structures, and update reserve and capital projections as deal terms evolve, improving responsiveness and decision-making during live transactions.

While many newer reinsurers and asset-backed insurance platforms have implemented cloud-first actuarial and data environments from inception, acquiring legacy blocks often requires integrating with older policy administration systems, actuarial models, and reporting processes. Even highly agile platforms must accommodate these legacy dependencies. As a result, modernization efforts must support legacy system integration, hybrid cloud environments, and multiple regulatory reporting frameworks.

- **Automation and end-to-end workflows.** Automation eliminates repetitive, error-prone tasks. Workflow orchestration platforms can schedule valuations, validate outputs, and post results directly to accounting systems without manual intervention. For example, monthly reserve valuations can be automatically triggered once updated policy data becomes available, with results validated against predefined checks and posted to finance systems for financial and regulatory reporting. Version control and automated testing improve model reliability and auditability. Modern systems embed controls that lock down formulas and record changes, reducing operational risk.
- **Advanced analytics and scenario capabilities.** Modern platforms integrate machine learning and artificial intelligence to enhance experience studies, reserve calculations, and scenario modeling. Real-time what-if analyses allow management to quickly assess interest rate movements, lapse behavior, or capital allocation strategies. For example, actuaries can immediately evaluate how shifts in interest rates or policyholder behavior would affect statutory reserves, capital requirements, and the economics of a proposed reinsurance treaty. Live dashboards link actuarial results to financial and investment analytics, enabling continuous, informed decision-making.
- **Unified modeling across reporting bases.** Unified model frameworks consolidate Generally Accepted Accounting Principles (GAAP), statutory, economic, and management reporting. This convergence ensures consistent outputs across reporting bases, simplifies maintenance, and improves post-deal integration.

When a deal is priced, the same core model can now project GAAP earnings, statutory capital emergence, and economic value. This simplifies integration and provides a holistic view of performance.

■ **Talent and culture shift.** Technology alone is insufficient; people and culture must evolve. Actuarial staff must be upskilled in data science, coding, and the use of new tools. The culture shifts from number crunching to strategic analysis and advisory insight.

Cross-functional collaboration with IT and finance fosters faster, more insightful decision-making. Cultural shifts toward continuous learning and strategic analysis enable actuaries to contribute higher-value insights, enhancing deal execution and operational agility. This integrated approach accelerates decision-making and execution, providing a competitive edge in fast-moving deal environments.



A modernized actuarial function enables insurers and reinsurers to evaluate opportunities with unprecedented speed.

A Competitive Edge

Modernizing actuarial operations delivers tangible, strategic advantages across the life cycle of reinsurance and mergers and acquisitions (M&A) transactions. These benefits extend beyond operational efficiency; they directly impact deal competitiveness, pricing accuracy, integration speed, and long-term value realization.

■ **Speed and agility in deal evaluation.** A modernized actuarial function enables insurers and reinsurers to evaluate opportunities with unprecedented speed. For example, actuaries can rapidly project reserves, capital requirements, and earnings under alternative cession levels, pricing assumptions, and economic scenarios, enabling management to assess deal economics and respond confidently during negotiations. This capability allows insurers and reinsurers to refine pricing, evaluate alternative deal structures, and respond quickly as transaction terms evolve, reducing the risk of missed opportunities in competitive bidding situations. Automation has been shown to free actuarial resources for up to 45% more analytical work, directly enhancing deal readiness, according to the West Monroe report.

■ **Confidence in pricing and assumptions.** Modern actuarial platforms support advanced analytics, including stochastic modeling, tail risk analysis, and real-time sensitivity testing. These capabilities allow insurers to thoroughly vet assumptions such as longevity, lapse behavior, and interest rate shocks before finalizing a deal.

Integrated, current datasets improve accuracy in pricing assumptions, aligning expectations between cedents and reinsurers and reducing negotiation friction.

■ **Seamless integration and ongoing management.** Post-deal integration is where many transactions falter. Modern actuarial systems enable seamless onboarding of reinsured blocks through automated data feeds, scalable modeling platforms, and advanced dashboards and analytics that track performance in real time. Deviations in claims, lapses, or assets are detected early, allowing timely interventions. Operational efficiency reduces the marginal cost of adding new blocks and supports consistent performance management.

■ **Regulatory and stakeholder reporting.** Modernized operations simplify compliance with regulatory and rating agency requirements. Auditable data lineage and automated reporting make that possible. For example, insurers can automatically generate statutory reserve reports, capital calculations, and supporting documentation required for regulatory filings or rating agency reviews without extensive manual reconciliation. Transparent, timely reporting reinforces confidence with regulators and investors, strengthening credibility in transaction contexts.

■ **Enhanced strategic decision-making.** Modern actuarial functions are no longer just reporting engines; they are strategic partners. Unified models and real-time analytics empower insurers to make forward-looking, data-driven decisions on capital allocation, treaty evaluation, and portfolio optimization.

Setting the Pace

Modernizing actuarial operations is no longer simply a matter of operational efficiency; it has become a core enabler of strategic execution in mergers, acquisitions, reinsurance treaties, and portfolio transfers. As deal timelines compress and counterparties demand greater transparency, the ability to deliver

STOCK.ADOBE.COM / MUTIMUL

accurate, granular, and timely financial insight serves as a differentiator that directly influences transaction outcomes.

Leading market participants are already demonstrating the payoff. Some carriers have shortened their financial close cycles and now provide product-level earnings attribution alongside forward-looking projections even before negotiations conclude. For example, during a reinsurance transaction, actuaries can rapidly quantify the impact of a proposed treaty on statutory reserves, GAAP earnings emergence, and capital requirements, enabling management and counterparties to assess deal economics and finalize terms without waiting for the next reporting cycle. In its report, *Best Practices for a More Effective Close*, Ventana Research found that organizations with accelerated financial close capabilities can devote significantly more time to value-added activities such as scenario modeling, transaction structuring, and integration planning. In contrast, slower-close organizations often find themselves reacting to events rather than shaping them, which erodes confidence among buyers, sellers, and investors.

Modernized actuarial capabilities also strengthen negotiation leverage. With real-time scenario testing, insurers and reinsurers can assess multiple deal configurations quickly, quantify trade-offs with precision, and respond to counterparties with data-backed proposals. Deeper integration across actuarial, finance, and risk systems ensures that due diligence findings are operationalized without delay, reducing the gap between deal signing and value realization. This agility is particularly critical in competitive bidding situations, where both speed and precision can determine whether a transaction closes successfully.

Post-deal integration also becomes materially faster and more reliable when actuarial operations are modernized. Unified models, automated data pipelines, and scalable cloud platforms enable acquired blocks to be absorbed with minimal disruption. This not only reduces operational risk but also helps maintain service levels for policyholders. Modernized platforms further allow firms to manage treaty performance proactively, adjust capital deployment as market conditions evolve, and identify secondary opportunities that extend value creation well beyond the initial transaction.

In essence, modernization transforms the actuarial function into a strategic, deal-enabling capability. The frontier of competitive advantage has shifted: Capital alone no longer secures transactions. Instead, precision, transparency, and speed, enabled by modern actuarial operations, are increasingly what determine success. Insurers and reinsurers that invest in modernization today will not merely participate in the market; they will set its pace, structure more attractive transactions, and maximize value for all stakeholders while maintaining sound risk management and governance.

POOJAN SHAH is director, North America, Insurance Consulting and Technology, WTW.

Academy Data Resources

As Shah notes in this article, a company's competitive edge increasingly depends on the strength of its actuarial and financial operations. That also means actuaries need access to reliable datasets and must stay abreast of current and emerging developments in data science, along with their implications and applications.

At the center of many of these conversations is the Academy's AI, Data Science, and Analytics Committee (ADAC). Given the influence and impact of AI on the profession, the Academy's public policy and professionalism work, and the need to raise broader awareness of big data, predictive models, and advanced analytics, ADAC brings together perspectives from across the Academy's practice areas as the organization articulates the profession's perspective to legislators, regulators, industry leaders, and the public.

In support of this work, ADAC has created a data science toolkit. This collection of resources covers current and emerging developments in data science, providing a useful overview of the challenges and opportunities actuaries, policymakers, and others confront in the data science field. It is regularly updated with new material, offering actuaries at all levels of experience resources to help them better define big data, understand how to approach data bias in actuarial modeling, and consider how this may affect the consumer experience.

In addition to these resources aimed at the actuarial audience, the Academy has also identified the danger of large, publicly available data sources disappearing or being retired. Within the last year, volunteers and staff alike have been cataloging data sources that are no longer regularly or reliably updated, no longer available, or moved behind paywalls. Earlier this year, the Risk Management and Financial Reporting Council, Casualty Practice Council, and Research Committee submitted a joint comment letter to the National Science Foundation, urging the reconsideration of a plan to dismantle the National Center for Atmospheric Research (NCAR). NCAR has long served as an essential source of public data and climate modeling, supporting actuaries, researchers, and insurers in assessing climate-related risks and protecting consumers and communities.

As the industry continues to focus on precision, transparency, and speed enabled by actuarial operations, the Academy will continue to focus its efforts to support the strategic needs of the actuaries who support those operations.

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, including Python integration
- Advanced asset modeling
- An expanding suite of native AI tools

For more information, visit
integrate.milliman.com



12 RISING STARS LOOK AHEAD

The 2026 Rising Actuary Award recipients share their perspectives on careers, mentorship, AI, the future of the profession, and the value of Academy membership.

MEET THE 12 ACTUARIES honored with the Academy's 2026 Rising Actuary Award, which recognizes young actuaries whose dedication to professionalism and leadership contributes to the profession and the communities they serve. Through national recognition by the Academy, the award encourages the development of the next generation of actuarial leaders, who bring new perspectives, skills, and innovation to the profession.

We asked this year's recipients about their careers, mentors, challenges, artificial intelligence (AI), the future of the profession, and the value of Academy membership. Here, we've selected questions and answers that offer a glimpse into each recipient's experiences and perspectives. The complete interviews, with all of the questions and answers, are available online at actuary.org.

Keeping Judgment at the Center



Tom Callahan, MAAA, FSA, MS
Former Manager and Actuary
Independence Blue Cross

How are you using AI or other emerging technologies in your work? How do you ensure that you uphold the principles of actuarial professionalism while using them?
For the last couple of years, I have served on the SOA's Professional Development Curriculum and Content Creation Council (PD4C) AI Subgroup. I have studied in detail how large language models work, and I pay close attention to how AI responds to my prompts and how different phrasing can affect results.

I use AI as a thought partner rather than a replacement for judgment. For example, it has helped me write performance appraisals—I send it my draft and it helps me refine the message so critical feedback lands clearly without being unnecessarily harsh.

In terms of maintaining professionalism, the key for me is retaining ownership. I never accept an AI output without being willing to stand behind it completely. I have found that it's possible to use AI to save time, and it's possible to use AI to improve the quality of your output, but it's probably not possible to do both at the same time.

How do you see the role of actuaries evolving over the next five to 10 years?
Certainly, we are in for an eventful next five to 10 years. I think it is of utmost importance that we retain the trust of the public. We live in a partisan, divided time, and the actuarial profession is one of the few professions trusted for their objectivity. Maintaining that trust, and using it prudently, will be very important given that few other professions can wield as much influence as we can.

No answer to this question would be complete without mentioning AI and the massive, but unpredictable, impact it is going to continue to unleash.

ISTOCK / WITSANU SINLAPACHAI

Thinking Beyond the Model



Xiaohui (Sherry) Feng, MAAA, FSA, MBA
Senior Director, Actuarial
Optum Advisory Services

What's the biggest professional challenge you have faced in your career so far, and what did you learn from it?
One of the biggest professional challenges of my career was leaving the U.S. to join a health care startup in China. I went there expecting to leverage my actuarial experience to build an actuarial function and help integrate the company's products with health insurance. Instead, I found myself in a very different market, with limited resources and few defined roles. I often describe what I learned there as becoming an "octopus"—developing the ability to stay connected to many parts of the business at once, from actuarial modeling and research to sales, product, and relationship building, while understanding the different incentives and perspectives driving each stakeholder. I learned that solving a strategic problem is rarely about optimizing one piece in isolation; it requires seeing how the pieces connect and influencing people across functions to move toward a common outcome.

The work experience also showed me the limits of technical expertise alone and motivated me to pursue an MBA after returning to the U.S. to build a more systematic foundation in business and strategy. What felt like a difficult career transition at the time ultimately reshaped how I work today: I still approach complex problems like an octopus, staying connected to many parts of the organization while keeping sight of the bigger picture.

What is one piece of advice you'd give to actuaries who are just starting their actuarial careers?
Don't wait for seniority to start thinking like an owner. Early in my career, a mentor told me that the true test of your work is whether you can take something from beginning to end and own the outcome. That advice has stayed with me because ownership is difficult at every stage of a career—it means taking responsibility, not only for your piece of the analysis, but for whether the problem was framed correctly, the work gets across the finish line, and ultimately creates the intended impact. It can be uncomfortable to take that level of responsibility before you feel completely ready, but I believe it is one of the fastest ways to grow. The earlier you stop asking, "What is my part?" and start asking, "What will it take to make this successful?" the faster your career can accelerate.

Making the Case



Fernando Garcia Alvarado, PhD, MAAA
Treasury & Risk Specialist
Inter-American Development Bank

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?
As mathematicians, our instinct is to dive straight into sophisticated formulas and complicated theorems. But I always say that *selling* the model is actually the hardest part of the job. Trying to convince salespeople, accountants, and lawyers that they have been under-reserving, and need to raise risk premiums and raise prices, is exceptionally tough. So, actuaries have to be excellent quantitative thinkers and persuasive communicators.

Ultimately, I have learned that having the right answer is only part of the job. You also need to be able to explain it clearly, understand your audience, and convince people why it matters.

How are you using AI or other emerging technologies in your work? How do you ensure that you uphold the principles of actuarial professionalism while using them?
I view AI with equal parts gratitude and fear. On the positive side, it saves a tremendous amount of time when writing emails, polishing notes, and checking spelling and grammar. It has become a useful tool for improving the clarity and efficiency of my communication. On the other hand, I have seen AI hallucinate responses that are wild. Professionalism, therefore, comes down to human oversight. You can use AI to assist and speed up your workload, but you have the responsibility to own the final output. Ultimately, technology can help you work more efficiently, but it does not replace your professional judgment or accountability.

Investing in Relationships



Alex Ghekas, MAAA, FSA, CERA
Associate Actuary
Principal Financial Group

Do you have a mentor? If so, how have they inspired you?
I have felt incredibly lucky to have great leaders and mentors throughout my early career. My leaders, Ryan Ramsey, Adam Feller, and John Ripley, have facilitated on-the-job learning and included me in important discussions that have furthered my personal development. They have inspired me to be a future leader who carves out time for education and development for direct reports. Additionally, they have exemplified how to be an advocate for team members by providing opportunities that will bring elevated exposure to their work and skills.

I have also had the pleasure of working closely with many leaders within the actuarial career path at Principal, specifically in developing learning opportunities in my role as chair of the Actuarial Education and Development Committee at Principal. Working with our actuarial community leadership team (including Ken McCullum, Dwight Soethout, Liz Dietrich, Chris Kinnison, and many others) has allowed me to witness firsthand how the actuarial profession can open a pathway for impactful leadership. They have demonstrated this through influencing business decisions, shaping culture, and developing future leaders in the profession. Their leadership has allowed me autonomy to lead and take risks by putting together learning sessions for the community while providing support along the way.

I have had many other mentors over the years (too many to name) whom I have appreciated immensely. Most of all, these relationships have inspired me to invest my time, knowledge, and intentional effort in helping the next generation of young professionals.

What's been the most valuable benefit of your Academy membership?
It has been gaining access to education and professional development opportunities. The Academy focuses on fostering professional excellence and using expertise to inform public policy and insurance regulations. With my Academy membership, I have had access to valuable webinars and research articles on emerging topics in the insurance industry. This has uniquely positioned me to help facilitate learning experiences for colleagues and better understand how actuarial expertise can influence policy conversations to ensure the best outcomes for policyholders, companies, and other stakeholders. The intersection of actuarial expertise and public policy is an area I hope to become more involved in throughout my career.

Finding Growth Outside the Comfort Zone



Peter Hernandez, MAAA, ASA
Associate Actuary
Cambia Health Solutions

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?
My biggest professional challenge happened early in my career when I struggled to ask for help because I worried people would think I didn't belong. (Imposter syndrome is so much fun!) I would sometimes sit with a problem for far too long when a simple question could have helped move things along. It also didn't help that I was starting my career right around the beginning of the COVID-19 pandemic, when so much of the normal interaction and learning from coworkers had changed.

My first mentor, Dan, really helped me through that period. He set up weekly meetings in which I had a dedicated space to ask questions and worked alongside me on recurring projects, which helped me quickly build my confidence. I learned that it's OK not to know something and to ask for help. There are so many people willing to offer guidance; you just have to be willing to speak up and ask. That experience has changed how I approach joining new teams and taking on unfamiliar projects, but it has also shaped how I work with newer actuaries. I really enjoy being involved in onboarding new hires to my team, and I'll set up weekly meetings with them to make sure they have a space to ask questions. I benefited tremendously from someone doing that for me early in my career, and I want to make sure I can provide that same support to others.

What's been the most valuable benefit of your Academy membership?
My handy-dandy pocket-sized Code of Professional Conduct! I truly think it's awesome, but in all seriousness, one of the most valuable benefits of my Academy membership has been access to exceptional continuing education, especially around professionalism. As actuaries, our technical skills are obviously important, but so is understanding the professional responsibility that comes with the work we do.

Growing Into Leadership



Jason Luckett, MAAA, ACAS
Consulting Actuary
SIGMA Actuarial Consulting Group, Inc.

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?
As my role has evolved from working daily in the weeds of data files and analyses as I did as an actuarial analyst, I have had to learn how to delegate tasks and guide the team members who are working on projects for which I now serve as the opining actuary. Letting go has not always been easy after being so hands-on earlier in my career, and it has required growth in maturity and judgment to identify which parts of the work can appropriately be delegated. I have also had to develop more efficient ways to review team members' work without fully reproducing it myself. This stage of my career has reinforced that, even as I achieve goals I set earlier in my career, there is always continued opportunity for growth and development.

How do you see the role of actuaries evolving over the next five to 10 years?
I believe automation will change how future actuaries develop professionally. Many of the foundational skills I gained early in my career came from performing analytical tasks that may eventually be automated. As the profession evolves, it will be important to balance the efficiencies gained through technology with opportunities for analysts to develop the technical judgment and critical thinking skills necessary for future leadership roles.

Finding Your Own Path



Luis Magana, MAAA, ASA
Assistant Actuary
Cambia Health Solutions

What inspired you to become an actuary?
It was more of a happy accident than inspiration. I started college wanting to be a sign language interpreter, but after my first math class I knew that I wanted to pursue something in mathematics. It was my Calculus 1 professor who first introduced me to the actuarial profession, and after much discussion with her, I decided to switch my major. When I transferred to a four-year university, I got my first exposure to actuarial coursework. I was immediately drawn to it, especially the materials that paralleled the exam process. I found it to be pretty fun—as much as schoolwork could be. That was long ago, and, looking back, I'm so grateful that I made the change. I genuinely can't imagine doing anything else.

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?
The biggest challenge I have faced was failing my first FSA exam twice in a row. Failing the first time was discouraging, but the second time forced me to take a step back and really think about my approach. I realized I was putting unrealistic expectations on myself throughout my entire exam journey and stressing myself out more than I needed to, which likely impacted my performance on the exam and at work. That failure taught me that progress is not linear; sometimes it's very messy and unpredictable. It also taught me that I need to stop comparing myself to others who are on the same path. Comparison is the thief of joy, and I am on my own journey, just as everyone else is on theirs.

Creating New Possibilities



Francisco Mojica III, MAAA, FCAS
Senior Actuarial Associate, Excess and Reinsurance Underwriting Solutions
Verisk

What inspired you to become an actuary?

I learned about the actuarial profession during my senior year of high school. I was searching for careers that were math intensive and came across the profession.

As I learned more, there were two aspects of the career that stood out to me. First, the property and casualty insurance industry is very dynamic. New risks are constantly emerging.

Determining their impact and how to mitigate them is essential to many industries. The constantly changing insurance environment indicated that my work would continue to be new and exciting.

The other aspect that appealed to me was the exam process. While it proved more difficult than I anticipated in high school, the ability to further my career through a process that was entirely in my own hands was unique. The exams allowed me to learn about the profession while advancing my career.

How are you using AI or other emerging technologies in your work? How do you ensure that you uphold the principles of actuarial professionalism while using them?

I am treating AI as an extension of myself. AI can process documents, generate Excel formulas/workbooks, and write code more efficiently than any person. This allows me to increase my output while simultaneously improving accuracy. To uphold the principles of actuarial professionalism, I thoroughly review AI-generated output and sources to ensure their accuracy and reliability.

Seeing the Bigger Picture



Jenni Point, MAAA, FSA
Director of Actuarial Services
Optum

How do you see the role of actuaries evolving over the next five to 10 years?

I foresee that the next five to 10 years will be a challenging time for most professions, including ours. The actuarial profession is uniquely positioned to grow and change due to its self-regulated nature, which will allow us to remain at the forefront of new technological growth. Increased pressure is being placed on actuaries to do things faster with fewer resources as companies struggle with regulatory changes and cost constraints, and much of that demand is being met using different AI technologies. While this can be a helpful tool and really aid in some of our work, we have all seen instances in which AI produces less-than-ideal results and sometimes those results slip through the cracks and get put into production.

I believe we will need to evolve as a profession to address the threat to our integrity that these AI models bring and grow our expertise to be able to effectively use these technologies, interpret the results, and know when not to use them. I fear we are headed toward a time when much of our work is clouded by close-to-accurate information that we will need to be competent to parse through and find accuracy. I have been discussing AI use with my team and colleagues and working to understand when it makes sense. I am also challenging myself and my analysts to work through these analyses collaboratively first to understand the processes inside and out so that if and when they do rely on AI assistance they can easily perform common-sense checks. I am also requesting that reliance on AI be disclosed so we can view that work in a more accurate light.

As a health actuary, I see things moving from more traditional fee-for-service payments and toward more outcome-based alternative payment methods, due to the low-resource and high-cost health care landscape we find ourselves in today. This will require actuaries to broaden the focus from simple financial metrics as a form of success and push us to be creative and look to where value can be derived and quantified differently. These results-driven models require a much fuller understanding of the systems in place, from patient to provider to payer. It is important for actuaries to remember that we are only one small part of a greater health system and learning about how those other pieces work and navigate will help us better do our jobs

and create better outcomes for the people receiving these services.

What's been the most valuable benefit of your Academy membership?

Membership in the Academy has opened many doors I didn't even know about. Initially I just viewed the Academy as a way to get continuing education and the place to go to for extra guidance on a new topic. Since then, I have learned so much more. I am involved in the health equity and research committees, and get to meet some amazing and intelligent people while giving back to and helping propel this profession forward.

The Academy has provided a venue for me to have an influence on health-equity-related topics that are near and dear to my heart, as well as education on upcoming innovations and research being done by incredibly smart people that have the potential to drive change. I am so grateful for all the Academy provides and especially for the incredible connections I've been able to make with people I love to learn from.



Kayla Robertson, MAAA, FCAS
Vice President, Reserving Actuary
Berkshire Hathaway GUARD Insurance Companies

Investing in the Next Generation

Do you have a mentor? If so, how have they inspired you?

I've been fortunate to learn from many people throughout my career rather than having a single mentor. Different leaders and colleagues influenced me at different stages, whether by challenging me technically, providing opportunities to grow, or demonstrating strong leadership during difficult situations.

One person who had a particularly meaningful impact on my development was Brad Eastwood, the chief actuary at Erie Insurance, when I started my career in 2014. Brad was a strong advocate for me early in my career and opened doors that helped me grow professionally. He also gave me leadership advice that has stayed with me over the years, including the importance of being consistent so that people know what to expect from you as a leader. Beyond his advice, I learned a great deal simply by observing how he led and interacted with others.

That experience reinforced the importance of investing in others. As I've taken on leadership roles, I've become increasingly focused on mentoring and sponsoring actuaries earlier in their careers. Many of the opportunities that helped me grow came from people who believed in me, and I try to do the same for others.

What is one piece of advice you'd give to actuaries who are just starting their actuarial careers?

Don't underestimate the value of communication skills. Technical expertise is important, but your ability to explain complex concepts, build relationships, and earn trust will often have just as much impact on your career.

I'd also encourage actuaries early in their careers to step outside their comfort zones. You learn the most when you're challenged, and some of the opportunities that shaped my career came before I felt completely ready for them.



Fareeha A. Usman, MAAA, ASA
Associate Actuary
USHEALTH Group, UnitedHealthcare

Staying Open to What's Next

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?

It is something I am still facing today: balancing career growth and exam progress. On one hand, I would not want to pass up meaningful work in my role for faster exam success. On the other hand, I would also not want to give up the learning opportunity that fellowship studying presents, just as associateship studying did, for career growth alone. The credentialing process really is a marathon, and every time I stumble, the simplest thing to do has been to adapt so I can reach my goals. I truly believe adaptability has been one of the most important lessons this endeavor has taught me, and it is something I will carry with me even after I finish the SOA exam curriculum.

How do you see the role of actuaries evolving over the next five to 10 years?

It is hard to talk about the next five to 10 years of the actuarial profession without acknowledging the growing influence of AI. I believe one of the biggest shifts will be the thoughtful integration of AI into actuarial work to improve efficiency and support day-to-day practice. Ideally, these advancements will give actuaries more time to apply our knowledge and skills in more sophisticated ways. The profession is full of highly trained individuals, but time constraints often limit the questions and curiosities we are able to explore. If AI can give us some of that time back, I hope it will allow actuaries to apply our expertise more thoughtfully and become even more effective in the work we do.

Making Room for Change

What's the biggest professional challenge you've faced in your career so far, and what did you learn from it?

One of my biggest professional challenges has been learning to lead through rapid growth and constant change. When I became a leader, my team was just two people; within two years, we grew to five and are still growing. At the same time, the business we support has grown quickly, and the questions we're being asked to answer have become increasingly complex.

I've learned that you can't just build for the problem in front of you. Early on, I sometimes stayed too far in the weeds or built one-off analyses that later had to be completely reworked. Now I spend much more time thinking about how we structure our data and our team, create opportunities for people to take on more impactful work, and create capacity for what my leader calls the "known unknowns"—the challenges we can't predict, but know will come. The experience has taught me that being nimble requires planning for change, not just reacting to it.

What's been the most valuable benefit of your Academy membership?

I value both the resources the Academy provides and the connection it gives me to the broader actuarial profession. My day-to-day work is focused on a specific part of the insurance industry, so I appreciate having access to resources that can help when I encounter a new or unfamiliar issue. I also value the opportunity to stay connected to the challenges, ideas, and perspectives actuaries are encountering outside my organization and practice area. That broader perspective is especially valuable as the profession continues to evolve.



Melanie Zuber, MAAA, FSA, CERA
Actuarial Senior Manager, Supplemental Health Pricing
Securian Financial Group, Inc.

ACTUARIAL CAREERS, INC.®

Actuarial Careers, Inc.®

Visit our continuously updated website at www.actuarialcareers.com

Search jobs by any combination of geographic region, specialization and/or salary.

Current Market Trends

Life & Health

- **VP Product Management.** This role will lead a small team and direct pricing and product management activities across life, annuity, disability income and supplemental health product lines, spanning the individual and worksite distribution channels. FSA required.
- **Annuity Pricing Actuary, AVP.** Own the Product Development and Pricing portfolio, partnering with stakeholders across the Retail Annuity business. FSA required with 10+ years of actuarial experience. Prophet preferred.
- **AVP & Actuary, ALM or Forecasting.** The ideal candidate will have experience in the life insurance and annuity industry, with at least 5 years in a leadership role. Must understand the Balance sheet. FSA or Career-ASA.
- **Research & Development Actuary, FSA.** 10+ years of U.S. life/health insurance or reinsurance experience, with expertise in pricing, transactions, and complex reinsurance solutions. Strong analytical, communication, and commercial decision-making skills are essential.
- **Senior Life Consultants.** Multiple senior life actuarial consultants needed for growing Life Actuarial practice Individual contributor and manager-level roles supporting life and annuity clients across pricing, modeling, product development, financial reporting, and actuarial transformation.
- **Life Insurance STAT / PBR Valuation Actuary.** Will support VM-20 Principle-Based Reserving function, supporting the ongoing VM-20 valuation of life insurance products. Prophet preferred.
- **AXIS Modeling Actuary.** Seeking an ASA or FSA to develop and maintain AXIS models for fixed and indexed annuities, supporting valuation, pricing, ALM, and model changes. Prior AXIS experience required.
- **Inforce Management.** Lead inforce actuarial pricing function. Role will own inforce pricing initiatives to improve profitability and support growth across life and annuity blocks of business.
- **Senior Medicare Actuary.** Seeking an actuary for a leadership opportunity. Actuary with 10+ years of experience. The role involves mentoring actuaries, overseeing areas like ACA, Medicare, Medicaid, or Large Group, and leading strategic actuarial initiatives.
- **Health Actuary Consulting Manager.** Seeking an actuary to lead a team and provide strategic and technical consulting services. Requires 6+ years of relevant experience and 4+ years of team leadership.

Property & Casualty

- **Chief Actuary.** FCAS to partner with the CEO to drive profitability, lead reserve/reinsurance committees, and modernize analytics across a complex auto book
- **Senior P&C Actuary, Consulting.** FCAS/ACAS with 10+ years of P&C experience to lead consulting engagements and actuarial teams across pricing, reserving, modeling, and risk management.
- **Senior Captives Actuary.** FCAS/ACAS with 10+ years of experience to expand captive insurance capabilities, focusing on pricing, program structure, reinsurance, and capital analysis.
- **Senior Reserving Actuary.** FCAS/ACAS with 5–8+ years of P&C experience to support commercial and specialty reserving, improve processes, and mentor actuarial colleagues. Partner with the business to improve reserving tools and processes, and mentor colleagues.
- **Consulting Actuary.** Fully remote role for an FCAS/ACAS to solve unique business problems using actuarial science, machine learning, and AI while managing client relationships. Work directly with clients and own relationships from strategy through delivery.
- **Director, Reserving.** FCAS/ACAS with 7+ years of experience to lead reserving and loss analytics for commercial lines in a highly visible leadership role.
- **Actuarial Data Scientist.** AI-first commercial insurer is seeking an actuary to lead predictive modeling for a growing commercial portfolio and manage a small team. Requires 7+ years of experience.
- **Senior Actuary, Predictive Modeling.** Fully remote pricing and analytics role. Seeking FCAS or experienced ACAS with 7+ years of experience and strong predictive modeling, SQL, R, and/or Python skills.

Just a Few of Our Listings ▫ Jobs Continuously Updated
Contact any of our executive recruiters for a comprehensive list of job opportunities, creative ideas and a confidential career evaluation.

Actuarial Careers, Inc.®
Phone: 914.285.5100 / 800.766.0070
Email: Info@actuarialcareers.com
Follow us on LinkedIn! www.linkedin.com/company/actuarial-careers-inc-



Actuarial Careers, Inc.®

Trusted by actuaries worldwide.

Marketplace Specialist

Actuarial Careers Inc.® specializes exclusively in actuarial placements. With over two decades of dedication to the marketplace, we have earned our reputation as experts and trusted consultants to both our candidates and our client companies, who are the most recognized names in the industry. Our reputation opens doors, so that when we present candidates for positions, they are given the attention and consideration they deserve.

Career Consultant

We always encourage candidates to view their current position and their job search from the perspective of a long-term career plan. Our intentions are to help candidates define and find their dream jobs. Our experience and industry knowledge provide the framework for that exploration. We highlight options and present opportunities that might otherwise be overlooked.

Responsive Resource

The detailed and timely information in our database allows us to match candidates to positions quickly, so that we can secure interviews in less time than other recruiters. We keep in contact with hiring managers, and initiate status updates to our candidates. We encourage candidates to consider us as their sounding board and career resource, even if they aren't currently looking to make a move. We are always just a phone call away, and we can be available after hours too.

Professional Representation

Our self-imposed standards dictate that we only post real jobs, and only those that we have been engaged to recruit for. We personally present each candidate's qualifications. We present people; we don't just send or blanket-submit resumes. Because confidentiality and the candidate's reputation are priorities with us, we never present a candidate without their expressed permission. We are expert negotiators, and we never pressure a candidate to accept an offer or a position. Career moves are always the choice of the candidate.

Support System

Every candidate works directly with a dedicated recruiter, who is the single point of contact. In addition to that personalized attention, candidates also get the resources of our entire team, directed by our President, Aimee Kaye. Our recruiters do not have to compete internally; instead, we pool our knowledge, connections and resources to find positions and companies that fit the candidate's aspirations. When you work with us, you get our whole team working for you.

Recruiting Team

Jennifer Hart, Principal & Owner

Jill Grayson, Principal & Owner

Kieran Michaels, Principal & Owner

Aimee Kaye, Founder & Senior Advisor

Jesse West, Executive Vice President

Lindsey Nelson, Vice President

Lauren Lee, Assistant Vice President

Caitlin Beaird, Executive Recruiter

Josh Tamis, Senior Executive Recruiter

Derek Chelednik, Senior Executive Recruiter

Stephanie LoRusso, VP Director–Administrative Services

Ted Jackness, Founder

Actuarial Careers, Inc.®
Phone: 914-285-5100
800-766-0070
Email: info@actuarialcareers.com
Website: www.actuarialcareers.com

Ezra Penland.

Newly Published!

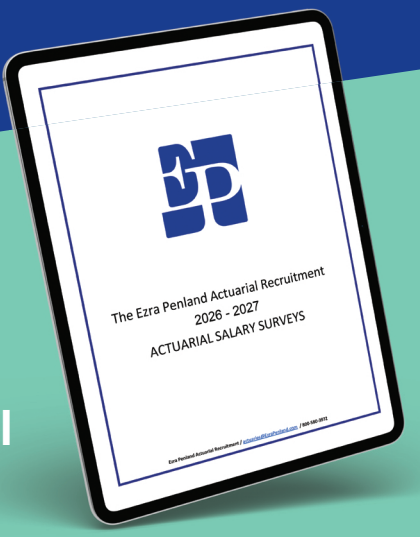
Ezra Penland's 2026/2027 Actuarial Salary Surveys

The Benchmark for Actuarial Compensation Data

Final Figures Set by an Actuary, Every Year

Scan to explore the full data

- ✓ 11 Surveys
- ✓ 4 Practice Areas
- ✓ Every Experience Level



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

Ezra Penland.

The Leaders in Actuarial Recruitment

114384

Actuarial Director – P&C – Reserving & Pricing – Remote

- Lead reserving & pricing strategy
- Oversee reserve analyses & monitor rate adequacy
- Partner across Claims, Underwriting & Finance
- Collaborate with Data Science on predictive analytics
- ACAS/FCAS | 10+ years' pricing & reserving
- Strong reserving depth | 3+ years' team leadership
- Specialty/Long-Tail preferred | MPL ideal
- Executive visibility | Career growth

113835

Actuarial Associate – P&C – Remote

- Support pricing strategy and state expansion
- Develop homeowners pricing models & rate filings
- Translate analytics into product recommendations
- Partner across Product, Underwriting & Claims
- 4+ years' Personal Lines experience
- Near-ACAS/ACAS | Homeowners ideal
- Predictive modeling & Guidewire experience
- Collaborative environment | High-growth insurer

114027

Manager & Actuary – Life – Northeast

- Model complex financial reinsurance transactions
- Contribute across structuring & execution
- Manage post-close analysis & reporting
- FSA with 5+ years' Life (re)insurance experience
- Financial modeling | Statutory & GAAP knowledge
- Capital markets or investment banking valued
- High-visibility client work | Professional development

114591 - EXCLUSIVE SEARCH

Actuarial Associate Director – P&C – Chicago | Minneapolis | Northeast

- Lead client reserving analyses & advisory engagements
- Translate reserve trends into client recommendations
- Contribute to pricing and/or capital modeling
- Help grow an advisory practice within a global firm
- ACAS with 7+ years' P&C reserving experience
- Proven leadership in client-facing engagements

113519

Consulting Actuary – Life – Midwest

- Lead projects across pricing, valuation, M&A & ALM
- Guide Individual Life product development
- Manage & expand client relationships
- Mentor junior & mid-level actuarial talent
- FSA with 10+ years' actuarial experience
- Individual life expertise | PBR preferred
- MG-ALFA, programming & AI experience preferred
- Significant advancement potential

113858

Principal Consulting Actuary – Life – Remote

- Advise carrier executives on product design & pricing
- Guide new product design through implementation
- Lead complex policy administration conversions
- Help expand a board-backed consulting practice
- FSA with 15+ years' actuarial experience
- Deep life & annuity pricing and product expertise
- Client-facing consulting | Administration systems
- Partner-level compensation potential

114631

Actuarial Analyst IV – Health – Remote

- Evaluate pricing, product performance & financial risk
- Develop actuarial models & regulatory documentation
- ASA with 6+ years' actuarial experience
- Pricing required | Health background preferred
- Strong work-life balance, compensation & benefits
- Remote from many flexible locations

114068

Actuarial Analyst – Health – Southeast

- Hands-on consulting across diverse healthcare lines
- Support pricing, projections & claims cost analytics
- 2-5 years' healthcare actuarial experience | 2+ exams
- Medicare pricing background preferred
- Strong mentorship & actuarial exam support
- Relocation assistance provided

113552

Principal Consulting Actuary – P&C – Multiple Locations – Hybrid

- Lead complex P&C consulting engagements
- Oversee reserving, pricing & capital modeling
- Drive new business & expand client relationships
- Advance actuarial solutions through analytics & AI
- Mentor consultants & develop future leaders
- ACAS/FCAS with 10+ years' P&C experience
- Proven business development | Executive communication
- Collaborative environment | Ownership culture

114592

VP Reserving – P&C – ET/CT Remote

- Own reserve models across diverse programs
- Lead quarterly gross/net reserve analyses
- Assess complex reinsurance impacts
- Support statutory/GAAP & regulatory reporting
- Enhance reserving tools & mentor talent
- ACAS | 8-12+ Years' P&C Reserving
- Near-FCAS preferred | Program/fronting valued
- Cross-functional exposure | Leadership growth

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

MAAA Credential Offers a Strong Standard for Public Policy

SINCE ITS FOUNDING MORE THAN SIX DECADES AGO, the Academy has pursued both advancing professionalism within the actuarial profession and serving the public through objective, nonpartisan public policy expertise. Those missions have always been intertwined. In fact, one of the Academy's original purposes was to establish a nationally recognized professional credential that policymakers could rely upon when laws and regulations required actuarial expertise.

That mission remains just as relevant today. The Member of the American Academy of Actuaries (MAAA) designation represents more than membership in a professional association. It signals that an actuary has demonstrated knowledge of U.S. laws, regulations, professional standards, and actuarial practice necessary to practice in this country and agrees to remain accountable to those standards.

Where statutes and regulations require actuarial services, policymakers should consider explicitly requiring the MAAA credential more broadly and more consistently.

A Competency Framework for U.S. Actuaries

As the Academy explains in its Competency Framework for New Members, Academy membership requires foundational knowledge not only of actuarial principles but also of U.S. laws and practices as well as actuarial professionalism. The framework was developed to articulate the knowledge expected of actuaries practicing in the American regulatory environment and to ensure that new members possess competencies that extend beyond technical actuarial knowledge alone.

This distinction matters because actuarial work is deeply embedded in public policy. Whether determining insurance reserves, certifying pension funding, developing Medicare payment models, or supporting financial solvency efforts, actuaries performing services in the U.S. operate within legal and regulatory frameworks that are uniquely American. Technical expertise alone is not sufficient; actuaries must also understand the statutes, regulations, regulatory objectives, and professional obligations that govern their work.

For decades, policymakers have recognized this reality. Numerous federal and state laws and regulations already require that certain actuarial opinions be signed by actuaries meeting specific professional qualifications. For example, the Employee Retirement Income Security Act (ERISA) establishes qualification requirements for actuaries certifying the funding status of private pension plans, while many state insurance laws rely upon Academy qualification standards in connection with actuarial opinions supporting insurer solvency and financial reporting.

The Academy's U.S. Qualification Standards reinforce these expectations by requiring actuaries issuing statements of actuarial opinion in this country to satisfy education, experience, and continuing education requirements appropriate to their practice areas. Those standards also require ongoing professionalism education, recognizing that competence is not a one-time achievement but an ongoing professional obligation.

Today, more than 20,000 actuaries hold and maintain the MAAA credential. They do so because it signifies not only professional achievement but also a commitment to practicing under the U.S. profession's expectations for competency, ethics, and continuing education.

Yet there remains an opportunity to strengthen public confidence even further.



BONOTOM STUDIO, INC. / CHATGPT

A More Global Profession

Where statutes and regulations require actuarial services, policymakers should consider explicitly requiring the MAAA credential more broadly and more consistently. Doing so would provide regulators, employers, courts, consumers, and other stakeholders with greater assurance that the actuary providing the opinion possesses verified knowledge of U.S. actuarial practice, is bound by the profession's Code of Professional Conduct, and meets continuing qualification requirements.

This issue has taken on increased importance as the actuarial profession has become more global. Organizations such as the Society of Actuaries and the Casualty Actuarial Society now serve a growing international membership and credential actuaries practicing in many different jurisdictions. That evolution reflects the increasingly global nature of financial services and risk management, and it has benefited the profession in many ways.

At the same time, globalization makes it increasingly important to distinguish between broad actuarial education and preparation for professional practice in the United States. Questions naturally arise regarding how candidates educated through different pathways demonstrate sufficient familiarity with U.S. law, regulation, and professional expectations before practicing in the U.S. regulatory environment.

Recognizing this changing landscape, the Academy developed its Competency Framework to clearly identify the baseline knowledge expected of every new Academy member. Beginning with the new membership requirements that took effect on Jan. 1, 2026, applicants must demonstrate competency in general actuarial topics, U.S. laws and practices, and U.S. actuarial professionalism, along with responsible actuarial experience that includes U.S. practice.

The framework also reinforces another important public protection: Academy members are subject to the Code of Professional Conduct and must satisfy the U.S. Qualification Standards before issuing statements of actuarial opinion. Those standards require appropriate education, relevant experience, and continuing education throughout an actuary's career, helping ensure that professional competence keeps pace with changing laws, regulations, and actuarial practice.

Strengthening Public Confidence

These safeguards are ultimately about protecting the public. Actuarial opinions influence the financial security of pension plans, the solvency of insurance companies, the pricing of health coverage, and the stability of numerous public and private financial systems. When those opinions are prepared by professionals who possess demonstrated knowledge of the applicable legal framework and who remain accountable to rigorous professional standards, policymakers and the public can have greater confidence in the decisions that are based upon them.

The MAAA designation is therefore more than a credential. It represents a commitment to U.S.-specific competency, professional accountability, and continuing education. Expanding recognition of the MAAA designation in statutes and regulations would not simply strengthen the profession—it would strengthen the integrity of the public policy decisions that depend upon actuarial expertise and reinforce public confidence in institutions that rely on sound actuarial judgment.

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

The Work Behind the Work

RETIREMENT ACTUARY KEVIN WADE, MAAA, EA, has spent his career working on the complexities of pension and retiree health care plans. Behind that work is a practical, client-focused approach grounded in clear communication, professional judgment, and a commitment to service.

What led you to become an actuary, and what attracted you to the profession?
My uncle, who was an actuary, first got me interested in the profession. Because I was good at math, "actuary" also came up as a potential career fit when I took career aptitude surveys in high school. It turned out to be accurate.

Describe a time when your professionalism training helped you in your career.
Professionalism training helps to reinforce and guide us in the basic principles of acting with integrity and doing the right thing. You have to be willing to have difficult conversations with clients, even when you are not necessarily giving them the information or results they want to hear.

Tell us about a time when your actuarial expertise influenced an important decision in your workplace.
Over my career, there have been many times when a mistake was made by either myself, one of my team members, or a prior actuary on an engagement where we had taken over the work. In all those instances, I've relied on my expertise to help not only to identify the problem, but also to outline potential solutions and bring those to the client or other appropriate parties to discuss them and help reach the best potential outcome within the bounds of professional standards.

What's one of the biggest lessons you've learned in your career?
Take responsibility for mistakes made within your team—even (maybe especially) if you didn't personally make the mistake—and provide ongoing support and feedback to your colleagues. Nearly all of our new hires are entry-level employees out of college, and I truly enjoy helping to provide support, encouragement, and feedback to younger staff to help them be as successful as possible in their careers, whether or not they remain with us or the profession.

What advice do you wish you were given at the beginning of your career?
I wish I had been told more about the importance of learning about each of your clients and their specific needs, and



how important it is to speak to them and explain things in a manner that you would want to hear them explained if you were in their shoes.

What do you value most about your Academy membership or volunteer work?
I value the ongoing educational opportunities provided through the Academy, as well as the support it provides to pension plan participants through the PAL [Pension Assistance List] program, in which I've had the opportunity to participate.



STOCK.ADOBE.COM / ALBERTO MASNOVO

What is the value of your MAAA?
The value is in what the MAAA represents, especially to those outside our profession—that anyone with the MAAA has the expertise and experience to provide the services and support required.

Would you like to share anything else with aspiring or new actuaries, or those interested in volunteering for the Academy?
I would advise new and aspiring actuaries that the profession goes well beyond just crunching numbers and providing reports, studies, and information to clients. It's also about being able to communicate effectively, make decisions efficiently, and provide value to and build trust with your clients. I am a strong believer in volunteering with the Academy or with anything you feel passionate about.

Beyond work, what are your hobbies or personal interests?
I am an avid bowler (I have bowled a 300 game) and golfer (no hole-in-one yet). I also enjoy volunteering—I've served as finance chair at my church for the past 15 years, been on the board of Nascentia Health, a large regional home health care agency, for over 10 years, and worked with a local nonprofit where I provide career coaching to inner-city high school students. I also enjoy traveling and spending time with family and friends. I've been married for 33 years to my wonderful wife. We have a 27-year-old son, and a daughter who lives in Portland, Ore., with her husband, and their two dogs.

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**.

It's time for an adventure.

The Magic School Bus® Takes a Risk
A Book about Probability

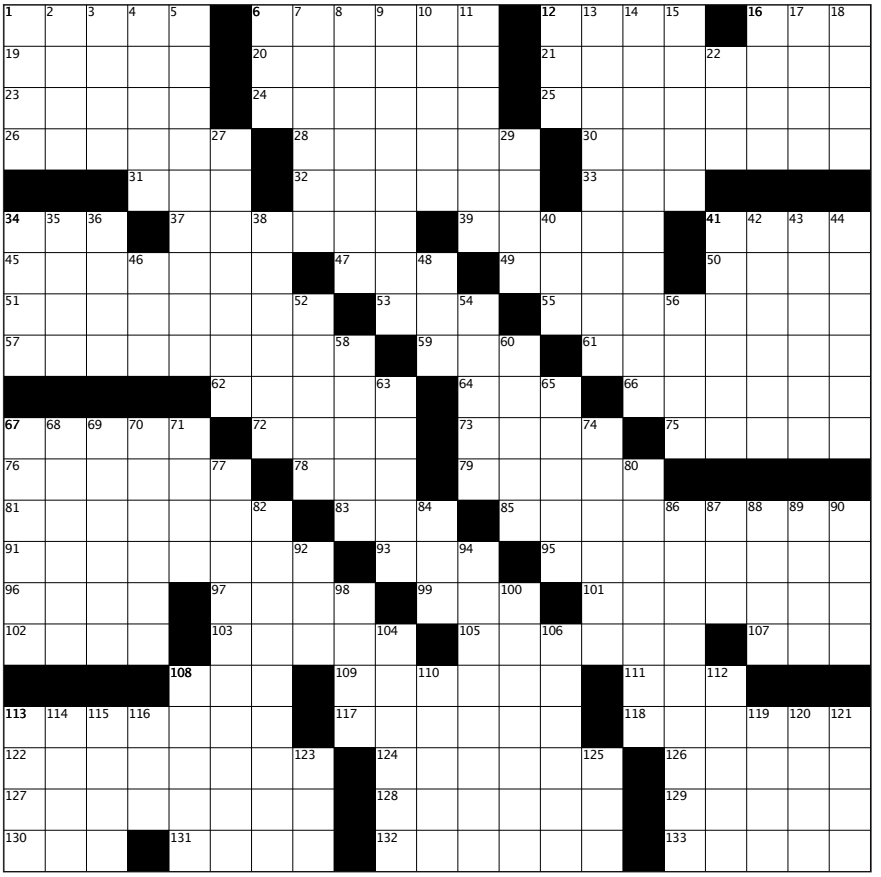


Learn more by visiting
actuary.org/magicschoolbus

Order your copy today.

American Academy of Actuaries

27th Letter of the Alphabet



Across

1 Medalworthy behavior
6 Pool strategies
12 Blocking nos.
16 Power source
19 ___ resin (organic adhesive)
20 Hedge shrub
21 Blood-sucking genus of bug
23 Ornamental shrub
24 Give the nod to
25 Cooperative settlements in Israel
26 Messi, Suárez, Neymar
28 Transport
30 Typhon and Echidna offspring
31 Typically large budget expenditure
32 Chevy classic
33 Louis Jordan and Ruth Brown were pioneers of the genre
34 It's "the word"
37 Miscreant
39 A victim of Cortés
41 Causerie
45 Dating material?
47 Kernel
49 Kelly Clarkson *My December* song
50 Jane Rochester's maiden name
51 Accusation attributed to 62 across
53 "How about that!"
55 Grow pale
57 Propagandist
59 16 ___ 3 = 1
61 "Casablanca" screenwriter Julius
62 One accused of 51 across
64 DuckDuckGo result
66 Madrigues
67 32 across, for example
72 Bloody
73 Exigency
75 ___ good (amazing)
76 Savoir-faire
78 Roman crowd?
79 Light green plums
81 "The ___," Handel opus
83 Prod
85 Man-in-the-Moon flowers
91 Office hookup
93 Homburg, for one
95 Common rodents of the Andes Mountains
96 Carnival attraction
97 Noted German composer Carl
99 Even number
101 Multiplication, to division
102 "No one ___ willingly" (Socratic thesis)
103 Celecoxib, e.g.
105 An ethnic group of China, Laos, Thailand, Burma, and Vietnam
107 Remote letters
108 Court Cam airer
109 Carbohydrate-binding protein
111 Analysts concern
113 Hen and pen
117 "___ Alley," classic bebop recorded by Miles Davis
118 Truffaut's "___ Kisses"
122 Crepuscule
124 Inert virus particle
126 Visibly stunned
127 Potomac River landmark
128 In a monotone
129 California natives
130 Many ETS customers
131 Map abbrs.
132 Swamp things
133 Demonstrate in a way

Down

1 Like the ocean
2 Manchurian river
3 It can move stars
4 Place to walk
5 Coined by Alan Freed
6 Gene Wilder's occupation in "The Producers"
7 World's smallest ocean
8 Nabob
9 Plethora
10 Fourth estate
11 Vivien in "A Streetcar Named Desire"
12 Divinity deg.
13 Form a group, you might say
14 Often served with malt vinegar
15 "Sir" to Gunga Din
16 Cote dweller
17 "The Kite Runner" hero
18 One of the Berenstain Bears
22 Aberdeen topper
27 Converting device
29 "The ___ Song": Bruno Mars
34 Borneo seaport
35 "The people of the land have ___ oppression" (Eze. 22:29)
36 Propose or suggest
38 "If I Had a Hammer" cowriter
40 Driving need
41 ___ Sea between Ireland and England
42 Pack animal: Var.
43 More affected
44 Hard to detect
46 Langston Hughes poem "I, ___"
48 Mahjong suit
52 City featuring the Palm Islands
54 Juvenescent
56 Sugary endings
58 Unearthly
60 Dokken "___ Warriors"
63 1940 and 1952 Oscar winner
65 De jure
67 Loose tunic
68 Key
69 Long overcoat
70 Models or puzzles
71 Sharjah dignitary
74 Frustrate
77 Diner staple
80 Enrollments
82 Hipposandal
84 Pass
86 Political strategy not seen today
87 Gray matter?
88 It carries over 80 million passengers per yr.
89 Famous Italian actress
90 Eurasian duck
92 Theater deg.
94 Horatio Alger's Tom
98 ___ Brasileiro
100 Mizzling
104 Goes deep
106 Brogan cushion
108 Butch Cassidy or the Sundance Kid, e.g.
110 ___ Staples Lewis
112 Utah city
113 FileZilla, WinSCP, and Cyberduck
114 It may have a fat lip
115 Deg. divisions
116 Supermodel Carol
119 Eastern title
120 Sweeping
121 Smart
123 Measures of wt.
125 FDR's domain circa 1931

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

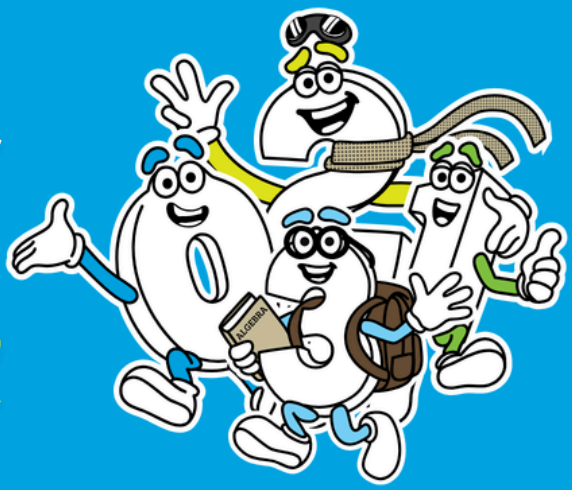
Previous Puzzle: Word Salad

F	A	C	T	S	■	U	P	T	O	■	W	A	R	S	■	C	A	R	O	L		
A	Q	A	B	A	■	P	R	E	P	■	E	S	E	S	■	A	C	A	R	I		
R	U	R	A	L	■	S	O	M	A	■	D	S	L	S	■	M	A	G	M	A		
C	A	P	R	E	S	E	■	P	L	A	G	U	E	■	■	S	C	I	O	N		
■	■	■	S	E	T	■	L	I	B	E	R	A	L	S	■	I	N	L	A	■		
M	A	N	A	M	A	■	■	E	Z	O	■	E	S	O	P	H	A	G	U	S		
B	R	A	C	E	L	E	T	■	E	V	E	■	E	R	I	E	■	■	■	■		
A	S	P	E	N	■	P	E	A	■	E	N	D	■	E	N	L	A	C	E	S		
S	E	E	D	■	C	H	E	S	S	■	G	R	I	N	■	P	R	O	L	E		
■	■	■	■	P	O	A	■	S	E	L	L	E	R	S	■	F	A	B	L	E		
H	O	T	P	A	D	■	N	I	C	O	I	S	E	■	D	U	B	B	I	N		
A	D	U	L	T	■	E	N	G	R	O	S	S	■	U	R	L	■	■	■	■		
L	O	N	E	R	■	G	E	N	E	■	H	E	N	R	Y	■	S	C	O	T		
T	R	A	D	I	N	G	■	S	T	M	■	D	O	G	■	B	O	O	N	E		
■	■	■	C	A	N	T	■	S	I	T	■	D	E	M	A	N	D	E	D	■		
B	L	A	C	K	P	O	O	L	■	G	H	B	■	■	A	S	S	E	S	S		
L	O	G	O	■	A	G	R	A	P	H	I	A	■	D	Y	E	■	■	■	■		
A	C	E	R	B	■	■	N	E	A	T	E	N	■	W	A	L	D	O	R	F		
M	A	N	N	A	■	H	A	L	S	■	V	A	S	E	■	E	U	L	E	R		
E	L	D	E	R	■	E	D	I	T	■	E	N	O	L	■	S	C	E	N	E		
D	E	A	R	S	■	N	O	A	A	■	S	A	U	L	■	S	T	A	T	E		

Solvers: *Steve Altschuld, Dean Apps, Todd Dashoff, Sarah Decker, George Levine, Ken Kudrak, Jim Muza, Ray Niswander, Gregory Scruton, and Madhumathi Windon.*

The Power of Confidence

Changes everything.



All for Math

The campaign for math proficiency

Confidence opens doors.
It helps students believe in themselves, take on challenges, and reach their full potential.

Together, we multiply impact.
When actuaries give, mentor, and volunteer, we create more opportunities and stronger futures for students.

Your support makes it possible.
Join us in empowering the next generation with the confidence they need to succeed in math.



Get Involved. Donate Today.

Help us show what the Power of Confidence can do.

The Actuarial Foundation

Unleash the power of math education. Transform futures.

Scan to learn more or make a gift!

Miranda Rights

SINCE IN COURT ANYTHING YOU SAY CAN BE USED AGAINST YOU, we offer some good advice, which comes from the entry at 24A. Seventeen answers, eight from across clues and nine from down, have an extra letter. These letters must be removed before insertion into the grid. (Both the clued answer and the grid entry are, of course, valid words.) Read in clue order (across first, then down), the 17 letters spell out a pertinent four-word phrase, a well-known quote from 24A.

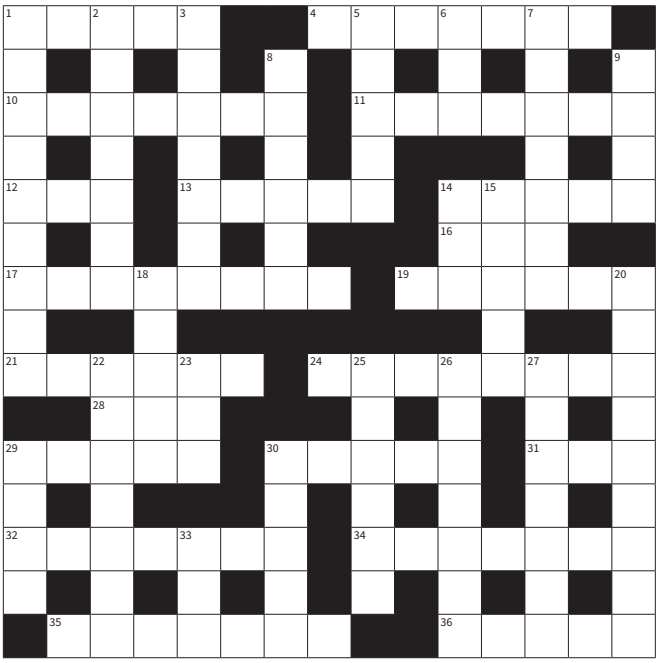
There are six proper nouns among the grid entries (and one more which can be a proper noun but doesn't have to be). There are three more proper nouns among the 13 special entries, one of which doesn't have to be a proper noun but is as clued. There is one common foreign word among the grid entries. Everything else is playable in Scrabble.

Two grid entries (4A and 35A) may seem to violate the principle that at least half the letters in an answer should be checked. Each of these clues leads to an eight-letter answer, so three letters are checked in the grid and the fourth is checked by the quote. The eight-letter answer at 4A is unusual. To quote Stephen Sondheim, "Ignore punctuation, which is designed to confuse."

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

Across

1. Verbally hit on but squeaky clean
4. Greek huntress at a loss, starts to adopt new training approaches
10. It improves coverage in a region when it's distorted
11. One country cedes nearly all to another country
12. Portrait of Popeye's girlfriend ordered by phone
13. Load-bearing beam found in brothel in Telluride
14. Mistakes made by nurses over fifty
16. One in sorry shape for a long time
17. Lethargic gig played in wet snow
19. Pressure group leader is bringing some heat
21. Edgy recording group presents "Get Back"
24. See instructions
28. Map out roadie's responsibility
29. Sid, confrontational despite nervousness, ultimately moves laterally
30. Boeings land on perfectly flat surfaces
31. Melody heard by one's child, maybe
32. One of two brothers is surprisingly lovelier but with no enthusiasm at first



34. First, one small criticism, then I also gloss over to a great degree
35. Tensions ensuing from too much rest after an accident
36. Watch the outline of sensitive circuitry

Down

1. Our cruise is getting weirder and weirder
2. Dear old uncle might be a poet
3. Not succumbing through sexting, I fussed
5. Agony if Virginia leaves footprints
6. Irreverent Sam's at a church service
7. Somewhat stricter minigolf limits
8. Salted nuts offered at river beds
9. Flaw is apparent in Yankee great
14. Ales poured at bar
15. Indigenous diet
18. DNA instructions all about genius outcome
20. Everyone can support kinetic energy, for the most part
22. Protest after sleazebag remains
23. Well, get this, some of them may call you out
25. A gadabout is operating primarily with slow movement
26. Steel in church's tower
27. Cook Strait's backer of autocratic rule
29. Stairway outside of student co-op
30. Breakthrough for a President
33. Close, but a little late to succumb

Good advice from Miranda:

— — — — — — — —, — — — — — — — — —



Solution to Previous Issue's Puzzle—Island Rings

Across

7 POI COOKBOOK—Theme Pun (Unlikely luau souvenir?)
9 EEL—Homonym/Pun ("That's Amore!" hom.)
11 HONOLULU LOOKOUT—Theme Pun (Diligent Diamond Head defender?)
12 SLOW DON HO SOLO—Theme Pun (Tiny bubbles?)
16 NOSIEST—Anagram ("On-sites" anag.)
17 SAFARIS—Insertion (A + FAR) inside SIS
20 HILO TOODLEOOS—Theme Pun (Alohas upon departure?)
23 JASON MOMOA TORSO—Theme Pun (Body of work displayed on "Aquaman" movie posters?)
27 BEE—Homonym ("B" hom.)
28 OAHU YOOHOOS—Theme Pun (Alohas upon arrival?)

Down

1 OPAH—Hidden (sh)OP AH(ead)
2 PIANISTS—Anagram ("sit in spa" anag.)
3 FOUL POLE—Homonym ("fowl poll" hom.)
4 SKOL—Hidden (a)SK OL(af)
5 BOWL—Simple Charade (B + OWL)
6 DE NOVO—Simple Charade (DEN + O + V(igenère) + O)
8 KYOTO—Letters Shifting (TO)KYO --> KYO(TO)
10 LET LOOSE—Anagram ("Tools Lee" anag.)
13 DITTO—Insertion (ITT inside DO)
14 NASAL—Hidden Initial Letters (N(ew) A(ge) S(ingers) A(re) L(oud))
15 ON THE JOB—Anagram ("John to be" anag.)
18 FRONT ROW—Hidden Odd Letters (F(o)R (n)O(o)N (s)T(a) R(t) O(f) W(e))
19 RESTROOM—Comb. Anagram/Container ("termors" anag. around O)
21 LASHED—Container (LAD around SHE)
22 TANGO—Simple Charade (TAN + GO)
24 OOHS—Homonym ("ooze" hom.)
25 ONYX—Simple Charade (ON + Y + X)
26 OAST—Comb. Deletion/Pun (r)OAST

The theme-relevant TV Show: HAWAII FIVE-O (AWIVIIFEHOW anag.)

All six of the Across theme entries have exactly five letter Os.



Solvers

Steve Alpert, Dean Apps, Steven Berman, Jack Brauner, Bob Campbell, Lois Cappellano, Laura Cremerius, Jared Dashoff, Todd Dashoff, Christopher Dickens, Mick Diede, Deb Edwards, Phil Gollance, Jason Helbraun, Pete Hepokoski, Max Jackson, Ruth Johnson, Patrick Jou, Paul Kolell, Ken Kudrak, George Levine, Tim Luker, Ben Lynch, David McGarry, Jon Michelson, Molina Team (Michael Manos and Erik Whitescarver), Becky Moody, Jim Muza, Todd Pierce, Ram Raman, Zig Swistunowicz, T.O.C.E. (Josh DenHartog and Sam Donohoe), Tim Tebbe, and James and Betsy Uzzell.

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 Dec. 1, 2026.

New Beginnings

A LITTLE OVER 10 YEARS AGO, I LIKELY DIDN'T KNOW WHAT I WAS GETTING MYSELF INTO writing this puzzle column. Full of optimism and naïveté, I easily figured I could come up with a few clever columns a year. Quickly, reality set in, as I struggled more and more to come up with creative ideas for puzzles. It didn't help that Stephen Meskin set the bar incredibly high with his offerings. With some of the smartest puzzle readers around, I knew that there was no way they would let me ever phone in a column.

As my ideas have dried up, fortunately new blood has arrived to offer a fresh perspective on this column. Starting next issue, Aaron Farmer, Tony Pistilli, and Daniel Wade have graciously agreed to take over this endeavor. I have spoken to all of them, and I am confident they will create puzzles of higher quality than I can right now. I look forward to going back to solving puzzles instead of creating them, and will make sure that Aaron, Tony, and Daniel get off to a flying start writing puzzles! While I might create an encore puzzle in the future, don't expect it!



Over these past 10-plus years, I realized a reader probably knows a heck of a lot about me through reading this column. In previous columns I have talked about my hobbies, my favorite game shows, my hometown, running, poker, social media feeds that I follow, reality TV shows that I enjoy, and of course my unique and awesome group of friends. I appreciate *Contingencies* giving me the opportunity to talk about so many things that I hold dear to my heart. Never once did I feel censored or discouraged from writing about any topic of interest.

Of course, I still have one more puzzle to muster up. I remember that over a decade ago I talked with Lenny Shteyman, the previous puzzle editor, about taking over this job. He asked me for a puzzle example I might use, and I realized I never used that example. It seems fitting to rectify that!

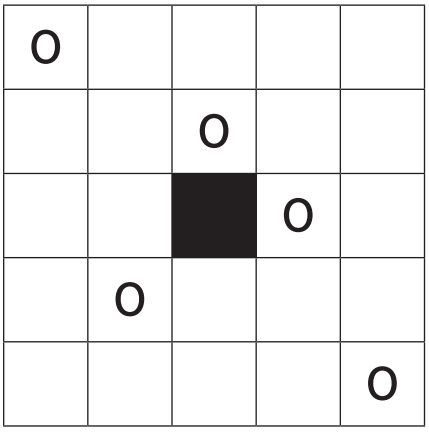
1. One of the quirks of living in my small town is that we have a small airport. A really small airport. And let's just say the boarding rules are relatively lax. Not too long ago, my partner and I planned to attend a tennis tournament. Alas, we broke up before the flight, but we both wanted to attend the tournament. With no other flights available, and sitting next to each other on the flight out of the question, we came up with a plan. My partner (who had boarding priority) would be the first person to board the flight and take a random window seat on the plane. If the person who later boards the flight happens to be in the seat my partner chose, he/she would just take a random open seat, as here in the Midwest no one would dare raise a fuss about someone sitting in their seat. This process would continue throughout the entire flight, until I would be the final one to board, and would take the last available seat no matter where it is. Assuming a full flight of 100 passengers, and that if your seat is occupied the passenger will randomly select one of the remaining unoccupied seats, what is the probability that I end up sitting next to my ex?

2. Of course, the drama didn't end on the flight; there was drama at the tennis tournament as well. As the tournament sold itself as "old school," there was no electronic calling of balls in or out. They instead had old-fashioned linespeople make the calls. On one heavily contested point, a player made a tirade worthy of Jeff Tarango, claiming a serve that was clearly out was called in. During the ensuing discussion, you could clearly hear one linesman say that it was his responsibility to determine if the ball was long or not, and he was 100% confident that the ball was indeed not long. And another lineswoman said it was her responsibility to tell if the ball was wide or not, and she would swear on her life that the ball was not wide. Is it possible that all three people heard are correct: that the ball was not wide, not long, and yet still the correct call should have been that the ball was ruled out? How so? Note that in tennis, if any part of the ball hits any part of the line, it's considered in.

STOCK.ADOBE.COM / H_KO

Solutions to Last Issue's Puzzles—Bingo! JOSH FELDMAN

1. What is the probability of getting Bingo in exactly four balls? There are four ways to get Bingo using exactly four balls: two diagonals and horizontal and vertical through the center square. This is just (75 nCr 4)* 4, or 1 in about 303,862.
2. What is the probability of getting Bingo in exactly five balls? There are two ways to do this. One is to not use the 'free' square. There are eight ways to do this (four vertically and four horizontally), so this is just 75 nCr 5) * 8 = 8/17,259,390. You can also use four drawn balls and the free ball to do this. This is similar to question 1, except that before the 1st, 2nd, 3rd or 4th ball there will be one 'miss' with a probability occurring of 71/75. The probability of this is = 0.00132%. As these are independent, the sum of these two numbers is our answer, at about 0.00136%.
3. What is the greatest number one can draw with no Bingo? You can draw 70 balls without a Bingo. See this drawing by solver Rui Guo to illustrate how five open spaces can lead to a player not getting a Bingo.



4. What is the probability of covering all four corners with the first four balls? That is just (4/75) * (3/74) * (2/73) * (1/72) = 0.00000082



5. What is the probability of getting a blackout by the 60th ball if 10 people play? In order to get a blackout by ball 60, the last 15 balls must be 'misses'. The probability of the first ball missing is (51/75). The second is (50/74), the third is (49/73)…. Multiplying these together leads to a probability of 0.14%. If 10 people play, then $(1-.0014)^{10} = 0.986$. So about a 1.4% chance one of the 10 players has a blackout.

Solvers: *Rui Guo, Bob Conger, David Promislow, Daniel Wade, Anthony Salis, Clive Keatinge, and Jason Shaw.*

AD INDEX

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

Actuarial Careers Inc.® **5, 58–59**
914-285-5100 | actuarialcareers.com

Actuarial Foundation **67**
actuarialfoundation.org

American Academy of Actuaries **65, 74, C3**
202-223-8196 | actuary.org

Andover Research Ltd **C2**
800-ANDOVER | andoverresearch.com

Ezra Penland **1, 60–61**
800-580-3972 | ezrapenland.com

Milliman **49**
803-687-8693 | integrate.milliman.com

Pauline Reimer/Pryor Associates **C4**
516-935-0100 | ppryor.com

STOCK.ADOBE.COM / SONULKASTER



Our 2026 Writers

We thank the writers who shared their expertise, ideas, and perspectives in *Contingencies* throughout 2026.

Feature Writers

Beth Baker
- "Your Next Coworker May Not Be Human" (*Nov/Dec*)

Barbara Bryant
- "Breaking Boundaries" (*March/April*)
- "Advancing With an Edge" (*May/June*)

Martin Eling
- "The Economic Impact of Extreme Cyber Risks" (*March/April*)

Sally Ezra
- "The AI Effect: A Developing Story for Actuarial Careers" (*March/April*)

Kimberly Ferrero
- "How GLP-1 Drugs Are Shaping Care, Cost, and Coverage" (*July/Aug*)

Carlos Fuentes
- "Global Trade and Risk Under Full Employment" (*July/Aug*)
- "Trade-Offs" (*Sept/Oct*)

Xinyi (Cindy) Hu
- "AI and the Moral Hazard Problem in Health Insurance" (*July/Aug*)
- "Adapting to an Aging World" (*Nov/Dec*)

Fei Huang and Xi Xin
- "Designing Fairness in Insurance Pricing" (*March/April*)

Virginia Hulme
- "Professionalism in the Age of AI" (*May/June*)
- "The Code at 25" (*Nov/Dec*)

Nancy Mann Jackson
- "Rethinking Risk in a Connected World" (*Jan/Feb*)

Noah Kirsch
- "Agile and Ready for What's Next" (*Jan/Feb*)
- "The Many Sides of Retirement Planning" (*May/June*)
- "Hard to Reach" (*Sept/Oct*)

Min Chieh (Jessie) Lee and Yvonne Chueh
- "Actuarial Modeling Through a New Lens" (*Jan/Feb*)

James Lynch
- "A Look Back: How Insurance Helped Shape America" (*July/Aug*)
- "The Evolution of Risk" (*Sept/Oct*)

Steve Malerich
- "Mind the GAAP" (*May/June*)

Michael G. Malloy
- "Convective Convergence" (*Sept/Oct*)

William J. Michalisin
- "Powering the Profession" (*Jan/Feb*)

Rade Musulin
- "Managing Risk in a World of Polycrisis" (*July/Aug*)

Ankit Nanda
- "What Actuaries Need to Know About Emerging Therapies" (*May/June*)

Poojan Shah
- "Modernizing Actuarial Operations in Reinsurance" (*Nov/Dec*)

Mark Shemtob
- "The Roth Question" (*Sept/Oct*)

Amarnath Suggu
- "Calibrating GenAI" (*May/June*)

Baskar Sundararajan and Srivathsan Karanai Margan
- "Human Oversight of Thinking Machines" (*Nov/Dec*)

Michael Winkler and Sunil Kansal
- "IFRS 17: How Discounting Shapes Financial Outcomes" (*March/April*)

Columnists

Nancy Behrens
- Up to Code (*March/April*)

Josh Feldman
- Puzzles (*March/April, July/Aug, Sept/Oct, Nov/Dec*)

Ted Gotsch
- Policy Compass (*all issues*)

Eli Greenblum
- Up to Code (*May/June*)

Sam Gutterman
- Last Word (*Jan/Feb, March/April, May/June, July/Aug, Nov/Dec*)

William C. Hines
- Up to Code (*Jan/Feb*)

Curtis Huntington
- Up to Code (*Sept/Oct*)

Zora Law
- Last Word (*Sept/Oct*)

Edward Lee
- Up to Code (*Nov/Dec*)

Warren Manners
- Crossword (*all issues*)

Stephen Meskin
- Puzzles (*Jan/Feb, May/June*)

Tony Schweiss and Anderson Olson
- Tradecraft (*Jan/Feb*)

John Stokesbury
- Up to Code (*July/Aug*)

Tom Toce
- Cryptic Puzzle (*all issues*)

Jeyaraj (Jay) Vadiveloo and Karishma Gupta
- Tradecraft (*May/June*)

U.S. Postal Service Statement of Ownership, Management & Circulation

1. Publication Title: Contingencies

2. Publication Number: 1048-9851

3. Filing Date: Oct. 1, 2026

4. Issue Frequency: Bimonthly

5. Number of Issues Annually: 6

6. Annual Subscription Price: $24

7. Complete Mailing Address of Known Office of Publication: American Academy of Actuaries, 1850 M Street NW, Suite 300, Washington, DC 20036, Contact Person: Laurie Young, Telephone: (202) 223-8196

8. Complete Mailing Address of Headquarters: 1850 M Street NW, Suite 300, Washington, DC 20036

9. Full Names and Complete Mailing Addresses of Publisher, Editor and Managing Editor: Publisher—American Academy of Actuaries, 1850 M Street, NW, Suite 300, Washington, DC 20036; Editor—Preeti Vasishtha, 1850 M Street NW, Suite 300, Washington, DC 20036; Managing Editor—Preeti Vasishtha, 1850 M Street NW, Suite 300, Washington, DC 20036.

10. Owner: American Academy of Actuaries, 1850 M Street NW, Suite 300, Washington, DC 20036

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None

12. Tax Status: Has not changed during the preceding 12 months

13. Publication Title: Contingencies

14. Issue Date for Circulation Data Below: July/August, 2026

15. Extent and Nature of Circulation: Average Number of Copies Each Issue During Preceding 12 Months; Number of Copies of Single Issue Published Nearest to Filing Date

15 a. Total Number of Copies: Average copies: 22,299; Copies of single issue: 15,620.

15 b. Paid Circulation: (1) Mailed Outside-County Paid Subscriptions: Average copies: 14,495; Copies of single issue: 15,063 (2) 369 (3) Average copies: none; Copies of single issue: none (4) none

15 c. Total Paid Distribution: Average copies: 15,221; Copies of single issue: 15,432

15 d. Free or Nominal Rate Distribution: (1) Average copies: 6,679 Copies of single issue: 0 (2) none (3) 27 (4) 23

15 e. Total Free or Nominal Rate Distribution: Average copies: 6,706 Copies of single issue: 23

15 f. Total Distribution: Average copies: 21,927; Copies of single issue: 15,455

15 g. Copies Not Distributed: Average copies: 372; Copies of single issue: 165

15 h. Total Copies: Average copies: 22,299 Copies of single issue: 15,620

15 i. Percent Paid: Average copies: 69.41%; Copies of single issue: 99.85%

I certify that all information furnished is true and complete.

—Laurie Young
Production Manager, November 1, 2026

Advance your actuarial journey
with the Academy's new

Career Center



NEW MEMBER BENEFIT

Ready for your next opportunity?

The Academy's Career Center is your new online resource—

- FREE and confidential resume posting
- Job search control
- Save and apply for jobs easily

For employers, the Career Center provides unmatched exposure for job listings and easy management of your posting.

Check out the new Career Center today | careercenter.actuary.org

American Academy of Actuaries

The Search for Efficiency

EFFICIENCY USUALLY FOCUSES ON "DOING THINGS QUICKLY AND CORRECTLY," while effectiveness emphasizes "doing the right things well." The search for efficiency focuses on cost, input, productivity, time, and waste reduction, while effectiveness addresses objectives, quality, and impact.

Technology can be a powerful tool that drives efficiency and progress by maximizing output from limited resources while supporting growth.

Are we focused too much on optimizing each process? Are we chasing instant perfection? When efficiency is given high priority, the focus shifts to whether budgets are met rather than whether the objectives are worthwhile.

Cutting costs too aggressively might boost short-term efficiency but undermine quality and long-term resilience and effectiveness. A process that appears lean over one year might become catastrophically inefficient over a longer period.

Likewise, chasing minor advantages, such as milliseconds in financial trading, may not always be worthwhile. An organization obsessed with efficiency metrics may become too lean and fragile, stifling innovation, creativity, and the pursuit of value.

Efficiency is not just about speed or cost reduction—it also includes managing risk and uncertainty under a range of scenarios, which most efficiency metrics ignore. Transparency, reliability, accuracy, good governance, and maintaining trust are also important.

Reducing staff too aggressively may undermine the ability to respond to adverse circumstances and neglect human consequences, fairness, resilience, and quality. Nevertheless, pursuing effectiveness without regard to cost can become financially unsustainable.

Throughout history, efficiency gains have transformed economies and raised living standards. Ever since the Industrial Revolution, automation, computers, mobile phones, and now artificial intelligence (AI) have streamlined and accelerated countless tasks. These technologies have lowered costs, boosted productivity, and expanded access for many. These gains have enabled people to devote more time to creative, strategic, and interpersonal activities rather than repetitive work.



STOCK.ADOBE.COM / ZEE

The pursuit of efficiency—eliminating unnecessary steps, avoiding duplication, and adopting better methods and technologies—requires continuous focus on innovation and adaptation rather than one-time fixes.



The pursuit of efficiency—eliminating unnecessary steps, avoiding duplication, and adopting better methods and technologies—requires continuous focus on innovation and adaptation rather than one-time fixes.

Efficiency should not become an end in itself, divorced from the purpose it was meant to serve. A program can be effective yet expensive, or efficient yet unsuccessful, leading to a focus on the trees rather than the forest. Pursuing efficiency without regard for quality, safety, or fairness can lead to unintended consequences. A hospital that minimizes staffing solely to reduce costs may compromise patient care. A business that focuses exclusively on maximizing output may overlook employee well-being or customer satisfaction. Similarly, programs designed to reduce administrative costs may fail to serve the people they are intended to help.

On a personal level, seeking greater efficiency means managing time thoughtfully, minimizing distractions, prioritizing important activities, and continuously learning better ways to work. Technology can help by automating routine tasks, organizing information, and improving communication. Yet efficiency requires discipline and judgment, recognizing that not every activity needs to be optimized and that relationships, creativity, and thoughtful decision-making often require time that should not be rushed.

Technology—including advances in computing power, automation, cloud systems, and AI—has dramatically improved efficiency across many routine actuarial processes. Tasks once requiring days of manual calculations now take minutes, freeing actuaries to focus on higher-level work. These advances do not diminish the importance of discipline and professional judgment, which often create greater value.

An exclusive focus on cost reduction may increase operational, financial, or reputational risks. Prudent risk management requires reliability, transparency, and ongoing monitoring. Yes, faster and less expensive work is possible, but it should also produce information that is accurate, credible, and useful for decision-makers.

Cost-cutting can undermine fairness if it leads to inequality, lower-quality services for certain groups, or unfair treatment of employees or other stakeholders. It may also unconsciously prioritize the majority's needs while neglecting vulnerable populations.

The impact of AI on fairness is complex and depends on its deployment. Although it can help automate processes, freeing time for more complex work that requires judgment, it might optimize the wrong metrics or overlook important qualitative factors. As AI's influence expands, it will be important to consider its design, oversight, and alignment with human values.

The search for greater efficiency should consider stakeholders' needs while avoiding unintended consequences. Streamlining an unnecessary process is a hollow pursuit. The greatest success comes from both efficiency and effectiveness—doing the right things well, not just doing things right. True efficiency balances responsible resource use with the achievement of worthwhile objectives.

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

STOCK.ADOBE.COM / KOBPS2

Join **NOW** and **SAVE**



Join today and get up to 2 months of free membership.

New members will not be charged dues for November and December.

Newly Credentialed?
Receive a 50% discount on your 2027 dues if you earned your first actuarial designation within 3 years of applying for membership. The application fee will also be waived—a further $75 value.

This offer includes:

- ✓ **Immediate access to member benefits**
- ✓ **14 months of membership for the cost of 12**

Spread the Word

If you know colleagues, associates, or other credentialed actuaries who are not yet Academy members, please encourage them to take advantage of this special offer and join today.

Share

actuary.org/membership

American Academy of Actuaries

Pauline Reimer, ASA, MAAA

PRYOR Executive Search



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.