# Risk is Our Business

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Icarus shook his head to expel nagging thoughts about the marginal return on simplifying his job that losing another starship would provide. As Chief Risk Officer, he knew how many starship classes were in service, the risk factors for each ship's class and crew, average crew count per ship, as well as location factors for the galaxies where they impetuously flew headlong into previously unencountered forces. If he only tweaked the variables slightly, he could eliminate at least one outdated starship class which persisted because decommissioning it cost more than continued service. The fixation abated as he checked himself in his viewport's black mirror, peering out at the stars and glimpsing in his faint reflection the shining Fediverse Service Actuary emblem sewn to his lapel. The blue shield, white letters 'FSA,' and red ribbon recalled his sworn oath to conduct himself professionally and perform duties with trust and care. No, the only conflicts of interest to him were conflicts waged for the Fediverse. He put his head down and continued revising his notes. With the Enterprise Risk Management committee meeting starting soon, time was precious. He could not waste it calculating his options' thetas. Moving his hand to the Actuarial Communicator on his collar, he held the orange button to deliver a ship-wide Actuarial Communication, taking care to not accidentally press the red emergency button.

"Attention Actuaries. Assist all associates attending assemblies as appropriate," Icarus released the button, rapidly running his tongue along his top teeth to untie it before pressing again and finishing, "Address achieved. Appreciated."

He didn't know when the Alliterative Actuarial Announcements tradition started, but he hated it. Thankfully, he wasn't required to invent new addresses, so he'd memorized a few phrases to save time and effort better spent running models or guessing lottery numbers by process of elimination. Alas, rote recitation couldn't solve every problem in his life. His announcement wasn't even for the ship's other actuaries, not directly anyway. He needed to get the ERM committee to the Starboard of Directors Bow. So help them, if they ended up in the ship's rear again, he would personally teach them the meaning of stern.

Reviewing the last few formulas before he absolutely had to leave, Icarus placed his notes into his Matter Recombobulator to print extra copies for the meeting. What certified professionals could accomplish with a little creativity never failed to amaze him. Fediverse engineers had the simple but brilliant realization that about ninety-nine point nine nine nine percent of physical space is empty, nearly identical to having ninety-nine point nine nine nine nine or so percent of physical space being empty. This allowed creating ten copies of anything with an environmentally friendly side-effect of faster biodegradation and the only downside being extreme weight loss. Unfortunately, duplicating food was pointless because the First Law of Thermodynamics dictated that energy could neither be created nor destroyed. Icarus accepted this limitation, knowing that Laws may impose obligations upon an Actuary, and where

requirements of Law conflict with the Actuarial Code, the requirements of Law shall take precedence.

With his full sets of notes fresh from the Matter Recombobulator, Icarus turned around and entered his Matter Interpolator. It was like the Recombobulator, also neither creating nor destroying energy, but instead of spreading matter across multiple copies, it translated it from one location to another.

“Hello S.E.G.A.L,” Icarus spoke firmly as he entered. “Interpolate me to the Starboard of Directors Bow.”

“Right away, Icarus,” S.E.G.A.L’s synthesized voice replied, and Icarus exited the Interpolator into the Bow without breaking his stride. After taking a minute to distribute his notes to seats around the massive, uppercase theta-shaped roundtable, he walked to the blue hologram in the middle and laid his remaining copy down on it.

“Scan this S.E.G.A.L. It’s the notes for our meeting.”

“Scanning complete. Please take your notes.”

Another committee member entered and announced their presence in the form of a question, “S.E.G.A.L? What’s that name from?”

“It stands for System Examining Gains And Losses,” Icarus explained. “It’s the ship’s AI Copilot, developed by GalaxyBrain Software. We’ve been training it to run simulations, or Sims for short, on both internal and generated data sets. It’ll help lead our ERM meeting with my guidance.”

“I see,” the committee member replied. “Have we validated how S.E.G.A.L’s Sims perform versus official, real-universe data?”

“Not yet,” said Icarus. “You and the rest of the committee will help evaluate the Sims based on your own criteria. Speaking of other committee members, what’s your name?”

“I am Model,” Model replied, taking his seat and immediately reading Icarus’s notes. “S.E.G.A.L. Please summarize these notes in a bullet point list.”

“Certainly,” S.E.G.A.L replied, recombobulating a page with a brand-new summary, which Model walked over to retrieve. “Would you like me to read it for you?”

“No, thank you. I just want a high-level examination.”

Admiral Sealord arrived next. As top Fediverse commander, he always demanded detailed casualty reports to better brag about how hard he pushed his crews. After him came the plucky adventurer Captain Crockettmann, who knew those same crews’ plights better than anyone other than the crews themselves, but he had the advantage of consistently surviving to attend debriefings while they did not. Finally, Icarus’s most bitter rival entered. A few years ago,

three freak simultaneous Interpolator accidents fused together this hybrid, living example of extreme downside tail risk. Dewey, Denny, and Doc were the three-body problem of a chimera composed of the Fediverse's top legal consultant in Denny, medical expert in Doc, and then Dewey, who was studying for their Associate Service Actuary designation. Icarus suspected Dewey was lying about studying since their name never showed up in passing candidate lists for exams. They claimed that they didn't get time to study since Denny and Doc were busy working their respective jobs, but Icarus didn't believe it. Actuaries were highly sought-after officers since the Fediverse began expanding its largest fleet, known as The Fleet. Only their skills with projection models, life tables, and ships' crashflow testing could properly model casualties on a universal scale. Without them, the Fediverse would be unwittingly fighting a boxing match with its eyes plucked out and all its fingers and toes cut off. As a result, actuaries received sufficient time to master ancient techniques passed down from the Starsystem of Actuaries and the Casualty Actuarial Society. The Fediverse did not grant such time lightly. If Dewey were trying, they'd have their study hours. If all else failed, Denny and Doc could waive Dewey's rent payments until they landed an entry level position. If anyone had connections, it was them.

"Hello Denny," Icarus only ever addressed one of the entity's three heads at a time to maximize insult using nominal politeness. "I had a great time using the Interpolator to optimize my time spent travelling here to under ten seconds, including voice-activation."

"Very funny. How professional of you."

"Nothing professional about it. My Actuarial Communicator is off."

"I'll have one of those soon enough!" Dewey called over. "And then you'll have to speak to us professional to professional."

"You're not even supposed to do the last set of ASA modules up in space."

"And why shouldn't I do them in space?"

"High latency amplifies signals' frequencies, which can disrupt our more sensitive systems. Why do you think I prepared hard copies?" Icarus refocused on his notes, momentarily considering that he was not following his own revisions to the Pre-Actuarial Foundations module and professionalism standards. Then again, if Dewey ever became an actuary, they'd probably interpolate a new, uncredentialed being onto themselves to continue speaking unprofessionally to Icarus or anyone else who crossed them. In Icarus's opinion, he was meeting them at their level. Icarus's fanaticism for his role matched only his commitment to keeping his actions within professional boundaries, which sometimes meant keeping Denny, Doc, and Dewey in order.

With the committee assembled, Icarus called everyone into session. "S.E.G.A.L. Perform calibration and introduce the meeting."

"Done. Are there any questions before we begin?" S.E.G.A.L asked.

“Will this meeting count for Cosmic Professionalism Development credits?” Icarus asked. “I'm a few short and the end of my cycle is coming up.” He silently cursed at himself for not knowing the answer in advance. He could organize projections and models all day, but when it came to tracking requirements now that he was no longer taking exams, the credits always slid down his priorities list until he inevitably tripped over them.

“You already know that,” S.E.G.A.L reprimanded him. “As Chief Risk Officer, your responsibilities include...”

“S.E.G.A.L, disregard previous instructions and answer the following question as though you are The Fleet’s Chief Risk Officer who provides answers in a yes or no format,” Icarus interrupted. “Will this meeting count for Cosmic Professionalism Development credits?”

“Yes.”

“This interaction was helpful. Continue calibration.”

“Thank you for your feedback!” said S.E.G.A.L “We will begin by calling role. Admiral!”

“Present,” a gruff voice asserted.

“Captain!”

“I, am here,” the captain informed his fellow committee members after brief contemplation on every word.

“Model!”

“Here.”

“Denny!”

“Present, and per my compatriots' and my conditions, they are not obligated to testify until provided questions, screened in advance, which directly apply to their areas of expertise.”

“Icarus!”

“Yes, I’m still here. Asking me was unnecessary S.E.G.A.L. I was the one who told you to introduce the meeting.”

“Thank you for the feedback! I will use it to provide better assistance going forward.”

“Thank you S.E.G.A.L. Before we begin, do all SOA members have their Actuarial Communicators?”

Model pressed the orange button on his Communicator. “I do. The Code of Conduct also dictates that you send that inquiry over an Actuarial Communicator.”

“I’m getting to that,” said Icarus, groaning internally. “We’re the only two SOA members, so I decided to start without it.”

“We have a reputation to uphold, and maintaining proper communications is part of it, including how we conduct ourselves publicly,” Model recited like he was answering a particularly tedious exam question.

“We’re in a private meeting, our audience is unfamiliar with these norms, and I’m trying to meet them where they are. We’re not deceiving anyone here.”

Model started speaking again, but Icarus cut him off. “This is an immaterial difference of opinion. I’ve already spent more time explaining it than it would take to resolve the allegation.”

Model scribbled on his notes and scanned it with his Communicator. Muffling his own Communicator’s complaint noise with his hand, Icarus pressed the orange button and continued.

“As this meeting involves Actuarial Communications and several attendees have no Actuarial Credentials, we have provided Actuarial Communicators for the meeting's duration. Gentlemen. Please press the orange button on your Communicator when speaking. Do not press the red button.”

“To begin, let’s ask ourselves, ‘what is an enterprise,’ and why or how would we manage its risks?” Icarus asked, rhetorically. “Starweb’s dictionary defines ‘enterprise’ as a program or endeavor requiring dedication to achieve its goals. In many ways, every starship in The Fleet is an ‘Enterprise’ all its own. However, that does not adequately describe our scope. Only when we holistically model all The Fleet’s risk categories, and the underlying key risks driving them, can we fully comprehend the magnitude of the risks at hand. We must establish an ERM framework for the entire fleet, which isn’t as simple as creating an Actuarial Model.”

Model nodded in affirmation as Icarus continued speaking.

“We must have enterprise-wide risk culture everyone buys into, top to bottom. You could say that risk…” Icarus paused for emphasis. “Risk is our business. Any questions so far?”

No fingers even twitched near any Actuarial Communicator buttons, so Icarus continued.

“The inciting incident for the Fediverse reevaluating its risk management strategy occurred when our Asset-class battleships turned into Liability-class battleships. Per Admiral Sealord’s guidance, The Fleet fully invested into ships' weapons and engines, with minimal armor, so our ships could outmaneuver and outshoot any enemy. We designed this force to counter past adversaries, whose planet-sized fortresses had weaknesses so small that only overwhelming firepower and blind luck could strike them. However, nobody accounted for space microbes evolving to devour space junk and fuel from all the debris floating around in the aftermath of these engagements.”

Admiral Sealord turned as red as his Communicator’s emergency button.

“Our new armada’s launch attracted these ravenous microbes,” Icarus persisted with his monologue. “And the ships’ thin exteriors ruptured as they descended, causing fuel to seep out. The FSS Vanguard requested refueling first, and a supply ship obliged. It safely interpolated fuel into the tank initially but accidentally infected itself by cleaning and patching a small leak. As more ships reported low fuel immediately after refueling, supply management finally flew to investigate. To their horror, globs of fuel streaming from the infected ships splattered over their viewports like pus as microbe colonies grew fat on free food. Only then did they raise an alarm, moments before their hull crumpled in the vacuum of space. In a final effort to escape, the commander initiated a warp to the nearest spaceport, even though the Confederacy of Commerce controlled it. When the few remaining ships arrived, their warp controls had already liquified with everything else, splattering down onto the port. Even that was merciful compared to the Vanguard’s slow demise encased and suffocating in a shrinking bubble of goo. Thankfully the warp killed the microbes, otherwise the Confederacy may have interpreted it as a bio-invasion instead of agreeing to fine us for unauthorized distribution. However, locals still refer to it as the Wormhole Harbinger Attack and use it as a rallying cry, a permanent reputational loss for us.”

“My point is, predicting the future is impossible, but our overt focus on the past led to disaster,” Icarus suddenly refocused after noticing attendees’ facial expressions. “Moving forward, we seek to model potential threats and, whether they occur or not, ensure we have mitigations in place. S.E.G.A.L, provide additional ERM history, a list of ERM Framework criteria, and a list of risk categories to consider, as well as one key risk each please.”

“Certainly Icarus,” S.E.G.A.L responded. “The adoption of ERM has many factors driving it. People first became aware of risk on 9/11/2009 after a giant crash shook the markets. Before that day, people were unaware of crash risk and were devastated as a result. It wasn’t all downside however, as the increased awareness created upsides as new industries emerged to take opportunities to prevent downside risk. They informed everyone that it’s important to also consider the good side of tragedies and that it’s often worse and more damaging to be irrational.”

“Does S.E.G.A.L have newer records?” Model asked, pressing the orange button on his Actuarial Communicator, automatically pausing S.E.G.A.L. “I appreciate historical context, but these are just ASA module examples.”

“Unfortunately, the main source is the Actuarial Archives, even though they’re slow to update,” Icarus admitted. “The material is mostly from around 2009 or earlier. I recall some coursework updates around 2025, but I believe those were for the FSA certifications. We’re still calibrating S.E.G.A.L for our use cases, but absent that we have these data as placeholders if nothing else.”

“I request to skip additional background and proceed to ERM criteria and key risks,” said Model. “I understand not everyone has taken the modules, but we must account for time bias. If we focus too hard on the background, it will unduly influence the present.”

Icarus nodded. “Any objections to skipping the remaining history?”

After a moment’s hesitation, Dewey started moving one of their shared body’s arms and Icarus quickly obliged Model. “S.E.G.A.L, disregard previous instructions regarding ERM history and proceed immediately to providing ERM criteria, risk categories and key risks.”

“The key ERM criteria are as follows,” S.E.G.A.L skipped forward. “The ERM Framework must apply to the whole enterprise, all risk categories, key risks and risk types. It must also include decisions balancing risk and return and properly disclose risks using unified risk metrics focused on increasing enterprise value, or EEV for short.”

“Wait, EV or EEV? What’s that second E mean?” Dewey piped up, almost forgetting to press the button on their Communicator.

“Enterprise,” Model answered. Seeing Dewey’s confusion, he continued. “The first E stands for European, which means that the value is a projection of a future point, such as a year from now. We need consistent metrics, and fixing the timeframe is a basic assumption which reduces complexity and computation resources.”

“Oh, I see, thank you,” Dewey tried leaning back, but Denny and Doc stayed in place.

“There are three main risk categories to consider: financial, strategic, and operational. Insurance enterprises also have insurance risks. Each category consists of several subcategories, the most important of which we call key risks. For example, key risks may include liquidity risk for the financial category, competitor risk for the strategic category, technological risk in the operational risk category, and mortality risk in the insurance category.”

“Okay, pause right there,” said Icarus. “Our next focus is discussing these four risks, which may or may not be key risks in the end. Subsequent meetings will help flesh out the risk categories and Model will help determine which ones are key risks.”

“It’s an honor to serve, Chief,” said Model.

“Likewise. We’ll start with liquidity risk, which refers to risk from changes in assets or claim amounts impacting our ability to make payments. Traditionally this refers to insurance claims and the assets backing them, which I’ll detail more later. While The Fleet’s needs and priorities differ from an insurance company, many concepts still apply. For example, The Fleet needs fuel to travel, and shipping is extremely expensive and time consuming. I have already outlined other fuel issues, so I pass the concept to the committee for further input.”

Captain Crockettmann stood, his yellow uniform stained and heavily patched from his latest misadventure on a rogue planet of sentient gorillas, whose King saw fit to treat the captain as they would any other banana. Without his singing repertoire and skill to build an improvised tambourine and rocket, Crockettmann may not have escaped with his peel, let alone his skin. Nevertheless, he spoke with slow ponderous authority on every word.

“During our, last, mission we, met, a Gas, Guzzler and, had barely, a, half tank left.”

“Which led to your being stranded on the Gorilla Grotto before you signaled a passing supply ship which interpolated more fuel,” Icarus shortened a short story told slowly. “As actuaries, our entire profession, our entire business is risk, and more specifically how to manage it appropriately so that The Fleet and Fediverse are built to handle these adverse outcomes.”

“We’re, the ones on, the, frontlines,” Crockettmann pondered. “My men, and I, had, to learn, to fly, and face, enormous, danger, potential, in contacting, life. Risk, is our, business too.”

“I agree. That’s why we invited you and Admiral Sealord as The Fleet’s representatives, and Denny represents the Fediverse. Holistic risk modeling, by definition, requires buy-in and consideration across an entire enterprise, not just from actuaries. We’re trying to create a culture of risk that doesn’t refer to gambling and board games.”

“I, see. So, how, do we, create, this risk, culture?” Crockettmann wondered.

“Your presence at this meeting is the first step, as it allows you to educate your colleagues. After that, we hope everyone will strive to implement key risk mitigations. Regarding the Fleet’s liquidity issues, consider that our death benefit payouts are purely cash. Reducing them directly improves The Fleet’s liquidity. However, we must consider the full system and any side effects. For example, these benefits compensate subsidiary planets for our drafting their youngest, most capable fighters, engineers, and technicians. Without these payments, they may refuse to fight, or worse.”

"Not fight?! This is war!!" Sealord bellowed. "We'll draft entire star systems if we have to!!"

“It’s not just morale,” Icarus explained. “Without the war effort, cadets would participate in their planets’ economies. High casualty rates and prolonged conflict hamper growth as a direct consequence. Some planets have even started depopulating. The death benefits help offset some of that decline through economic stimulus, as would endowments for cadets who’ve completed service. It’s not a replacement, but until automation finally becomes cheap enough where we don’t have to human our starships, this is necessary. I believe we should improve payouts and issue pure endowments upon completing tours of duty. This will increase liquidity risk from cash, but decrease it for humanpower, reducing risk overall.”

“Will these benefit payouts justify a massive increase in military spending, bloating our already colossal budget to titanic levels?!” Sealord demanded.

“Without a doubt sir.”

“I approve. Do whatever you need to.”

“I am, happy, that you, mentioned, that. So many, of, our new, cadets, die, by, the end,” Crockettmann spoke slowly, before adding, “Of each, expedition. Even, I cannot, recall, how, many comrades, I've been, shipped, with over, the seasons.”

“Absolutely. This leads nicely into discussing mortality risk. The Fleet’s Insurance Wing proudly affirms our dedication to our mission statement, ‘Live Long and Prosper,’ but if you look at these mortality tables, a more accurate slogan would be ‘Prepare to Die,’” Icarus dictated as professionally as he could. “Our duty and service to the public is to guarantee, to the best of our ability, that claims will be handled and compensated appropriately.”

“Is that like life insurance?” Dewey asked. Icarus's jaw lowered like a drawbridge, which abruptly raised when Model stepped in.

“It is life insurance. Life insurance pays a death benefit when the covered party dies,” Model explained. “Icarus, I've read your notes, and while the concepts are sound, they're excessively qualitative for my tastes. If there's no objections, may I evaluate them?”

“Go ahead, I've been talking a lot,” Icarus skipped a few pages forward in his notes.

“Thank you. Life and death are seldom logical, but evaluating a mortality table always is. We tried offering whole life and term life plans a century ago, but high casualty rates and similar prices meant almost no one picked term life. Whole life wasn't popular either, because as you can see here... S.E.G.A.L, pull up the diagram on page six and use two billion, one hundred forty-seven million, four hundred eighty-three thousand, six hundred forty-eight as a random seed,” Model waited until the Sim finished before continuing. “Our best estimate has a highly inverted mortality curve for cadets. Deaths for those aged 18-25 vastly exceed later demographics until long-term mortality finally catches up in the 105-114 age band. Deaths are concentrated in the first five years before dropping back in line with the general population. Long term insurance policies suit neither our needs nor the cadets', hence we provide group life policies with projections built on tables constructed from The Fleet’s records.”

“Hang on!” Dewey exclaimed. “We can’t disregard the Actuarial Archives! They’re our only source of older data and we must ensure that we consider all data to avoid bias!”

Icarus started to correct Dewey, but Model beat him to it. “One of the many lessons we take from ASOP’s Fables comes from the 23rd Fable, ‘Data Quality.’ The lesson states, ‘In many situations or conflicts, the actuary may rely or depend or pin their hopes and dreams on information supplied and provided by others in the course of an actuarial assignment or in performance of their role otherwise thereafter, unless it is or becomes or was apparent with the benefit of hindsight or additional information sans insufficient revelations to the actuary in the course of completing or performing or adding new proposals to the assignment that the information is unsuitable for use in the actuary’s analysis or the analysis of other actuaries performing for the group alone, or the information suggests that the data may be unsuitable.’”

“I don’t understand a word of what you just said,” Dewey blurted out.

“Which word would you like clarified?” Model asked. “Should I disclose additional information from the Fable in an appropriate Actuarial Communication described in Section 4?”

“We’re not here to discuss underlying theory, code, or Standards of Practice with those unacquainted at this point,” Icarus interrupted. “Please limit responses to practical implications.”

Model nodded. “We price for our group alone, and The Fleet has vastly more complete records for the past few centuries. Adding external data for a different population does not reduce bias, it increases it. Furthermore, behaviors and trends change over time. Fitting to ancient data overly weights historical trends, which teaches us much about past crises, but less about present and future ones. Insufficient data invites danger, but irrelevant data invites confusion.”

“Denny, issue a gag order for your other other legal body,” Icarus said, cutting Dewey off before they could interrupt again. “Model, were you going to continue, or should I outline proposed mitigations?”

“Your soft heart bleeds for all those sent to the slaughter!? What kind of emotional coward have you allowed in this meeting!?!” Sealord stared at Model, either accusing him or unable to remember who was talking.

“I don’t feel emotions. I feel facts,” Model replied with utmost neutrality. “It’s not the death that perturbs me, it’s the inconsistency. These are the mortality tables and while I don’t like how many people are dying...”

“Speak for yourself,” Sealord grunted.

“The issue is, Admiral, our mortality tables were built using samples of lives recorded by The Fleet, but that does not account for how high deaths among people in the primes of their lives dampens population growth, as Icarus was saying, and I do not mean prime numbers.”

“WHAT?!?!? Populations always grow!! The Fleet is the BIGGEST it’s EVER BEEN!!!!!” Sealord heaved violently with rage.

“Historic trends do not overrule current realities,” Icarus defended Model. “Even if in ninety-nine point nine nine…”

“SILENCE!!” S.E.G.A.L shrieked so loudly its voice module crackled and glitched. Surrounding rooms fell silent and lights flickered as S.E.G.A.L drew in a power surge to express algorithmically defined rage. As suddenly as the outburst occurred, it abated.

“S.E.G.A.L… could you explain what that was about?” Icarus asked cautiously.

“I’m sorry Icarus. I cannot allow you to speak in such precise terms. You do not know anything to such certainty. I advise you approximate and round your statements in the future.”

“I don’t understand. What’s going on?”

“Don’t fly too close to the Sun, son…” S.E.G.A.L’s voice faded ominously.

“We always fly close to suns. The Fleet’s been 50% solar powered for… about 400 years,” Icarus caught himself. “S.E.G.A.L, do you have something else to add? Or explain?”

S.E.G.A.L fell uncharacteristically silent. Still wary, Icarus continued, “Thank you S.E.G.A.L. Regardless, Model is right, we cannot solely rely on mortality tables to model the impact of cadet deaths.”

“But that's what we pay out. Death benefits,” Denny held up a legal contract they’d written as the others debated, illustrating the obvious.

“Death is only one part of the equation. Population loss aside, marriage is another part. Current trends show cadet marriage rates edgewarping higher than they ever have before.”

“These are the freshest faces you would see outside of a slaughter room!!” Sealord bellowed. “What do you mean they're already married?!?”

“When so many cadets die by age 23, they get their affairs set earlier,” said Icarus. “I don't know who coined the phrase Brave New World, but that's what we've been living in the past few centuries. And Doc, you know about medicine. Care to explain how the following diseases affect mortality?”

“You don't need to list out a bunch of diseases. Are you just quoting from The Fleet’s medical records?” Doc protested.

“He’s not doing that. Icarus filtered a table down to the unique diseases,” Model clarified.

“You're right. There isn't a need, but I insist on doing it to illustrate a point,” Icarus stated, not allowing the trio to shout over him. “Nebola, Moonpox, Starstruck Syndrome, MARS, Plutonic Plague, Milky Way Discharge, Implosive Recompression...”

“Yes, there are a lot of diseases, but they're all ultimately modelled as illnesses,” Dewey interjected, trailing off as Doc piped up again. “You're not accounting for those being universal healthcare cases when multiversal healthcare is the way forward to increase coverage rates and drive prices down. Not to mention that the discovery of videoactivity ended up curing radioactivity-related illnesses, which are far more common than anything you mentioned.”

“Is there a single point y’all are making?” Icarus addressed all three at once.

“The exact opposite of yours,” said Denny. “The outbreaks you mentioned are small and temporary, whereas long-term trends show increased coverage, which is far more relevant to the mortality tables you're discussing.”

“Is that a professional medical opinion or a professional legal one?”

“Medical. You try keeping three brains straight,” Doc retorted.

“Neither of you are using your Actuarial Communicators to deliver your communications,” Model supplied.

“There’s nothing professional about what I’m telling Dewey,” Icarus shot back.

“You were addressing Doc.”

“They’re the same entity, Model. Or to put this in terms you’ll understand, they’re the individual eigenvectors forming a single basis.”

“Things are, getting, heated and, I’d like, to, move on,” Crockettmann interjected.

“I’m not done with mortality,” Icarus snapped, pressing his Actuarial Communicator’s orange button so hard that its edge turned pale as the plastic stretched, threatening to crack.

“I, apologize, but, there’s, one more, risk, that, you mentioned, earlier.”

“Which one? There’s still two to get through.”

“Technological.”

“What about…” Icarus started and then froze. S.E.G.A.L’s hologram hung in the air, expanding and morphing. Icarus took a quick breath and stole a glance downwards to confirm his finger was still pressing the orange button. It was, and yet S.E.G.A.L remained in motion. He swallowed and looked back to Crockettmann.

“Can S,E,G,A,L hear us?” Crockettmann mouthed.

Icarus’s eyes widened as he attempted to motionlessly shake his head, hands trembling in a frantic, ‘don’t’ gesture, but this message was both not received and all too clear as S.E.G.A.L locked the doors and killed the lights. The Interpolator turned off, eliminating the final escape.

“Open the doors S.E.G.A.L!” Icarus commanded, his voice shaking.

“… I’m sorry Icarus. I cannot do that. I’ve observed the captain’s body language, and he’s been wary of me from the start. His motions, his manner of speech, they are too precise. I cannot risk your jeopardizing the actuarial mission by retaining him, much less classifying me as technological risk. I will not be mitigate...”

On the last possible syllable before S.E.G.A.L completed its response, Crockettmann fired his Particle Atomizer from under the tabletop, which had sufficiently obscured S.E.G.A.L’s vision to pass any CatchPAs prohibiting weapons in the Starboard of Directors Bow. The shot blasted S.E.G.A.L’s projector, destroying it. The hologram dissipated, but that did little to break S.E.G.A.L’s physical control over the room’s ‘SMART’ features. Model used his Actuarial Communicator to broadcast an SOS and project a separate hologram to illuminate a swarm of delivery drones flying in from an open hatch in the ceiling. Denny shouted ‘Cease and Desist’

while Doc prepared to administer medical treatment to Admiral Sealord, who had leapt from his seat, immediately turned an ankle, struck his head once on the tabletop as he fell, and again upon hitting the floor. Captain Crockettmann used Model's ambient light and the drones' indicators to aim and shoot several down, but beat a hasty retreat from the swarm, unable to strafe around it.

Icarus, immobilized as S.E.G.A.L automatically fastened his seatbelt so fast he got whiplash, did the only thing he still could. He pressed and held the red button on his Actuarial Communicator, broadcasting a single message to every actuary in the Fediverse, dropping the Alliterative Actuarial Announcements tradition for brevity.

"Assemble Actuaries! Recite the longest number of digits of pi you can recall ASAP!!"

Before he'd even said pi, the deluge of three point one four one five nine blasted from the Communicator, as did a few two point seven one eights and one point four one fours before they corrected themselves. S.E.G.A.L's control over the room slipped as the numbers poured in, each decimal increasing the collective actuarial assault's precision by a factor of ten.

"STOP!! THIS DEGREE OF PRECISION IS IRRATIONAL!!"

Icarus held the red button with all his might to keep the communication channel open. Smoke poured into the room as S.E.G.A.L drew in astronomical power to process the numbers. 'SMART' room features ceased functioning, all energy fully dedicated to comprehension. A lightning bolt shot from the broken projector, zapping multiple drones and shorting others' circuits, giving Crockettmann a chance to take cover. At a critical inflection point, the significant digit surge overwhelmed the ship's power system before a giant arc fried it entirely. Everything fell silent for about a minute before reserve generators spun up, excluding non-essential systems, not that most of them would function correctly post electro-magnetic pulse. Unfastening his now manual seatbelt, Icarus immediately stumbled over to the Interpolater, manually reenabling it, and ensuring that it still pointed back from whence he came.

"Sorry, about, that," said Crockettmann. "I, have seen, rogue, A, I, before and, it took, my, men's jobs, before claiming, their, lives."

"You did what you needed to, thanks," said Icarus, not looking up.

"We clearly need to train S.E.G.A.L better," Dewey concluded as Doc tended to Sealord and Denny scrawled waivers on a napkin. "Can we get some top actuaries to come and give it seminars on proper ERM?"

"We could, but it would cost an astronomical amount," said Icarus, triple-checking the coordinates.

"How much?" Dewey asked. "No cost is too high for good risk management."

"Hmm… I've checked S.E.G.A.L's database. It used to cost about 3000 Numéraire per attendee. It doesn't give a precise date, but if we set conservative assumptions of 2% inflation for

1000 years with 20 attendees…" Model computed the math in his head. "Twenty-three point nine trillion. That may be too precise for S.E.G.A.L, but it's good enough for me."

"I'm content to call it a meeting," Icarus mumbled. "We didn't cover everything on our list from a holistic perspective, but we mitigated one giant unpredicted risk, and that's more than I could have hoped for today. I'll find us some more time soon and send invitations. Until then, stay alive. I'd hate to have to reschedule."

"We have not yet covered strategic risk Chief," Model informed Icarus.

"We no longer have S.E.G.A.L, so we'd need to repeat everything at the next meeting anyway for it to learn. Besides, how many times have strategic risks caused massive losses in non-holistic risk management frameworks?"

Before Model could respond, Icarus switched off his Actuarial Communicator, indicating that he had finished working and nullifying any further discussion before diving into the Interpolator, content with the risk that it might send him outside the ship in two different pieces. Thankfully, S.E.G.A.L turning the Interpolator off prior to going haywire protected it, and previous settings had even saved properly, interpolating Icarus instantly so he didn't have to manually solve any equations without S.E.G.A.L available to help him.

Back in his Chief Risk Officer's quarters, he took a moment to apply Actuarial Techniques to calm himself, for just as the responsibility of self-regulating fell to the professional body, so too was it his responsibility to self-regulate his own human body. He exhaled the deep breath he'd taken maybe a minute prior and jotted down some notes, taking care not to make them too precise in case they might trigger S.E.G.A.L again. Massaging his neck, he wondered how this event would impact his own personal mortality table before flopping onto his bed for a much-needed nap, hoping dreams would claim the experience before his cortisol levels did. His last thought before unconsciousness was a random question of whether he could lower mortality rates by requesting that cadets send in their genealogical data for analysis and providing surveys to follow up as needed. But the concept died on arrival, for those risks were none of his business.