

Carrier Management

Critical Information for P/C Carrier Executives

Q4 2021 EDITION

EYES IN THE SKY AND BEYOND:

HOW GEOSPATIAL
INFORMATION
HELPS INSURERS





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“I really do view this as the next big thing—on the order of the Internet, on the order of mobile phones,” Mike Fitzgerald, principal insurance analyst for CB Insights, said referring to the impact of geospatial information systems on insurance. In this introduction, Fitzgerald, who served as a guest editor for this edition, defines GIS and provides an overview of science and business model changes occurring as satellites surround the Earth delivering information from sensors that process spectrums of light that the human eye cannot see.

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Roundtable participants: Giacomo Favaron, Senior Specialist, Insurance Pricing, AXA XL; James Rendell, Chief Executive Officer, BirdsEyeView Technologies Ltd.; Pranav Pasricha, Global Head P&C Solutions, Swiss Re; Bessie Schwarz, CEO and Co-Founder, Cloud to Street

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Mike Fitzgerald

Mike Fitzgerald, principal analyst, Insurance for CB Insights, served as a guest editor for this edition of *Carrier Management*. In addition to conceiving the idea for the featured topic, geospatial information systems, Fitzgerald developed the individual article topics and interviewed a variety of participants in the GIS space.

Over the course of a 40-plus-year career, Fitzgerald has worked on both the technology and business sides of the insurance sector. As an analyst at CB Insights, and

previously at Celent, he has been involved with researching the application of technology for business value in insurance.

Holding both CPCU and PMP (project management) professional designations, earlier in his career, Fitzgerald managed innovation projects and change management initiatives at Zurich and Royal & Sun Alliance.

A frequent contributor to *Carrier Management*, Fitzgerald also served as the guest editor for a section of CM's May/June 2019 magazine, titled "Innovation How-to-Guide."

Last year, he moderated *Carrier Management's* Virtual Roundtable—"Is Insurance Innovation Overrated?" (available on demand on the *Carrier Management* channel of InsuranceJournal.TV).



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When Will the ‘Climate’ Change?

During the recent InsureTech Connect conference, Pranav Pasricha, global head of P&C Solutions for Swiss Re, made this observation:
“Irrespective of our political views, [given] what has happened with Ida, [and] the central European flooding in July, Queensland floods, Japanese floods, historic wildfires—I don’t think anybody would disagree that we were going through unprecedented climate change. And many of you probably will not disagree that traditional industry cat models have kind of let us down.”

It turns out that there are plenty of people who disagree with his first statement.

Just days before Pasricha spoke, I wrote an article about an industry report on climate change. Struggling for the right combination of words that would draw readers in, I chose this simple opening sentence: “While events like Hurricane Ida and a Texas winter freeze demonstrate wide-reaching impacts of climate change to all but ardent deniers, even insurers and reinsurers may not fully appreciate all the risks, a new report suggests.”

Comments from readers about my article were swift and critical.

“Wow. So now anyone that has a different opinion is an ‘ardent denier,’” one commenter began. “Does the author know that the world was warmer in 1100 AD than it is now (without 6 billion people)? Keep up the scare tactics,” he concluded.

Well, actually, “the author”—that’s me—was just reporting the contents of a global broker’s report in her article, “Climate Change Impact: 40% Chance of ‘100-Year Storms’ Over 20-Year Span.” And no, it’s not my math. The writer of the comment ending, “Can we stop the climate change propaganda?” can take up his arithmetic complaint with the authors of the report, “The Journey to Net Zero: An Insurer’s Guide to Navigating Climate Risks and Opportunities,” from Willis Towers Watson and investment management firm Wellington Management.

These discussions do get heated, don’t they?

Pasricha and I are premature in assuming the climate of thought around climate has changed.

I don’t wish to open a debate on climate change here. Rather, for those who believe that it is real and negatively impacting insurers and their customers, I draw attention to Pasricha’s final comment—that traditional catastrophe models haven’t painted a full picture of what’s going on.

A flip through the pages of this edition and a glance at our cover tells you where I’m going with this. Geospatial information systems, bringing together aerial and satellite images with AI and analytics, can supplement the analyses from existing catastrophe risk models.

“We’re going not from the ground up but from the cloud down—not to disrupt or replace what’s there now but to complement it,” says Bessie Schwarz, CEO of Cloud to Street, a group of scientists who use satellite imagery and AI to analyze flood events that traditional models miss.

Helping to attract disaster capital is James Rendell, CEO of BirdsEyeView, an MGA that uses Earth observations from satellites to structure parametric insurance for climate change risks impacting small and midsize businesses.

Rendell and Schwarz took part in a CM roundtable about GIS uses and possibilities moderated by Guest Editor Mike Fitzgerald last month. This edition’s articles about the roundtable and profiles of GIS vendors highlight other uses, too: automating property inspections, improving pricing and speeding claims responses to cat-impacted customers (p. 31-51).

Back in July, Fitzgerald, principal insurance analyst for CB Insights, told me he wanted to focus on GIS because the topic deserved a lot more attention than it’s been getting. “I don’t want to overstate, but it’s like when the Internet or the smartphone came along,” he said, pushing the idea.

Last year, when someone asked my opinion of a topic that’s not getting enough attention, my answer was ESG initiatives—the “E” part of which involves insurer investment and underwriting responses to climate change.

In this edition, we bring the two ideas together.

Susanne Sclafane, Executive Editor

“Seeing Through the Clouds: Satellites in Insurance” is available for viewing on the Carrier Management channel of InsuranceJournal.TV.

Panelists are:

- Giacomo Favaron, Senior Specialist, Insurance Pricing, AXA XL
- James Rendell, Chief Executive Officer, BirdsEyeView Technologies
- Pranav Pasricha, Global Head P&C Solutions, Swiss Re

- Bessie Schwarz, CEO and Co-Founder, Cloud to Street

Moderated by:

- Mike Fitzgerald, Principal Analyst, Insurance, CB Insights

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Strategy Sessions

a Lunch-Hour Look at Critical Topics
with Industry Movers & Shakers

hosted by
Mark Hollmer



Episode 1

Embedded Insurance: The Journey So Far

with Caribou Honig, Partner, SemperVirens Venture Capital



Episode 2

The Digitization Details

with Chetan Kandhari, SVP, Nationwide



Episode 3

Flood Insurance: No Longer a Disaster?

with Sean Harper, CEO & Co-founder, Kin Insurance



Episode 4 (Live Nov 30)

Innovation in the time of COVID

with Jennifer Linton, CEO & Co-founder, Fenris Digital



Watch Free at CarrierManagement.com/strategy-sessions

Is InsurTech Hype or Not?

By Mark Hollmer

Although 6,000-plus attended this year's InsureTech Connect conference, three words uttered by one well-known attendee got the most attention from readers of *Carrier Management's* online ITC reports.

"It's just hype," Chubb Chief Executive Officer Evan Greenberg said, according to the first report that *CM* Editor Mark Hollmer filed from Las Vegas. In other words, Greenberg doesn't believe that InsurTech startups have fulfilled their long-promised goals to transform every aspect of the industry they touch.

In a post-event report, Hollmer solicited the reactions of InsurTech executives and InsurTech watchers. Highlights of both reports are summarized here. (Full reports available online.)

What Greenberg Said About InsurTechs

Greenberg acknowledged that technology is making a substantial mark in the insurance industry and that this trend is important. At the same time, he made equally clear that he sees carriers as being much higher in the industry ecosystem than the startups that have emerged.

"Technology is changing the insurance industry in a serious way because it is providing tools and capabilities to improve all functions and activities—from the initial notion of connection, to customer experience, to the process of underwriting and risk-taking, to the rest that occurs in a value chain all the way to clients..." Greenberg said. "But insurance is the art and science of taking risk. Fundamentally that's the business. Everything else is for

the pleasure of and to support *that*."

With that in mind, Greenberg said the hype factor among startups must be placed into context.

"InsurTechs may be using technology and improving [parts of the industry], just as traditional insurers are—i.e., customer experience, improving what we do with...data and analytics to be more insightful about taking risks. But changing the fundamental nature of risk-taking? Nah, not at all," Greenberg observed.



Evan Greenberg

What They Said: Hype vs. Enthusiasm

InsurTech executives, partners and investors told Hollmer that Greenberg missed the mark about what InsurTech startups already have contributed to the P/C insurance industry and what they stand to do in the future.

Caribou Honig, a partner at SemperVirens Venture Capital, who is chair and co-founder of InsureTech Connect, said:



Caribou Honig

"Hype and enthusiasm are two sides of the same coin. It should be no surprise that entrepreneurs might come across as of hype, even to the point of unwarranted hyperbole as Evan

Greenberg implies. But the enthusiasm shown by VCs and incumbents for the benefits of deploying tech to insurance is quite warranted."

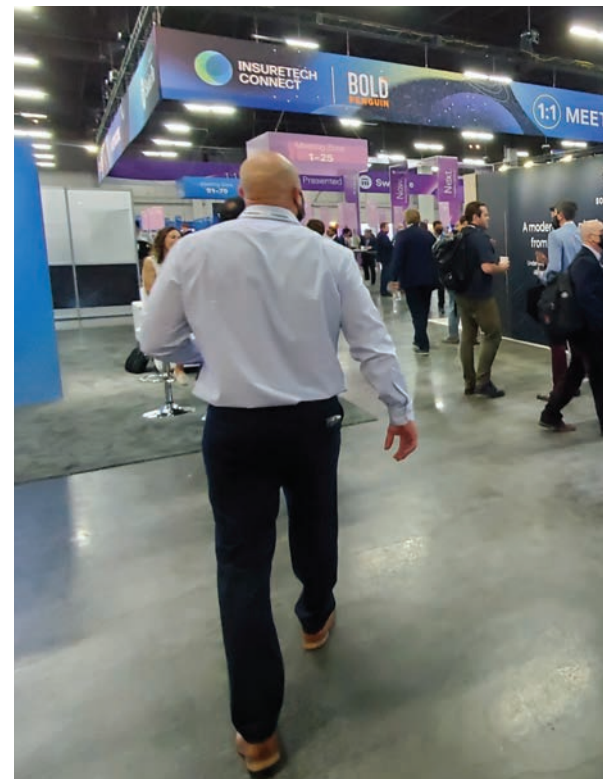


Kat Utecht

Kat Utecht, co-managing partner at venture capital firm Core Innovation Capital, said: "I completely get where he's coming from. It's cognitive dissonance. He must believe that stance."

"Clearly, I believe the opposite, where I am investing in companies that will revolutionize the industry...Whether it's in P/C, life, health—most of these companies have access to human resources and data sources that incumbents wish they had."

David Gritz, co-founder and managing director of InsurTech NY, said: "Greenberg argues insurance will always be about the art and science of taking risk and nothing more. While this is in line with the views of



most InsurTech founders, the way the science is applied to taken risk can be done differently than it was 100 years ago.”

“Once InsurTech moves from hype to mainstream, what is left will be the carriers that have merged with InsurTechs and the carcasses of those who did not.”

Richard McCathron,
president of
InsurTech Hippo,

said: “We agree underwriting is key and critical for success in the industry, which is why Hippo has focused deeply on this area within our business—hiring a world-class risk team, leveraging strategic data integrations and driving toward industry-leading loss ratios.”

“Keep in mind that, when it comes to underwriting and risk-taking, not all InsurTechs are created equal.”

Where They Agree

Like Greenberg, Honig agreed that



David Gritz

InsurTech is not disrupting the insurance industry.

“It’s proving to be transformative instead.”

“The fundamental nature of risk-taking is unchanged, but the ‘how’ of risk-taking is changing across the value chain. Those who embrace such a transformation—startups and incumbents alike—will benefit. Those who ignore it will find themselves on the losing end of the shift,” Honig said.

Describing how Chubb embraces technology and moves forward with digital transformation, Greenberg said: “Part of it is about the culture. It’s about the skillsets. It’s about the organizational structure. Chubb is an underwriting company. Chubb in the future is an underwriting and engineering company. It sounds simple; it means a lot more.”

Honig said he was “heartened and impressed” by that description. “I’ll admit it dovetails with my own view of what makes for a ‘tech company’ as one that solves problems first and foremost by hiring engineers and deploying software, rather than defaulting to just hiring more functional experts,” he said. “In a sense, the future of Chubb and the future of InsurTech startups looks like one and the same.”

Utecht said, “I don’t think InsurTechs have to disrupt the old guys. They can partner with them, and most of our companies are doing just this.”

At Hippo, McCathron highlighted the “real challenge of finding the right balance” in combining the “customer-first approach” of many InsurTech business models with the “disciplined underwriting and insurance acumen” espoused by Greenberg and the incumbent community.

“Some legacy carriers struggle to put their full suite of business lines through the lens of the customer,” McCathron said. “In our business, it doesn’t have to be one or the other; focusing on the customer



Richard McCathron

experience in all our business lines brings each one of them together to work in symphony on behalf of the customer and the business.”

Partners or Competitors?

Chubb’s Greenberg wasn’t the only carrier executive at ITC fielding questions about the role of InsurTechs in the P/C insurance industry. At a separate session, Alex Timm, CEO of InsurTech carrier Root, was asked to address incumbents in the personal lines space—who might view Root as a threat to them. “If they were in the audience, what would you say to the Progressives and the GEICOs and the State Farms and Allstates,” Prashanth Gangu, chief operating officer and president of Insurance Services for SiriusPoint, asked Timm during a one-on-one interview that took place on one of the ITC conference stages.

“We focus on the consumer, not on competitors,” Timm responded. “And I think there’s actually a lot of reasons why they should be our partners. I think that because [together] we can serve more consumers in better ways.”

“My message to them would be [that] they’ve got a long, hard road ahead of them. I don’t envy them. Turning around a company that has a large, exclusive agency distribution channel that has shrunk in half over the last 10 years, and trying to figure out growth, is going to be pretty difficult.”

“Taking something that is written in COBOL or C+ and actually trying to make it into a modern technology tech stack that can actually deliver real consumer experiences is going to be really difficult...”

“We don’t have to be a threat. Instead, we should try to form an ecosystem and put the consumer at the center of the ecosystem rather than continuing to try to fight it out in the marketing worlds, seeing who can buy more TV ads. That doesn’t work for anybody,” Timm said, after describing enterprise technology that Root has developed for its own business, which the company is now making available to other insurers.

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photo credit: Mark Hollmer

Technology: ITC Vegas 2021 Conference Report

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At still another session, Adrian Jones, a partner at HSCM Ventures, responded to an audience question along the same lines: “What do you tell a carrier that does not believe in partnering or collaborating with startups?”

“We’ve all been there, right? We’ve all dealt with carriers who say this whole InsurTech thing is just going to blow over,” Jones said, noting that the question is as relevant today as it was five years ago.

Going on to offer a thoughtful comeback, Jones noted that at least 55,000 people are working in InsurTech today (based on workforce numbers on LinkedIn, not including venture capitalists and others in the ecosystem). “Somebody is going to figure out something really cool among those 55,000,” he said. In addition, \$34 billion in capital has come into the sector in

just the last four or five years, just [from] venture capital. And the number of InsurTech public companies and unicorns is roughly 50 taken together, he said.

Partnerships are a wise move for carriers looking to keep up with the pace of technological change. Jones shared a statistic about AI, for example, saying that AI efficiency has experienced a 44-times increase since 2011. “Look at any measure of cloud computing or cost of bandwidth, where you don’t even have to look to the future. You can just look at the very recent past and you see how much has changed,” he said.

Asked to discuss the best ways for carriers to help InsurTechs, aside from providing capital, Jones said insurers need to be more thoughtful about how they engage with InsurTechs than they were

four of five years ago. “It means not saying, ‘Oh hey, this is a cool shiny object. Let’s give it a try. Let’s do a million POCs [proofs of concept] and let’s see if something sticks.’”

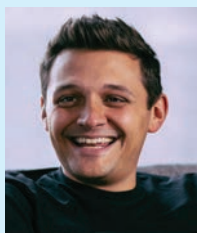
Instead, he said, carriers need to be “much more strategic and much more focused” on specific problems they need to solve: “We need to get better at underwriting whatever, or processing whatever, or dealing with our agents in a better way—making ourselves more accessible, for example.”

Then, it means “being much more aggressive and saying ‘here are the handful of companies which have a potentially very interesting solution,’ and making that more of a long-term partnership,” he said. [CM](#)

(Additional reporting by Susanne Sclafane)

Reporter’s Notebook: What Else Happened at ITC?

With so much going on at one time at InsureTech Connect, *CM* attended sessions happening simultaneously through ITC’s virtual event platform. Highlights of what we heard on a variety of topics are excerpted below.



Alex Timm

Topic 1: What It’s Like to Be a Public Company

Alex Timm, CEO, Root Insurance: “You cannot let the stock price or Wall Street tell you what your value is...”

There’s so much short-term trading. Now, we’ve got retail investing all over the place with Robinhood. There’s so much noise that you can’t use that as an indication of what your worth is...”

“I’ve deleted the stock app from my phone.”

Topic 2: Agents and Underwriters

Guy Goldstein, CEO, Next Insurance:

“When we started, we said we are never going to work with agents. And then a few years later, I said, ‘Actually, we should work with agents.’ And frankly, everyone in the industry poked me: ‘Ah, you were wrong. You were wrong.’ I said, ‘What’s the big deal? We were wrong. We learned. We’re fixing it.’”

Adrian Jones, Partner, HSCM Ventures: “People back in the day said insurance agents are going to go the way of the travel agent...I think actually underwriters are the ones who need to watch out.”

“Straight through processing will increasingly replace human effort in underwriting and claims,” Jones said, offering that as one of seven predictions for the future. Another related one, “Agents aren’t going away, but anyone doing a manual process might be.”

Topic 3: What Customers Want

Guy Goldstein, CEO, Next Insurance:

“Small business owners want to run their businesses—and they want, somehow, the



Guy Goldstein

insurance in a magic way [to] run in the background and cover them for what they need.”

Topic 4: The InsurTech Mafia
Adrian Jones, Partner, HSCM Ventures: “Everybody’s heard of the ‘PayPal Mafia’...I think

we will start to have an InsurTech mafia as well...These are people who worked together at a company. They then went off and started doing other things. We’re starting to see that alumni startup network being built” in InsurTech.



Adrian Jones

Read more in these articles on [CarrierManagement.com](#)

- *At ITC Vegas 2021, Chubb CEO Greenberg Put InsurTechs in Their Place*
- *To Some InsurTech Insiders, Chubb CEO Greenberg’s ‘Hype’ Label Misses Their Larger Purpose*
- *InsurTech Lessons From ITC: Take the Stock App Off YourPhone*

• *How Next, Root and Swiss Re Are ‘Adapting’ and Innovating*

5 Tips to Help You Retain Talent During ‘The Great Resignation’

By Kimberly Tallon

The talent war is about to get fiercer thanks to “The Great Resignation.” Millions of U.S. workers have quit their jobs, and research shows that nearly half of employees are actively looking to make a change. Companies were already fighting to recruit new talent—now they also have to work hard to retain their current employees. *Carrier Management* has compiled some expert tips to help.

1. Re-recruit your team.

Companies are struggling to replace employees who have left as part of “The Great Resignation”—but don’t forget about the employees who stay, a new Harvard Business Review article warns.

Remember, these employees will likely find themselves carrying an extra workload until replacements are hired. They may be feeling overworked and underappreciated. In their HBR article, Debbie Cohen and Kate Roeske-Zummer, co-founders of HumanityWorks, advise that you should think of these employees like customers and put thoughtful attention into retaining them.

- **Re-recruit them.** Spend time talking to your team members to understand their motivations and ambitions. Identify where opportunities might exist inside

the organization (even if it ends up being on another team).

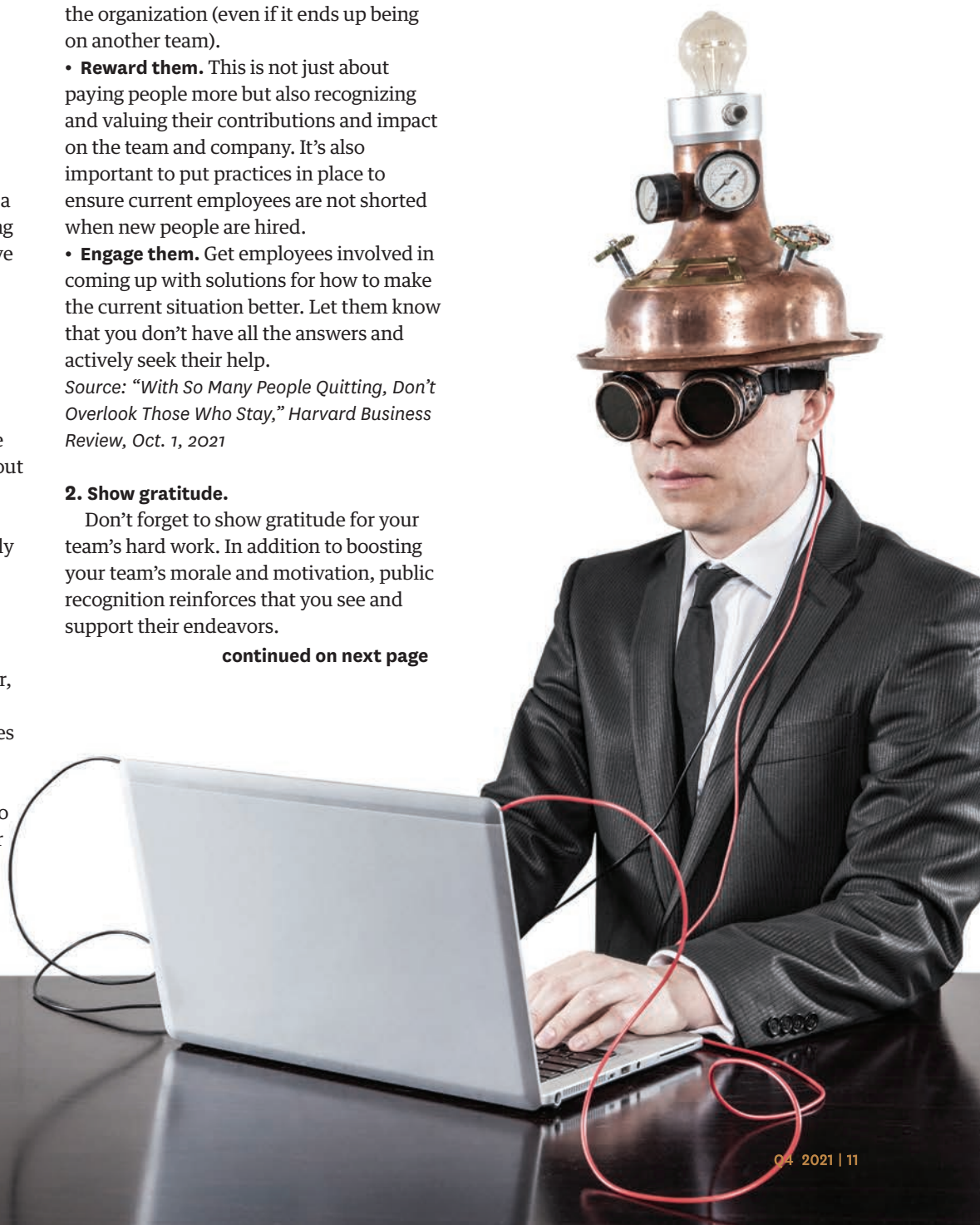
- **Reward them.** This is not just about paying people more but also recognizing and valuing their contributions and impact on the team and company. It’s also important to put practices in place to ensure current employees are not shorted when new people are hired.
- **Engage them.** Get employees involved in coming up with solutions for how to make the current situation better. Let them know that you don’t have all the answers and actively seek their help.

Source: “With So Many People Quitting, Don’t Overlook Those Who Stay,” Harvard Business Review, Oct. 1, 2021

2. Show gratitude.

Don’t forget to show gratitude for your team’s hard work. In addition to boosting your team’s morale and motivation, public recognition reinforces that you see and support their endeavors.

continued on next page



Leadership and Management

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But simply saying the words “thank you” isn’t enough. Be clear on why you are grateful—make sure your appreciation is specific, timely and unique to the person you’re acknowledging. The more details you provide, the more meaningful your appreciation will be.

Remember that you don’t need to wait until a project is successfully completed to show appreciation. Acknowledging effort can be very affirming.

Be careful not to exclude anyone. Don’t call out specific teams or people who worked on a project at the risk of neglecting others. The sting of being left out can cause damage.

Source: “What Every Team Wants to Hear From Their Leader,” *Real Leaders*, Oct. 5, 2021

3. Have a “stay conversation.”

Trying to determine the best strategy for employee retention? Go straight to the source and talk to your employees, says a recent Know Your Team posting.

Talking one-on-one with your team members—whether in-person or via video call—will help you understand what their current experience of work is like and how it can be made better. Author Claire Lew recommends having Three Stay Conversations to improve employee retention:

Ask clarifying questions to find out what makes the employee feel motivated.

- In the past few months, when have you felt most motivated or energized in your work (if at all)?
- Which of your skills do you feel is not being used in your current role?

Ask how the employee feels about the team dynamics.

- Is there any part of the team you wish you got to interact with more?
- How do you prefer to be recognized for work well done?

Ask how the employee feels about the organization as a whole.

- Is there any aspect of the organization that you wish you knew more about?
- To what degree would you say the vision of the organization is clear?

Source: “The 3 Stay Conversations: The best

way to improve employee retention,” Know Your Team, Aug. 19, 2021

4. Don’t just listen—act.

Many people who quit their jobs recently left because they felt like their efforts were not appreciated by their organizations. Why did the employees feel this way? It seemed like management just wasn’t listening to them, says Steve Keating in a recent post on his Lead Today blog.

The companies probably told their people that “we are listening” to you, he says. They encouraged their people to “speak up.” But those people never received feedback on their suggestions, questions or complaints. They never saw any changes come about because of their efforts to communicate. This lack of change or feedback leads people to believe that management simply doesn’t value their input, experience or knowledge, Keating said.

As a leader in your organization, it is imperative that you make sure to respond to every suggestion, question or complaint. Stay open-minded and ensure there will be no retaliation, regardless of the complaint. You must also be willing to change what makes sense to change and to explain, in detail, when something simply cannot be changed.

Source: “You’d Better Do More Than Say You’re Listening,” *Lead Today*, Oct. 24, 2021

5. Create a culture of solidarity.

People need to feel like what they do matters—not just to the organization but to their teammates as well. Companies can fulfill this need by building a culture of solidarity, where purpose and belonging go hand in hand, says a recent Harvard Business Review article by Ron Carucci, co-founder and managing partner at Navalent.

Among the tips offered:

- Make personal aspiration a routine part of manager conversations. Taking interest in an employee’s whole life strengthens their sense of belonging and belief that they matter.
- Have flexible policies clearly tied to the

business. The guidelines you put in place need to be tied to how you serve customers and how you make or deliver products or services.

- Make development part of the employee’s everyday experience. Instead of making career and professional development a “separate” experience, build learning and advancement right into people’s roles. For example, consider regular peer-mentoring sessions between people in adjacent functions that regularly work together.
- Give managers the discretion and resources to offer small acts of kindness as the need arises—e.g., gift cards for food-delivery apps, handwritten notes of appreciation or concern—and don’t forget to acknowledge moments like birthdays or anniversaries. [CM](#)

Source: “To Retain Employees, Give Them a Sense of Purpose and Community,” *Harvard Business Review*, Oct. 11, 2021



Executive Summary: In and out seems to be a prevalent strategy for founders shortly after an InsurTech moves forward. What separates serial tech entrepreneurs from tech visionaries like Bill Gates, Steve Jobs and Jeff Bezos, who created some of the world's largest companies and stayed on as CEOs for many years thereafter? One possibility is that founding an InsurTech startup, scaling the company and running its day-to-day affairs are three different skillsets that don't always reside in the same individual, says PwC's Julia Lamm. Journalist Russ Banham spoke to Lamm, other InsurTech watchers and three InsurTech founders who have gone on to their next adventures to find out more.

By Russ Banham

Ron Glozman has always been a problem-solver, a good skill to have as a tech visionary creating companies that automate manual processes in the insurance industry. Once the business is launched, he's already thinking about the next one.

In 2014, Glozman founded Chisel AI, a real-time data extraction tool that identifies submissions that align with a carrier's book of business. Prior to that, he founded Knotes, a machine language tool that "reads" college textbooks to provide a one-page summary of each chapter within. The app tallied more than 10,000 users across 33 countries and was named one of Google's top 50 apps. He left Chisel AI in August to work on his next digital project, FindOffMarket.ca, an online wholesale real estate investment platform.

It may appear that Glozman is a workaholic who just can't stop building companies. The truth is otherwise. "My favorite quote is 'hire the laziest person for the hardest job and they'll find the easiest way to get it done,'" said Glozman. "In some way, being lazy has always been my superpower. Given my background in software development, I can't help but look for optimizations."

Glozman is just one of hundreds of tech visionaries, many of them in the InsurTech space, who come up with a viable

technology solving a work problem, draw up a business plan, attract funding to commercialize the concept, and then rinse and repeat. Such serial entrepreneurship is like "a burning itch that needs scratching," he said.

Other busy InsurTech entrepreneurs like Dogan Kaleli chalk up their scratching to unrestrained curiosity. "I can't let go when I see a problem until I find a solution," said Kaleli, founder and CEO at Stere.io and before that Nion, Wanderfly and Connexa Network AG. "When I headed up North America program business for Allianz early in my career, I was the guy that others reached out to, to ask, 'Can you find a better way to do this?' Once I find it, I'm looking for the next problem."

Daniel Demetri can relate to these experiences. The founder and CEO of Trellis previously co-founded another InsurTech, known today as Doma. Prior to

Why Founders Leave InsurTechs



that, Demetri was a product manager at Google. Between 2012 and 2014, he led a team entrusted with making Google Maps faster, smoother and more informative but was feeling down for some reason, he said.

"I realized that on the Maps team, everyone's opinion was equally valid, and I didn't have a particularly outsized thing I was influencing," he explained. "Then, I realized that what excited me was the intersection of technology and financial services. I wanted to explore this intersection by creating new operating models."

A Seller's Market Beckons

For entrepreneurs like Glozman, Kaleli and Demetri, InsurTech is a great sandbox to play in. "All these entrepreneurs with technology backgrounds constantly thinking of new ways to disrupt the status

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Leadership and Management

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quo has made InsurTech a shining light in the insurance industry,” said Julia Lamm, partner in consulting firm PwC’s Workforce Transformation practice.

These “new ways” are apparently endless, prompting the rinse-and-repeat actions of many InsurTech entrepreneurs. Given a ton of unspent cash available among venture capital and private equity firms to invest in new ideas, it’s a good time to be an InsurTech entrepreneur. Global InsurTech funding reached a record \$7.4 billion in the first half of 2021, surpassing the \$7.1 billion raised for all of 2020, according to a July report by CB Insights and Willis Towers Watson. Prospects ahead are equally bullish: Grand View Research recently projected a 48 percent compound annual growth rate in the global InsurTech market through 2026.

Put into perspective, inventors of a sharp new technology tool automating a complex carrier process like underwriting, pricing, quoting or claims management will easily attract the attention of venture capital and private equity firms. So will the creators of tools designed to enhance the customer experience or provide analytic-driven insights into wide-ranging data. Their “Shark Tank” moment awaits.

Yet, what is it that separates serial tech entrepreneurs from their forebears like Bill

“The CEO’s job, besides being the public face, dealing with

investors and setting the vision, is fighting fires on a day-to-day basis. At some point, you’re no longer the fire chief. That’s a good thing as your team is doing the job and the business is self-sustaining.”

Ron Glazman, Chisel AI

Gates, Steve Jobs and Jeff Bezos, tech visionaries who created some of the world’s largest companies and stayed on as CEOs for many years thereafter? One possibility is that founding an InsurTech startup, scaling the company and running its day-to-day affairs are three different skillsets that don’t always reside in the same individual.

“It’s not uncommon for an entrepreneur to find that building something is different than running a company on a day-to-day basis,” said Lamm. “When that happens, they start thinking about building something else.”

This progression is especially the case among founders in the InsurTech sector. “Once the company is well on its way, founders often realize the role they are performing no longer fits their skillset,” said Adrian Jones, partner at venture capital firm HSCM Ventures.

Unlike tech visionaries in the past, Jones said most InsurTech companies are founded by a team of people. “The lionized



image of the extraordinary founder who breaks down walls and builds fabulous companies singlehandedly is a bit of a myth,” he said. “Typically, I see anywhere from two to five people joined together as a founding team, each with a specific skill like finance, technology, insurance or operations. That’s the more common model.”

When any one of these individuals leaves, the departures are amicable, said Jones. “Since a founder often has a material ownership in the organization, as the company evolves, it’s in their best interests as an owner to step aside, find a better person to assume the role, and go out and do other great things,” he said.

Lamm agreed. “Founders have a natural affinity for the thing they founded, and often like to remain involved in the business, post-departure,” she said. “While you don’t want them lurking around disrupting the authority of the person that’s replaced them, given their problem-solving skills, it’s a good thing to keep them involved.”

Scratching the Itch

Solving business puzzles keeps Kaleli awake at night contemplating out-of-the-box ideas. In 2010, he co-founded Wanderfly, a review-driven web platform

“The lionized image of the extraordinary founder who breaks down walls and builds fabulous companies singlehandedly is a bit of a myth.”

Adrian Jones, HSCM Ventures



“It’s not uncommon for an entrepreneur to find that

building something is different than running a company on a day-to-day basis.”

Julia Lamm, PwC



for discovering and sharing personalized travel recommendations. After the company was acquired by TripAdvisor in 2012, he founded Connexa Network AG as an online platform bringing together educators, students and alumni in a shared and collaborative learning community. The former actuary then decided to work a full-time job at Allianz, ultimately becoming the co-chair of its global facilities programs practice.

In 2020, Kaleli left Allianz to launch Nion Network, a global online network connecting insurance professionals with InsurTech innovators to develop next-generation solutions. In May, he founded Stere.io, a digital ecosystem making it easier and faster for managing general agencies to source insurance capacity. In just five months, Stere.io had onboarded 30 MGAs, representing \$900 million in premium, he said.

Unlike other InsurTech entrepreneurs who diagram their ideas on a whiteboard, once Kaleli has studied a business challenge and developed a unique solution, he reaches out to colleagues and friends to discuss his ideas. “My thought process is to talk to people before I come to a firm conclusion,” he said.

This collaborative process is not unusual for someone who has launched several online networks. His own personal network is composed of people in the insurance business and outside it, as users may not be in the industry. The feedback he receives is often mixed, he said.

“I’ve had my share of failed ideas,” said Kaleli. “It’s a bit tricky when someone with experience whom you respect tells you your idea doesn’t make any sense or won’t work. But what I’ve found most important is to take the idea forward until you’re absolutely convinced it’s either a winning

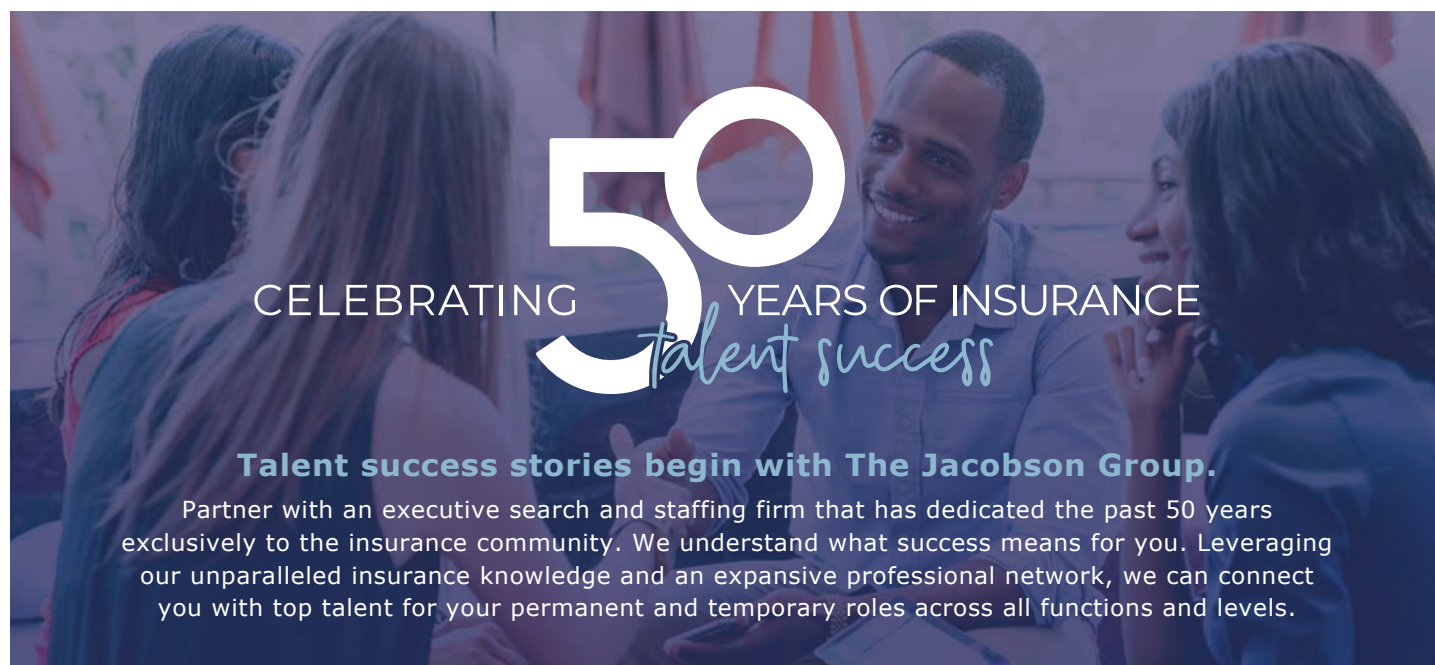
or a losing proposition. Most entrepreneurs tend to give up too soon.”

Demetri also casts a wide net in looking for specific solutions to insurer bottlenecks but pursues a different approach to feedback. “Typically, I come up with a list of ideas,” he said. “I don’t vet the ideas with others, however, preferring instead to test them. The question isn’t can I build the technology; I know I can do that. The more important question is will lots of people want it.”

To find the answer, he advertises his inventions on Facebook on a pre-order sales basis—well before the technology is ready for commercialization. “I haven’t built it yet, but the pre-orders tell me whether or not I should,” he explained.

Once built and up and running, he’s impelled to put on his thinking cap again. “There’s this intersection between what I want to do personally and what needs to be

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Leadership and Management

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done in a company,” Demetri said. “The more there is overlap between these two things, the more engaged, happy and fulfilled I feel. If the overlap moves apart, I find it’s no longer a good fit for me or the company.”

Such feelings of separation occurred at Doma, which Demetri co-founded as States Title in 2017 and where he served as chief product officer. Doma is a full-stack title insurance company—“full-stack” in the sense that it comprises an insurance carrier, agency and technology platform that uses machine learning and predictive analytics technologies to rapidly and accurately close real estate transactions. In March, Doma became a public company through a merger with a SPAC (special

purpose acquisition company).

Demetri had already left the organization in early 2019, following its merger with North American Title. He has no misgivings about the timing of his departure.

“The company went from a 25-person startup after the merger to 1,000 people, seemingly overnight,” said Demetri. “As the chief product officer, I had the lateral breadth to feel confident in becoming a CEO. The timing was right to explore this opportunity.”

He wasted not a minute, founding Trellis Technologies Inc. a few months later. The company provides digital solutions that help consumers get more value from their automobile and home insurance by providing a rapid way for consumers to

compare their existing coverage with other insurance policy alternatives. More than one million consumers have used the tech platform in the past two years. In June, Trellis announced it had raised \$10 million in Series A funding from QED Investors and other venture capital firms.

Although confessing to a natural inclination for laziness, Glozman was fast at work in October putting the finishing touches on FindOffMarket.ca, which he said would “launch any day now.” The prototype he emailed over certainly suggested the online platform was ready to go live. Like his other creations, it eliminated a bunch of irritating manual processes, in this case involving the search for residential real estate to renovate and flip for a profit.

“I’ve always looked for opportunities to build something that people will be interested in and pay money to use,” he said. “I first felt the itch when I was 14 years old and music piracy had become this thing. Something like 19 out of every 20 downloads at the time were illegal. I had this idea that people would be willing to listen to ads to get the music for free. I got a bunch of songs, sold a few ads and created what I called FreeINGmusic.com, which had close to 100,000 users. But it was barely a breakeven business.”

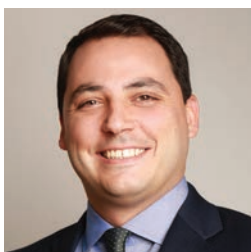
Glozman is hoping his new venture rings the cash register. In the meantime, his mind is open to other ideas. “For me, the time to innovate again is when the team doesn’t need you anymore; you’ve built it well and its growing fine,” he said.

“The CEO’s job, besides being the public face, dealing with investors and setting the vision, is fighting fires on a day-to-day basis. At some point, you’re no longer the fire chief. That’s a good thing as your team is doing the job and the business is self-sustaining.”

The time has come to move on, to scratch another itch. **CM**

Russ Banham is a Pulitzer-nominated financial journalist and best-selling author.

“I’ve had my share of failed ideas. It’s a bit tricky when



“There’s this intersection between what I want to do



someone with experience whom you respect tells you your idea doesn’t make any sense or won’t work. But what I’ve found most important is to take the idea forward until you’re absolutely convinced it’s either a winning or a losing proposition. Most entrepreneurs tend to give up too soon.”

Dogan Kaleli, Stere.io

personally and what needs to be done in a company. The more there is overlap between these two things, the more engaged, happy and fulfilled I feel. If the overlap moves apart, I find it’s no longer a good fit for me or the company.”

Daniel Demetri, Doma



Artful Mosaic Creates Global Agility for Specialty Startup

Executive Summary: Mosaic Insurance is the brainchild of industry veterans Mitch Blaser and Mark Wheeler, who came up with a new business model that deploys flexible syndicated capital, enabling the insurer to export Lloyd's paper anywhere in the world. They aim to combine the best "pieces" of the industry, like a mosaic, to re-shape the way the business operates.

By L.S. Howard

Mosaic Insurance, the Bermuda-headquartered startup and Lloyd's specialty insurer, operates with a unique structural twist. Its hybrid model has the flexibility of a managing general agent, the stability of a carrier's long-term capital, plus the ratings, global licenses and distribution reach of Lloyd's of London.

Launched in February 2021, Mosaic is the brainchild of industry veterans Mitch Blaser and Mark Wheeler, who conceived the new model and serve as co-CEOs.

The creation of syndicated placements allows stakeholders to participate alongside Mosaic using its plug-and-play InsurTech platform.

With 40 years of industry experience, Blaser helped found Ironshore in Bermuda in 2006 after previous executive roles with Swiss Re and Marsh. He met Wheeler when Ironshore bought Pembroke Managing Agency, a company that Wheeler founded. Wheeler joined Mosaic in April 2021.

The name "Mosaic" was chosen for the company because it aims to combine the best "pieces" of the industry, making a whole that is greater than the sum of its parts, said Wheeler.

Centered on its Lloyd's Syndicate 1609, Mosaic operates a network of wholly owned capital management agencies, or distribution offices, in Bermuda, London and New York. Additional hubs are expected to be launched next year in Asia, Canada, the Middle East and Europe. Each hub has full underwriting authority, bringing new regional retail business directly to Lloyd's.

The structure effectively syndicates global capacity into local markets, said Wheeler in an interview with *Carrier Management*. Mosaic deploys syndicated capital, enabling it "to export Lloyd's insurance paper anywhere in the world."

"Our Syndicate 1609 is the lead syndicate on those binding authorities

issued to our underwriting hubs," Wheeler said, noting it was essential Mosaic had a physical presence with underwriters located in its chosen jurisdictions. "We're not just a postbox in those cities." (The number 1609 refers to the year Bermuda was settled by English colonists when they shipwrecked en route to America.)

Within its global network, Mosaic sources third-party insurance capital, or trade capital, to build out additional capacity, enabling the insurer to provide a pre-syndicated line-slip to its insurance clients. Wheeler described this syndicated structure as one of the most important aspects of the company's business model.

By third-party insurance capital, Wheeler was referring to both Lloyd's and non-Lloyd's insurers that want to participate on a risk. In essence, they are hiring and paying a fee to Mosaic for its underwriting expertise and distribution. The pre-syndicated slip allows for a pre-set determination of terms and the layer of risk in which the insurer wants to participate.

"This type of syndicated product wasn't available anywhere else in the world outside the London market, prior to Mosaic. We're effectively pre-syndicating the risk, then selling that syndication in major hubs around the world."

Its Lloyd's syndicate provides Mosaic

continued on next page

Underwriting Innovation

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with global licenses, rating and brand strength. The company operates a single P&L across all its businesses, which Wheeler said helps it maintain responsibility and accountability in different offices and product lines while avoiding the antagonism that can occur within an organization that balances separate P&Ls across geographies.

Mosaic has two groups of clients: “There are the insureds, who buy the policies we underwrite, deploying our proprietary capital, and we also underwrite on behalf of third-party, trade capital,” Wheeler said.

“In effect, we are then an underwriter’s underwriter, providing specialty underwriting expertise and market access for a fee.”

By doing so, Mosaic leads syndicated underwriting risks for its capacity providers in six specialty lines: political violence (war and terror, strikes, riots and civil commotion), cyber, transactional liability (M&A), political risk, financial institutions and professional liability. Next year, it will begin offering environmental liability. Most of the company’s insured clients are midsize to large corporates.

“Mosaic underwriters are operating as market makers,” said Wheeler, “so we’re a lead market rather than providing follow-market capacity.”

In a separate interview, Co-CEO Blaser said Mosaic aims to be at the top three in these lines within five years. “We want to have a billion dollars that we write in total in four to five years and continue growing



at a rapid pace, but always sticking to our knitting and focused on our specialty lines of business.”

High Entry Barriers

Long before launching, the leaders decided to focus only on specialty lines with high technical barriers to entry. “We’ve chosen lines that we believe are going to have increased relevance and resonance with clients and third-party capital providers,” Wheeler said. “This enables standard property/casualty companies to diversify with specialty products that complement their portfolios.”

Specialty capital typically will only delegate if it doesn’t have in-house underwriting expertise or distribution reach in lines of complex business, he said. Since launching, Mosaic spent the remainder of the year developing products and building out underwriting teams, growing from about 15 employees at launch to a projected 75 by the end of the year.

Blank-Slate Brainstorming

Mosaic used a process of “blank-slate brainstorming” to select the best lines to underwrite. One criterion was “to provide a growth run rate that exceeds normalized gross domestic product. The decision was made to avoid commoditized, short-tail products, such as property catastrophe. We want to be able to demonstrate to our non-aligned capital that we expect to outperform the market in terms of growth and profitability,” Wheeler explained.

Blaser said that Mosaic developed a model that could be profitable regardless of market conditions. “We chose high-value, non-commoditized lines of business with strong growth trends, not only in the current market but looking ahead to the coming years as well. Then we focused on getting the best people and most agile technology as key drivers for success. The flexibility of being able to leverage both proprietary and trade capital also allows us to adjust nimbly to market conditions.”

During those early conceptual sessions, the optimal business model was carefully contemplated before any money was raised. Mosaic’s team decided against conventional balance-sheet models that

“We’ve chosen lines that we believe are going to have increased relevance and resonance with clients and third-party capital providers. This enables standard property/casualty companies to diversify with specialty products that complement their portfolios.”

Mark Wheeler, Mosaic

“We want to have a billion dollars that we write in total in four to five years and continue growing at a rapid pace, but always sticking to our knitting and focused on our specialty lines of business.”

Mitch Blaser, Mosaic



would mimic what many other Bermudian startups do: raise a billion dollars, then seek to deploy capital as quickly as possible, usually in property-catastrophe business.

“Such business can be very profitable, but it is much more volatile. It’s the easiest way to get volume on the books, but we didn’t want to go down that route,” said Blaser, noting that with a conventional balance-sheet model, the company would have to launch separate pools of capital in each of its underwriting hubs.

“We couldn’t be sure at what speed the business was going to develop. And all of these things would be risks in terms of return on equity and whether you have the money in the right location,” he added.

Wheeler further explained that once capital has been launched in a regulated entity, it’s very hard to move it around afterward, which highlights “the frailty of a balance-sheet model.”

Considering an MGA Structure

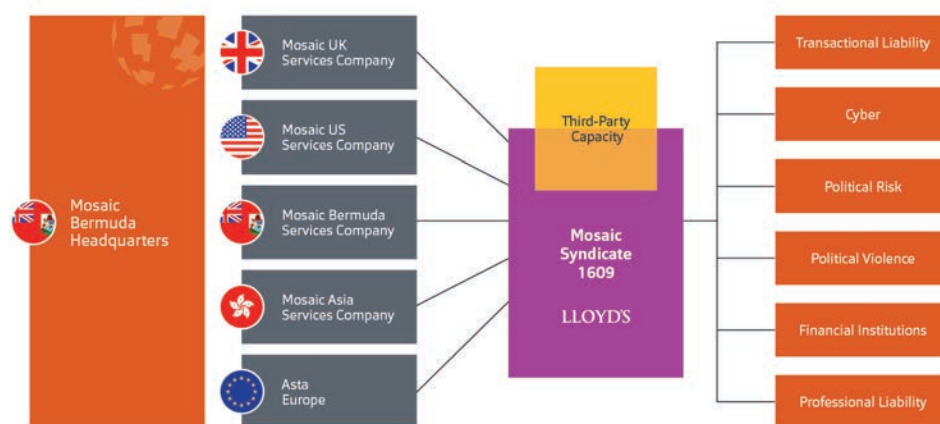
The founders also looked at another alternative: an MGA structure with no capital, just underwriting expertise. “This is where underwriters would be paying you for product expertise and for distribution,” Wheeler said. “In financial modeling terms, it’s incredibly attractive. It requires minimum equity capital and no underwriting capital.”

Such a structure can provide superior ROEs if done right. “But there are structural problems with MGAs—first and foremost is that, ordinarily, an MGA has limited claims-settling authority. If you’re in an MGA environment, it’s very hard to look a client in the eye and say, ‘I know who our lead capital provider’s going to be in four, five, six years’ time when your claim gets paid,’ and feel good about that promise you’re making. By contrast, claims handling is key at Mosaic; it’s integrated into the process of every risk we write.”

Unlike a traditional MGA, Mosaic doesn’t have to go to its third-party insurers and pitch a product idea with rating proposals, with wording and an underwriting business plan, he noted.

COMPANY STRUCTURE

Mosaic Syndicate 1609 provides lead-line capacity through global service company distribution



Mosaic’s team decided against conventional balance-sheet models that would mimic what many other Bermudian startups do: raise a billion dollars, then seek to deploy capital as quickly as possible, usually in property-catastrophe business.

Lead Capacity

Mosaic underwriters provide lead capacity and control their own underwriting parameters, a significant difference between its model and an MGA. “We have the first line on the slip and the line that agrees the claims. We have the lines that agree what the selection criteria might be, what the contract language is, the deal structures and the pricing.”

Another difference is Mosaic’s capital support. Mosaic is backed by Golden Gate Capital, a San Francisco-based private equity firm operating a perpetual fund that allows less restriction over the length of time governing an investment.

Mosaic should not be viewed as “an opportunistic company that’s looking to gorge itself for the next two or three years and then look for an exit,” Wheeler emphasized. “We feel very confident we have a backer in Golden Gate that understands our longer-term aspirations.”

Blaser said Mosaic aims to have a very strong ownership culture, with every employee provided an equity stake. “We want to be entrepreneurial. We want our people thinking, feeling and being owners of the company. That’s something not many firms can offer.”

Technological Advantages

Mosaic also has an important competitive edge, Wheeler said, because it has neither a legacy balance sheet nor legacy technology. “That plays a key part in how we inform our underwriters about risk exposures and processing, and also data sharing with our syndicated capital partners.”

Through a partnership with DXC Technology announced in August, Mosaic deploys cutting-edge tech to inform underwriting decisions, share real-time data and analytics, and streamline every process along the way, said Wheeler.

“Our focus on governance allows capital partners to gain equal access to discerning risk selection performed by our team,” he said, noting the creation of syndicated placements allows stakeholders to participate alongside Mosaic using its plug-and-play InsurTech platform. “It’s groundbreaking, and it really does underscore the fact Mosaic is doing things differently and reshaping the way our industry operates.” [CM](#)

(Read more about Blaser and Wheeler in a longer online version of this article on [CarrierManagement.com](https://www.carriermanagement.com).)

A Special Time for Specialty Markets

Executive Summary: Specialty is not a short-term play for Westfield, a property/casualty insurer started by a group of farmers back in 1848. Here, Westfield leaders Ed Largent and Jack Kuhn explain the company's recently announced strategy to expand into specialty lines, giving their take on why the time is right for companies like Westfield to expand and how they are leveraging a culture focused on collaboration—not single star performers—and staying true to business values of underwriting profits and financial stability.

By Ed Largent and Jack Kuhn

The specialty insurance marketplace always has been a vast laboratory for nascent products. It once was a tiny market. Those days are over. Today, with tens of billions in premiums in the U.S. market, specialty is for more than unique and emerging risks. And it is attracting new carriers and underwriting talent.

Specialty is a dynamic marketplace, evolving and overlapping in the standard property/casualty area. Today, many commercial insurance operations such as Westfield write both admitted and non-admitted business. As specialty categories expand, there's less distinction between standard and nonstandard lines. There's an ebb and flow, especially in larger customer accounts. An account could show up in standard lines; other times it's in E&S.

Over the years, specialty has been poised to jump in and provide cover, risk transfer and other mechanisms for emerging risks. As the world changes—COVID-19 and cyber-related risks are excellent examples—

specialty is better equipped than standard policies to initially move into those new areas. Complex business customers require specialty kinds of coverage, and there always will be an underwriting opportunity there. Globally, that's a good message for society.

For example, directors and officers liability in the 1980s was a small business line offered by the London market and a handful of larger U.S. carriers. In 1985, the Trans Union court decision (also known as *Smith v. Van Gorkom*) attached liability to individual directors. That caused a panic because the typical pricing and limits weren't adequate for the shift that was taking place. Much of the market retrenched, eventually driving a different proposition on limits usage and pricing. Today, D&O has mushroomed into a multibillion-dollar insurance product area.

Similarly, employment practices liability evolved as a new coverage for



Ed Largent is President, CEO and Board Chair of Westfield, a property/casualty insurer founded in 1848 by a small group of hard-working farmers who believed in the promise of the future and the power of the individual. Largent is based in Westfield, Ohio.



Jack Kuhn is President of Westfield Specialty. He is based in Morristown, N.J.

exposures that emerged from the standard casualty areas. These exposures were not underwritten and were not factored into the existing pricing models.

These days, cyber exposures are evolving at a fast and furious pace. Looking back, the first major issues were data breaches. Hackers seemed to be focused initially on large retail clients—like credit card data being stolen. Then they went into financial areas. Several large financial institutions were hacked. Then politically driven hackers outside the U.S. got involved. Now we have ransomware. You see a number of carriers developing underwriting capabilities using outside firms for doing some analysis on internal and external controls. Underwriters are deploying capital to help manage a client's risk, and they learn, adapt, flex and change as those risks continue to evolve. Every year we gather more data and learn how to manage this risk as much as we can.



More Recent Trends

Starting in 2018, companies raised rates and limited capacity on a number of different products. This created holes in some of the larger, traditional programs in the commercial marketplace.

With this, some broker relationships have become strained with some standard P/C and specialty markets because the industry hasn't experienced a hard market like this since 1985-1986 and 2000-2001. Many brokers need to adapt quickly as they deal with carriers reducing limits, increasing deductibles, nonrenewing lines and significantly increasing premiums.

The last couple of years, we've seen a hard market emerge in most lines, which has created an opportunity to write business at very good rates.

Today, we are still in the midst of a hard market. In certain lines, the rate increases are de-accelerating; the increases are not as high as they were through 2020 and the first part of 2021, but they're still continuing. The property area will

continue to see rate increases with weather losses still impacting carrier results. A lot of other areas, too, will see rate continuing to be pushed, but not at last year's pace.

Some casualty lines are hardening because of social inflation issues and gigantic awards. So, carriers have retracted or reduced limits, which created the need for a harder market with higher rates.

In short, if you look at the compounding impact of rate increases on certain product lines for three or four years, it's a much healthier position to start with than if a carrier entered specialty back in 2013 to 2015. Thus, new carriers, new capital and new formations are making their way into the specialty segment.

In turn, underwriting talent moves as well. They gravitate to firms that are financially able to take on those risks. Stability, high financial ratings, marketplace clarity and a set of strong core values all combine to attract quality underwriters.

Building a Specialty Business Around a Strong Culture

Westfield's recent expansion into specialty is tied to the current hard market. But we will only enter particular lines of business where we can offer well-regarded underwriting expertise. We will initially be focused on excess positions on programs as we begin to build out our primary capabilities. We are looking to earn our way onto programs with our expertise—not undercut our way onto them.

Most successful specialty companies are more focused on profitability than they are on premium growth. The focus must truly be on underwriting profitability and providing a very stable and consistent market for business partners and customers. That's what brokers and customers are looking for from their carrier partners.

When it comes to distributing specialty insurance, it typically has started with the larger brokers and wholesalers. Eventually, the products work their way into the

standard P/C area through independent agents. Westfield is an underwriting-centric organization, and we believe we will fill those specialty needs for many of our valued partners in all areas of distribution.

The insurance industry offers tremendous opportunities for experienced underwriters. That is why focusing on workplace culture and business value is critical. Westfield is attracting superior talent because we aligned culture, transparency and clear communications, along with our understanding of each of the different lines of business.

Underwriters want to go to a company where people are committed and working toward a common vision, and where deep expertise is valued and appreciated. They want an environment that resonates with them.

Every insurance carrier is different, but at many carriers, the culture is driven by a single individual. You see directional changes when there are management changes. A lot of it is pressure for the financial performance and continuing to look for growth. For new talent looking at Westfield, this culture is not about one person. We've been managing our culture for 173 years, and it will sustain us for a long time.

At Westfield, the stars are aligning. It's a great opportunity to augment our portfolio and further strengthen our firm and achieve our vision. We're putting the infrastructure in place for an operation with a broad brand portfolio, which deepens our expertise, helps grow our customer base and expands our presence in the P/C marketplace. And the distinct nature of the specialty market brings an aspect of diversification that will enhance our overall financial performance.

Specialty is not a short-term play for Westfield. We've been around since 1848, and we're not known for being nonchalant and going in and out of lines of businesses or markets. We're looking to add real value to the client.

It's always an exciting time to be in commercial insurance, especially now. [CM](#)

Rebuilding Construction Insurance

At the end of an hour-long interview, the chief executive officer of an InsurTech focused on liability coverage for middle-market commercial construction contractors gave an unusual answer to a reporter's final question about future goals.

Shepherd's seven-member team has already rolled out a broker platform automating construction insurance sales processes and an MGU poised to write construction excess casualty by year-end. And in years to come, it aims to grow its workforce to a much larger group of underwriters, product developers and engineers, also expanding its insurance portfolio to primary casualty lines.

Asked how he'll measure the success of Shepherd as it grows from what it is today, Shepherd CEO Justin Levine didn't talk about headcount, premium volume or

profit margins. Instead, Levine told *Carrier Management*, "In five years, in 10 years, I think if the incumbent insurers look more like Shepherd...than we do like them, then we have succeeded."

To look more like Shepherd, insurers would leverage deep connections with construction management technology platforms to create a digital-first experience for buyers of construction insurance and their insurance brokers, according to Levine, who earlier in his career developed technology helping risk managers with subcontractor prequalification processes. Importantly, looking more like Shepherd also means carriers will incorporate ways to incentivize construction contractors to use various types of construction risk mitigation tech in the underwriting process, Levine and another co-founder, Stephen Buonpane, explained.

Executive Summary: A former construction risk manager turned technology developer, a former construction insurance underwriter and a former software engineer for Airbnb have co-founded Shepherd, an InsurTech focused on rebuilding the underwriting process for construction insurance from the ground up. Here, two of the co-founders, Justin Levine and Stephen Buonpane, share details of how their past career experiences led them to their shared mission, describe a platform that's already set up to help brokers write business from other carriers and discuss next steps for the MGU, which is poised to start writing excess casualty to fill capacity in a hard insurance market later this year.

By Susanne Sclafane

“To me, success is that we will bend the market to a new norm,” said Levine, one of three co-founders of Shepherd, whose roots in the construction space began as a risk manager for Hunter Roberts, a large general contractor in the New York City area.

Buonpane, who is chief insurance officer of Shepherd, met Levine during his more than 12-year tenure as an underwriter and executive at ACE, now Chubb, between 2009 and 2021. “While we quoted the Hunter Roberts business, Justin and his superiors did not give us the business,” he recalled, noting that the two business leaders stayed in touch and became good friends anyway in the years that followed.

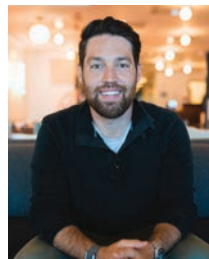
Chubb was Buonpane’s last stop before joining Shepherd, after a long career in insurance underwriting that started 18 years ago. Although he didn’t know what an underwriter or a risk manager was when he went to the University of Delaware, an opportunity at AIG to be a trainee within the construction division spoke to a young undergraduate surrounded by a family of Italian immigrants who became masons, electricians and steamfitters in the U.S.

While working on an MBA in 2009, Buonpane took a position at ACE, starting up the New York Construction Insurance practice and ultimately moving up to become North American Construction industry practice leader early in 2020.

“One thing we were trying to do at Chubb was to utilize a lot of the emerging technologies that were coming up in the construction space,” he said, referring to construction vendor management platforms and tools such as wearables, IoT sensors, artificial intelligence that are being used on job sites more and more today. Chubb’s construction group was “trying to see how we could best promote these products to the extent that they could have an impact on loss frequency or severity, as well as productivity—and see how we could also add value to the overall insurance procurement process,” he said.

But construction is only part of a very large global insurance organization at Chubb. “So for me, to get the time, attention and resources that I needed to

“We want to create an underwriting model that creates an incentive for contractors to invest in technology that we believe very strongly does make them safer and better risks on job sites.”



Justin Levine

influence something that was going to impact a \$250 million division that was a part of a \$5 billion business unit that was a part of a \$70 billion market cap company was a little bit of a challenge,” he said, noting that a catch-up meeting with Levine in the early days of the pandemic in 2020 revealed like-minded views on moving the construction and insurance industries forward through the creation of Shepherd.

Rethinking Underwriting

Although Buonpane was not yet on board when Levine and a third co-founder, Mohamed El Mahallawy, a software engineer, started talking about getting Shepherd off the ground, the mission of the startup melded with Buonpane’s ideas.

“Our goal is to make construction safe and sustainable,” Levine told *Carrier Management*. “We want to create an underwriting model that creates an incentive for contractors to invest in technology, to invest in tools that we believe very strongly do make them safer and better risks on job sites.”

Levine said this incentive is a missing component in the construction industry today. “As a contractor, I’m being asked to spend money and make investments on a whole bevy of new technologies and tools that have come on the market, but I’m not really seeing a tangible benefit from my financial services providers, namely my insurers. I think the reason for this is that insurers don’t really have a great way of

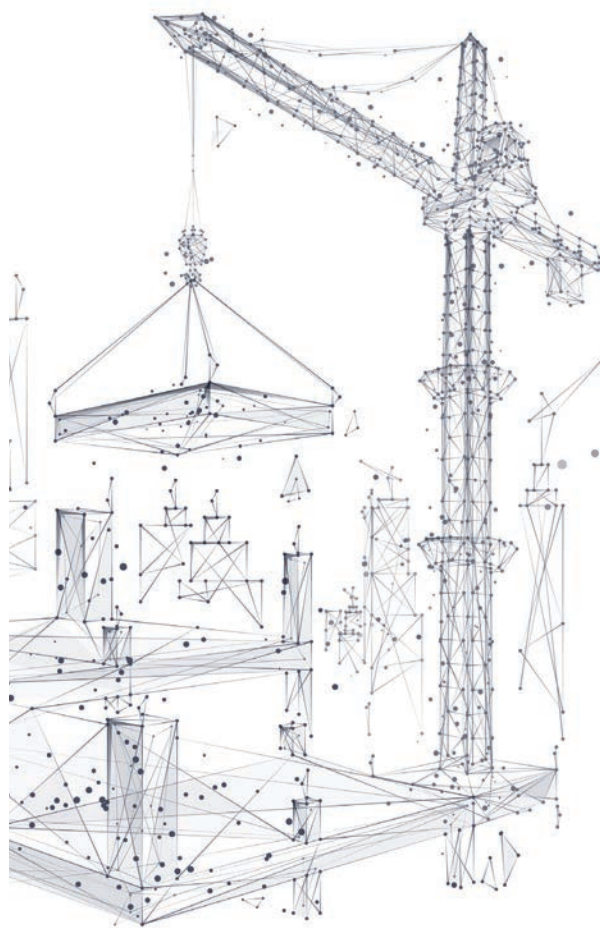
evaluating the impact and the loss control value of these tools. And the reason for that is because their systems are dated, and it’s hard for them to evaluate data at a scale that’s necessary and practical in order to make those decisions,” he said.

“So, Shepherd is about really rethinking underwriting from the ground up. We’re certainly still incorporating a lot of the core fundamentals of how to underwrite the construction industry, but we also want to build a platform that is able to connect with and evaluate the data from construction tech systems in order to create reward for contractors,” Levine said, explaining that reward might come in the shape of more favorable terms and conditions or better conditions.

A Risk Manager’s Perspective

Levine’s personal journey toward this mission started during his days as a risk

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manager. “I felt like there wasn’t enough tooling available to me to be able to impact the team and really be part of the decision-making without creating big bottlenecks,” he said, explaining the impetus for the first startup he worked on, named TradeTapp. “It really focused on one of several workflows for risk managers [that] I found frustrating, which was the subcontractor prequalification process,” he said, referring to the way general contractors evaluate and make decisions about their vendor and subcontractor partners.

TradeTapp, a SaaS platform for risk managers, CFOs and other finance leaders in the construction space launched in 2016, is basically a vendor platform, Levine said. “Risk managers invite their subcontractor partners to submit qualification information about themselves, and then the platform is essentially an underwriting tool for that risk manager to be able to decide whether or not that company is financially sound, has good safety performance history, operating [competencies], and then ultimately make a decision on whether or not they’re going to contract with that business,” he said.

TradeTapp was acquired by a larger construction tech company called BuildingConnected in the middle of 2018. Then BuildingConnected was acquired again by Autodesk, another construction technology provider, at the beginning of 2019. “Autodesk made some pretty aggressive moves to add to their construction tech portfolio. They also bought a company called PlanGrid and really re-formed this group that they called Autodesk Construction Solutions as one of the market leaders in the space.”

“A lot of the foundation of Shepherd really comes from the experience of being at one of the leading construction tech companies and being frustrated with the lack of real engagement between our world in construction tech and [insurance] underwriting; feeling like there really wasn’t much of a connection other than just some marketing together from time to time,” he said.

The work of bridging the gap already has

About Shepherd

Shepherd is a venture-backed InsurTech startup for the commercial construction marketplace founded by entrepreneurs with expertise in construction, tech and insurance. Operating as an MGU, Shepherd is focused on providing—and improving—insurance for middle-market contractors that devote resources to utilizing technology and data.

Justin Levine, chief executive officer, worked in construction and construction technology before co-founding Shepherd. Among other roles, he previously founded a SaaS called TradeTapp, a platform for risk managers.

Mohamed El Mahallawy, chief technology officer,

started a career as a software engineer in 2014, according to his LinkedIn bio. Prior to joining Shepherd, he was a senior software engineer for Airbnb.

He initially met Levine through the On Deck Founder Fellowship, a community of ambitious entrepreneurs.

Stephen Buonpane, chief insurance officer, started a career in construction insurance underwriting 18 years ago, ultimately becoming the leader of Chubb’s North American construction industry practice early in 2020. Buonpane first met Levine during his early days at Chubb (then ACE), when Levine worked as a risk manager for general contractor, Hunter Roberts.

Backed by venture capital, Shepherd announced a \$6.15 million seed round in early September, led by Spark Capital, with participation from Susa Ventures, Procore Technologies, Y Combinator, Greenlight Re Innovations, Oldslip, and several strategic angels from within the InsurTech and fintech ecosystem.

In an early blog post on the Shepherd site, Levine estimated that more than \$5 billion of venture capital has been invested in construction technology over the last decade. But data from this technology hasn’t been leveraged in insurance underwriting, he believes, opening an opportunity for Shepherd to remedy that as the core part of its mission “to improve the safety and productivity of the construction industry by advancing the use of technology on job sites.”

Having personally lived on the tech side of the construction industry, Levine knows how difficult it has been for software companies to engage with insurers or brokers in a meaningful way. “It’s become increasingly popular for tech companies to provide discounts in exchange for distribution across insurance channels. This type of relationship may

seem beneficial on the surface, but it’s the wrong alignment of incentives,” he wrote in a blog post.

“We believe in a world where insurers would be willing to discount their own products in exchange for their insureds leaning in on the best construction tech tools,” he wrote, referring to sensors, wearables, computer vision tools that have the biggest impact on safety, loss control and claims. [CM](#)



Mahallawy, Levine and Buonpane

begun. Shepherd is integrating its technology directly with Plangrid, Procore and other construction management and productivity platforms—essentially connecting with the tools contractors already use in their business to streamline the insurance buying process and enhance underwriting. (Editor's Note: Procore, the leading construction management software company, is also an investor in Shepherd.) The integrations eliminate manual data entry for brokers and contractors. In early September, Shepherd started allowing construction brokers to invite clients to complete online submission forms, extracting data from Procore.

The basic idea is that “we’re building a digital experience for buying coverage that’s going to be native to Shepherd. So, when somebody wants to buy a Shepherd policy, it will be entirely an online process—everything from submission in the door, all the way through quote, binder, policy and the transaction itself, we’ll facilitate through our platform,” Levine said.

But Shepherd, set up as a managing general underwriter for middle-market commercial construction insurance, isn’t going to be writing every line of business that a contractor needs. In fact, Shepherd’s first and only offering for 2021 is excess casualty, expected to become available in the fourth quarter. “Because we’re only going to represent a piece of the puzzle, we felt like Shepherd should be a single platform that contractors and brokers can use to build out programs,” Levine said.

“We took the first part of our platform and carved it off into its own standalone workflow tool, and we started to give it away to brokers for free,” he said, noting that brokers using the tool today are using it for different lines of business—“everything from builders risk to professional pollution coverage to exposure updates on casualty programs—and sending those submissions to other carriers through the platform.”

“We think of ourselves as a construction-specific Indio as far as what this tool does,” he said, referring to a generic tool from InsurTech Indio that’s used for data collection. (See related article: “InsurTechs

“We want to take the subjective aspect of underwriting evaluation and make it objective.”



Stephen Buonpane

to Watch (The Distribution Channel): Indio Technologies.”) “The idea there is just give [brokers] a better workflow solution for engaging with customers, collecting information across any line of business, and then eventually, down the road, once we do enter the market, which we’re still targeting the end of this year, we’ll layer on our first insurance offerings as an embedded experience on the platform for those brokers.”

Shepherd piloted the brokerage platform with a handful of brokers over the summer, Levine reported, noting that inbound interest from more brokers has risen since early September, when Shepherd announced both a \$6.15 million seed funding round and the availability of the free broker platform.

Underwriting Innovation

Beyond simplifying the insurance application process by integrating with third-party information providers, Shepherd is rebuilding the traditional construction insurance underwriting process to move beyond the factors that Buonpane relied on previously in his career: loss history, insured locations and class codes. “If you were on a job site 10 years ago, nothing would really be connected to the Internet,” said Buonpane, contrasting the situation today, where the project management platforms help contractors collaborate, track and document their work and computer vision, IoT sensors, and wearables are mitigating job-site risks.

“The byproduct of all those tools is

data,” Buonpane said. “How that data is being used by contractors on the ground is one thing. But how do we then incentivize the use of this technology from a financial services provider standpoint?”


“As an underwriter, subjectively, if you tell me that you are using a new risk management tool that you think is going to improve the safety of your workers, or improve the quality of what you’re building, then great. Subjectively, that means something to me. Objectively, I don’t have any actuarial data to really go off of, to plant a flag in the ground and say this is going to have X percent of impact on your insurance costs or your loss frequency. But I know it’s going to have an impact.”

Buonpane said underwriters within legacy institutions, historically, have struggled to take the impact of new tools into account in pricing and underwriting models. At Shepherd, through construction technology partnerships, the InsurTech is “already starting to measure the impact of usage, and back-testing it and doing regression analysis on just simple frequency metrics and things such as EMRs,” he said, referring to experience modification rates. “We want to take the subjective aspect of underwriting evaluation and make it objective, and start then using what we’re finding through our data, through our connections and through a more advanced underwriting model [to] have almost a real-time impact in how the insurance is being priced and structured.”

In the years to come, Levine and Buonpane say that Shepherd will look to grow technology partnerships and expand coverage offerings to include primary lines like general liability, workers comp, commercial auto, construction wrap-ups and unique parametric offerings. In addition, Shepherd is hiring across the board—seeking more underwriters, product developers and engineers—and may even become a full-stack carrier. For now, Guy Carpenter is helping the MGU market its excess casualty program to prospective capacity partners.

(Related online article: “Continuing to Build: Construction-Focused InsurTech Shepherd.”) [CM](#)

Building Insurance for the Companies Building the Future

A photograph of a person holding a large, light-colored umbrella, standing in front of a city skyline reflected in water. The person is silhouetted against the bright sky. The city skyline consists of numerous tall buildings, some with unique architectural features. The water in the foreground is calm, creating a clear reflection of the buildings and the person with the umbrella. The overall scene is misty or rainy, suggesting a need for an umbrella.

Executive Summary: Vouch, an InsurTech that underwrites commercial and management liability insurance for high-growth technology and life science startups, is the brainchild of Sam Hodges and Travis Hedge. Here, the co-founders describe past experiences with entrepreneurship and startup investing that fueled a mission to correct the problems of time-consuming underwriting processes and ill-fitting coverage for their target customers, along with recent milestones and possibilities for the future as industry veteran Chad Nitschke takes the reins of a new division: Vouch Specialty.

By Susanne Sclafane

Back in 2015, after working more than 15 years on the underwriting side of the property/casualty insurance business, Chad Nitschke started to become frustrated with the lack of change in the industry.

“I just felt like the rest of the world was evolving, but the insurance industry wasn't really keeping pace with a lot of the other industries,” said Nitschke, president of Vouch Specialty, recalling his feelings at the time.

Before taking his role at a new division of InsurTech Vouch earlier this year, Nitschke

made an initial leap to the world of faster-paced companies that started to pop up in the insurance sector five years ago.

Switching gears from being an underwriter of specialty lines like D&O and professional liability, and from being an executive who managed niches like credit union protection and small business commercial business at the likes of Travelers, CUNA Mutual and AXIS Capital, he co-founded InsurTech Bunker, a startup focused on independent contractors and small businesses, in March 2016.

Describing the uneasiness that first pushed him toward the InsurTech world, Nitschke said he felt that new product

development in the traditional industry wasn't really in tune with customer problems. He recalled one insurance executive at an incumbent telling him, “We have all of these bad customers...People that call in, and they have a policy with us, and they cancel it, and then they want to reinstate it two months later.”

Those aren't bad customers to Nitschke's way of thinking. “It's a customer that just wants something different. They want a product that you don't offer today, and they're solving [their problem] through a really painful process for everyone who's involved,” he said, explaining that the mindset should have been to do something

different for that type of customer.

While Nitschke was building Bunker, Sam Hodges and Travis Hedge were starting to build Vouch, an InsurTech focused on the problems of one very specific set of customers who they felt weren't being well-served by existing insurance companies. "We saw an opportunity to uniquely build solutions catering to the innovation economy—folks who are building high-growth, technology-forward companies, and also ones in frontier sectors [like life sciences] that traditionally have been harder to insure," Hodges told *Carrier Management* in a joint interview with Nitschke last month.

"We believe we can use technology and advanced analytics to build fundamentally better commercial insurance products," Hodges added, expressing a second basic idea behind Vouch, an InsurTech providing coverages like liability, D&O, E&O, EPL, cyber, fiduciary, crime and property insurance to early-stage to middle-stage technology startups—along with some novel products like "work from anywhere coverage," which specifically cater to the risk management needs of startup companies. ("Work from anywhere" covers equipment and other property owned by a startup regardless of location.)

"Very few tech companies own their own buildings," for example. "If you are a startup, it does not matter what type of roof the WeWork space you're in has. That is not a relevant risk factor," Hodges said later in the interview, also explaining how Vouch has used analytics to create an underwriting process that provides most customers with a quote within 10 minutes and a bound policy the next day.

Customers who want to change coverage aren't bad customers at Vouch, where a technology platform accommodates changes in clients' exposure bases. "We often do midterm upgrades, or cancel rewrites with higher limits or broader coverage," Hodges said at another point in the interview.

"We want to build the best insurance policies for companies that are building the future," Co-Founder Hedge told *Carrier*



Sam Hodges and Travis Hedge have embarked on a shared mission, creating Vouch to "craft the best insurance for those building the future."

Management in a separate phone interview, repeating a mission statement that Hodges shared almost word for word. "We want to be the first insurance policy for every venture-backed company out there, and then really build the unique capabilities to scale with these companies through IPO," Hedge said.

Even high-growth InsurTech businesses, like Bunker, could be potential customers, Hodges confirmed.

Paths Come Together

Nitschke actually didn't sign onto the Vouch team because he was scouting out coverage for Bunker. Late last year, Nitschke recognized that Bunker had reached a stage where he felt comfortable stepping aside from the CEO role. (Related article, "An InsurTech Founder Moves On") While he was taking time off and thinking about what to do next, Nitschke's wife, the HR director for Hodges' last venture, Funding Circle, made an introduction.

Funding Circle, a small business loan platform, is one of three companies that Hodges co-founded. "A big part of being a successful entrepreneur, particularly in that tech-forward high-growth space, is really just understanding what are the risks you want to take and what are the risks you want to mitigate," Hodges said, giving

some of the backstory that motivated the creation of Vouch.

Like Nitschke, Hodges had his own frustrations with insurance. Giving the perspective of an entrepreneur that needed to buy insurance multiple times, with buying decisions often prompted by trigger events, such as closing a lease or debt and equity financing deals, or contract requirements related to enterprise sales or partnership agreements, Hodges said that getting insurance always took way longer than he felt it should. "The coverage being recommended or offered wasn't tailored to need, and it was a very unbundled, very paper-based experience," he added.

"As an entrepreneur, where you have an expectation that you can use software basically to manage other aspects of your company, insurance honestly just felt like a black hole. It was a real gap," said Hodges, who earlier in his career was an investor in the first wave of insurance technology companies. (*Fun fact: In several video interviews online, Hodges notes that he worked alongside Larry Wilson, the founder of Policy Management Systems.*)

Hodges also said that during the moments when he had risk events, he didn't find the insurers or brokers he had to be particularly helpful. "We were on our

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own to navigate those risk events,” he said, adding that his experiences weren’t unique. “Across the businesses I’ve been watching for the last 15 years or so, it’s very common to go through things like cyber events, trademark disputes, employee-related disputes, investor-related disputes,” he said. “If you can actually educate entrepreneurs and founders on, No. 1, how do you avoid such things, but also No. 2, what are good practices for dealing with those risk events if and when they come around, that’s not only really good for the company and for the entrepreneur, but it’s also really good for you as the insurance provider,” he said, explaining an education concept that’s also baked into what Hodges and Hedge are trying to do with Vouch.

“I’ve spent a lot of time over the last decade thinking about how to help other entrepreneurs be better entrepreneurs...I’m just a big believer that entrepreneurship and innovation in technology and life sciences can drive real positive change in the world. And, if you can provide tools and services and education to folks who want to build companies, that’s something that’s a purpose worth pursuing,” he said, explaining Vouch’s overall mission to help entrepreneurs navigate risk events.

Hedge, who had been investing in entrepreneurs at SVB Capital, and before that at Nationwide Ventures, had only a brief failed attempt at tech entrepreneurship during his college days. But he grew up in a family of entrepreneurs. His parents built an insurance agency, HR Butler, which like the technology companies Hodges built had a risk event that helped fuel Hedge’s desire to build an operation like Vouch.

His parents’ agency got hacked a few years ago, just a few months into his tenure at SVB. “It got me thinking a lot about [the fact that] whether you’re a tech entrepreneur or a small business, you face a lot of the same risks as a Fortune 500 company. But you’ve got a fraction of the resources to combat that,” he said, noting that his father’s firm, which had one IT person doing laptops, ultimately got things

patched up. “It really got me thinking a lot about how you can do things differently.”

Root for Commercial Insurance

Like Hodges, Hedge said he had seen “how manual and broken the process” of buying insurance was for startups when he was working at SVB and at Nationwide, where Hedge helped to build Nationwide Ventures. The two co-founders first met when Hedge worked at SVB and he brought Nationwide’s executive committee to Silicon Valley to introduce them to startups—Hodges’ Funding Circle being one of them. A mutual friend at Ribbit Capital, which ultimately helped to seed Vouch, reconnected the two men with a common vision years later, and after “founder dating” and “whiteboarding the ideas out,” they launched Vouch in 2018, with SVB alongside as an investor and partner.

Hedge said another experience led him on the path to co-founding Vouch, recalling how a relationship with Alex Timm, the CEO of Root Insurance, led him to start thinking about creating the counterpart of what Root built in personal lines—a full-stack InsurTech carrier—on the commercial side of the insurance business.

“Six months into the job [at SVB], I was very excited about AR-VR and all the ‘shiny objects,’ out there in technology at the time. But I remembered this insurance thing I spent my whole life around,” he said. (*Fun fact: In addition to his parents being insurance agents, Hedge’s grandmother was a senior marketing executive for Nationwide.*) “I reached out to the smartest person I’d worked with at Nationwide,” he said, referring to Timm, who had left to start Root Insurance a week earlier. “I was really fortunate to work closely with him to help them get the capital they needed to become a carrier. Eventually [SVB] co-led their Series B with Ribbit and I got to be involved with businesses like Ladder Life and a handful of other [InsurTechs] that were taking this vertically integrated full-stack approach.”

“From 2016 to 2018, I spent a lot of time actually pitching SVB, talking to other

founders, looking for a company that was building the direct commercial insurance carrier for the technology industry,” Hedge recalled.

“When I say we want to build the Root for commercial insurance, it’s really on two dimensions. First, I think you’re able to build insurance products—new policies, new underwriting guidelines, etc.—a lot faster when you take a full-stack approach...The second piece was around data and connectivity. While Root uses the sensors on your phone obviously to price your driving ability, we look at all the tools that a modern business uses as very analogous in terms of spinning off new kinds of data exhaust that insurers historically haven’t had access to,” Hedge said.

The tools include payment software and cap table software used by VC-backed businesses. (*Editor’s Note: Cap tables list information like the value of equity in each round of investment by founders, investors and other owners, ownership percentages and shares by investor.*) “A big part of our vision has always been to embed within those platforms and ingest those data,” he said. Embedding will drive a more efficient underwriting process. And over time, Hedge and Hodges think it “can fundamentally lead to new kinds of insurance products.”

Crafting a Better Underwriting Model

Not only has Vouch created new insurance products, like cap table coverage, which covers the cost of disputes over ownership percentages and equity, but in early September, Vouch announced that it was partnering with Brex (all-in-one financial software), Carta (cap table management) and WeWork (shared workspaces) to embed its insurance coverage offering in their platforms. Such partnerships add to existing relationships through which Vouch has been the preferred distribution partner of SVB and Y Combinator since its early days.

The September announcement, which disclosed a \$90 million round of funding for Vouch from Redpoint Ventures, Silicon

Valley Bank Capital, Ribbit Capital, Allegis Group, Sound Ventures and SiriusPoint, also revealed that Vouch has set up its own carrier, authorized to write reinsurance. In conjunction with raising its own Series C round, Vouch also announced that it expanded its underwriting appetite from seed to Series C companies—now delivering insurance to not just early-stage tech companies but also serving the insurance and risk management needs of older growth-stage companies.

“Our current appetite is high-growth, innovative companies—all the way from two people in the garage to [companies] getting ready to think about going public. It’s a very wide swath of the private innovation economy,” Hodges said.

“One of the unique things about serving startups is that they’re very dynamic,” Hodges said. “We have many examples of startups where, inside the time that we’ve been their insurance company, have gone from zero to hundreds of employees, zero to tens of millions in revenue, zero to hundreds of millions of dollars in financing. That pace of change, and ultimately the scale you can get to quickly in some of these sectors, is one of the things that makes the job of being an insurance provider challenging,” he said, going on to describe one of Vouch’s differentiators—the ability to speed the underwriting process, using a taxonomy of 70 or 80 proprietary risk profiles for target customers.

The rating classes of traditional insurers and brokers don’t work “in the context of modern digitally native businesses,” Hodges explained. “Most carriers or brokers wouldn’t use separate class codes for a digital health company on the one hand versus a digital gaming company on the other.” But the reality is that a digital health company has wildly different exposures, particularly as relates to cyber and E&O, compared to a digital gaming company.

“The first thing we did was put together a much more nuanced, comprehensive class framework that allows us to call out

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An InsurTech Founder Moves On

When Chad Nitschke officially left his role as CEO of the InsurTech he founded, Bunker, in January of this year, he didn’t know yet that he’d become the president of Vouch Specialty, the division of another InsurTech, seven months later.

The exact focus of Vouch Specialty is still a bit under wraps. But Vouch Co-Founders Sam Hodges and Travis Hedge hint that the role may relate to the complex insurance needs of their expanding target market that used to consist of early-stage startups but now also encompasses later-stage private companies, including fintechs, life sciences companies and consumer tech companies.

Nitschke’s engagement, which started as an adviser, came at a time when he was taking a break and sorting out exactly what his next role would be. An introduction from his wife, who had worked for Hodges years earlier at another company, was one of his paths to a Vouch role that wasn’t in his immediate plans.

“My decision to join Vouch was completely independent of the decision to transition out of the CEO role at Bunker, and that was a big decision for me,” he said.

Why did he leave Bunker, a contract-related insurance marketplace that he had run for five years, passing the CEO reins to Jordan Simkin?

“It was a fork-in-the-road opportunity for me,” he said, laying out his two choices—either continuing to lead Bunker through its next stage of growth as CEO, or handing the reins to “a talented operator” who was keen to move into the role. “I am a firm believer in re-potting the plant, and obviously, it’s a lot of work to build a company and run a company. I liked the idea of injecting a different mindset, with the same vision but a different energy, into Bunker,” he said, during a recent interview.

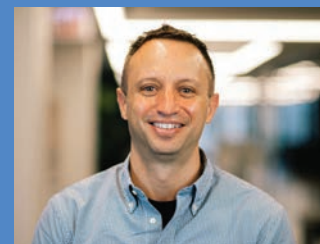
After Simkin approached Nitschke with the idea, the two men worked together in the third and fourth quarters of 2020 to make a smooth transition. “In January, I decided to basically transition out of the CEO role, stayed on the board and didn’t really know what I was going to do next. I had a few things that I was noodling on and thinking about, but really just wanted to take some time off in the near term,” he said. Nitschke filled the time doing some volunteer work with the San Francisco Food Bank and also joined venture firm Clocktower Ventures (an investor in Bunker) as an EIR (entrepreneur in residence).

Nitschke, an active angel investor in the InsurTech space, said that his wife’s connection to Hodges wasn’t his only path into Vouch. He also knew Hedge because Bunker was a client of Silicon Valley Bank when Hedge worked at SVB.

John Wallace, a longtime friend who worked with Nitschke during his pre-InsurTech days at CUNA Mutual and Travelers, signed on to a role on the Vouch executive team as chief insurance officer.

A lot of independent connections helped Nitschke see what Hodges and Hedge were building at Vouch, he said, noting that a role as an informal adviser ultimately led to his current position as Vouch Specialty president.

Nitschke, who invested in Vouch’s seed round, is also an investor in Shepherd, profiled on p. 22.



“I’m a firm believer in re-potting the plant.”

Chad Nitschke, Vouch Specialty

Underwriting Innovation

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those distinguishing characteristics and ensure that the coverage we are recommending, as well as the framework we're using for underwriting and rating, takes those differences into account. And then, on an ongoing basis, we're pulling in tons of data that allow us to track, in near real time, changes in how these companies are evolving, so that we can ensure they have the right level of coverage with the right limits, priced and underwritten the right way," he said.

Hodges contrasted the 70-plus classes to a handful used by traditional carriers. For traditional carriers, classes are: on-premise software, custom software development, electric vehicle manufacturing, "and then everything else that you'd think of as a software or Internet native business" lumped into two remaining class codes. "That is just a very 1992 way of thinking about what technology is," he observed.

Without tons of actuarial history to fall back on, Hodges explained that the experience of a commercial insurance team with actuarial, underwriting, product development and claims expertise, together with the experience of Vouch's advisers, is baked into its initial rate filings and underwriting guidelines. (*Editor's Note: Cynthia Powell, former chief risk officer of State Auto Insurance and chief financial officer of Root, Robert Byler, former CEO of Schinnerer Group, and Mark Herman, former president and COO of CNA Specialty, are members of Vouch's board.*)

"If you are a startup, it does not matter what type of roof the WeWork space you're in has. That is not a relevant risk factor."

Sam Hodges, Vouch

"Honestly, a lot of this is just good old-fashioned common sense," he said, referring to the process of "hybridizing concepts that already exist in the traditional market" to understand the risks of a digital health company—some of which are inherent to being an Internet company, and other risks that are inherent to being in a particular category of health services.

A Reinsurer Is Born

Vouch has also leveraged insights from its reinsurance partners along the way, Hodges said, later noting that Munich Re, an early reinsurance partner, no longer participates on policies that Vouch writes on State National paper. "Because our new program includes discretion, that's not something that the Digital Partners [unit] of Munich Re can support," he said, explaining that before July of this year, the vast majority of Vouch's business was being auto-decisioned. Now that Vouch is writing more mature, complex growth-market accounts, Vouch needed to introduce underwriter discretion—a different approach than the one Munich Re Digital Partners historically would have supported.

There are now four reinsurers backstopping the programs: SiriusPoint, Greenlight Re, ISMIE—and, importantly, Vouch Insurance Company. Previously operated as an MGU, Vouch now participates materially in sharing the risk as a reinsurer, moving the InsurTech closer to Hedge's vision of creating a full-stack carrier.

"In general, our philosophy is we do want to take as much risk as possible on our balance sheet while being mindful of

how to scale the business in a capital-efficient manner and share the risk appropriately," Hedge told *Carrier Management*. "By no means is it just a token, 'Oh, we want to have a little skin in the game. Give us 5 or 10 percent. It's a much more material number than that," he said.

"When we set out to start the business, my bias was I wanted to be a carrier as soon as possible so we can have that control over underwriting, etc. But our business is very different from Root's. There, you're talking about a monoline personal lines business where capital requirements are roughly a tenth of what they are to build an A-rated carrier in our category." Hedge also noted that half of Vouch's client base sits in California and New York, states that have three-plus-year seasoning requirements.

Does Vouch aim to become a primary carrier in the future?

"We're very focused on building out future programs with our current partners and continuing to build out the balance sheet for the Vouch Insurance Company, which I foresee operating as a reinsurer for a long time to come," Hedge said.

While setting up Vouch Specialty is another step into the future, the executives are keeping specifics about the unit Nitschke is heading up under wraps for now, only revealing that it may involve bespoke offerings for later-stage startups with complex insurance needs to fill in gaps where Vouch's current selection of proprietary policies aren't quite enough. **CM**

During the interviews, Hedge also offered insights for other InsurTech leaders about the process of becoming an authorized reinsurer in the state of Illinois. And he and Hodges shared more insights about insurance distribution and the unique risks of Vouch's client base. Details are available in related articles exclusively on [CarrierManagement.com](https://www.carriermanagement.com): "InsurTech Decision Point: Shell Company or De Novo Carrier?"; "Humans or Machines: InsurTech Says Startups Want Both for Insurance Buys"; "Writing D&O, E&O and Other Specialty Lines for Startups: Q&A With Vouch Execs."



Eyes in the Sky and Beyond

Kicking off a *Carrier Management* Roundtable event on geospatial information systems in mid-October, titled “Seeing Through the Clouds: Satellites in Insurance,” panel moderator Mike Fitzgerald, principal insurance analyst for CB Insights, defined geospatial information systems (GIS), offering an explanation from the American Association for the Advancement of Science website. (“What are geospatial technologies?” at [aaas.org](https://www.aaas.org))

“GIS is a collection of technologies involved with mapping the Earth—and with deriving insights from information that help explain what is happening on our planet,” he said.

It’s about more than satellites, drones or

fixed wing aircraft, he said, stressing that collecting information from images photographed from these vehicles and from sensors is just part of what GIS encompasses. GIS providers analyze the data and “then feed it back in an appropriate way at the appropriate time.”

“An important aspect of a GIS is interpreting and making sense of the data—using analytic tools such as artificial intelligence to assemble the range of geospatial data into a layered set of maps, allowing complex themes to be analyzed and then communicated to wider audiences,” he said. “This ‘layering’ is enabled by the fact that all such data includes information on its precise location on the Earth’s surface.”

Serving as a guest editor for this edition of *Carrier Management*, Fitzgerald conceived of the idea for the Roundtable and the series of articles that follows, providing an overview of technological advances in satellite technology, insurance use cases for imagery from fixed wing aircraft and satellites, GIS vendors offering turnkey apps to extract and understand GIS data, new insurance products being developed using GIS, barriers to adoption, and advice that carriers and reinsurers can use to position themselves for success.

Watch the entire Virtual Roundtable—“Seeing Through the Clouds: Satellites in Insurance,” on the *Carrier Management* channel of InsuranceJournal.TV [CM](#)

Eyes in the Sky and Beyond:

Why Geospatial Information Matters to Insurers

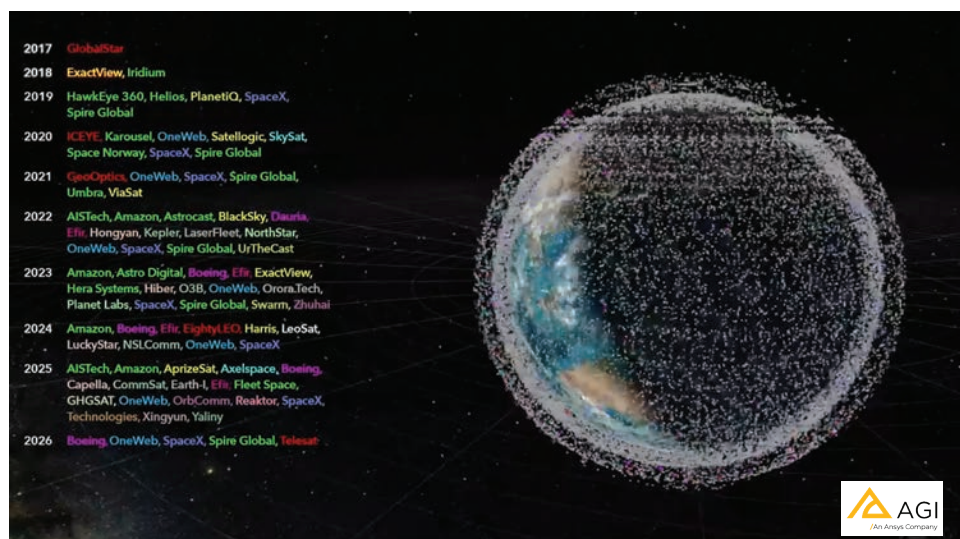
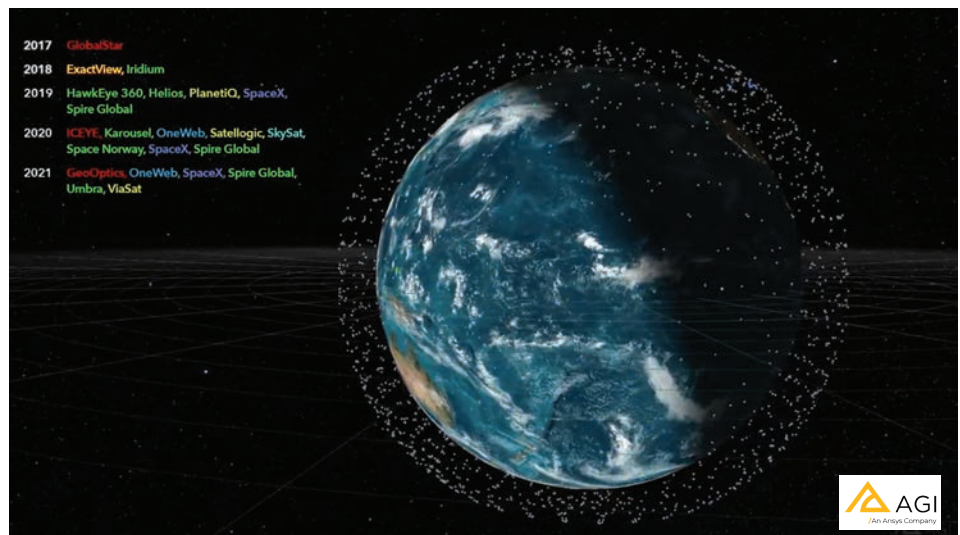
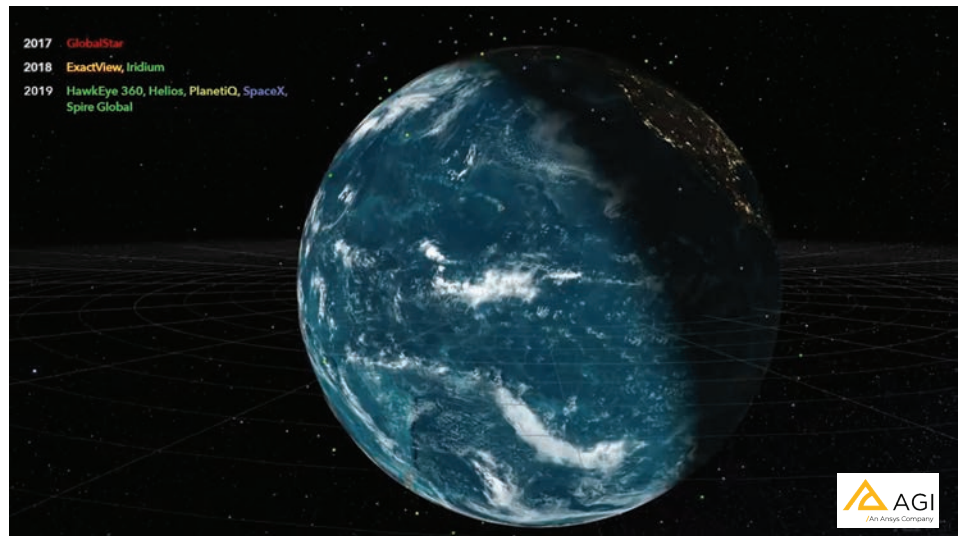
By Susanne Sclafane

When Mike Fitzgerald, principal insurance analyst for CB Insights, talks about geospatial technology and its applications in property/casualty insurance, he is challenged to restrain his enthusiasm about the subject.

“I really do view this as the next big thing—on the order of the Internet, on the order of mobile phones,” said Fitzgerald who is guest editor for the content in this edition devoted to the current and potential uses of geospatial information systems in insurance. With insurers now able to access data from cameras and sensors aboard satellites, drones and manned airplanes, to store geospatial information in the cloud, and to use artificial intelligence to apply what sensors capture to the business problems of insurance, “we can’t even imagine how we’re going to take advantage of it,” Fitzgerald said.

In the pages that follow, and in accompanying video content published online, Fitzgerald connects with representatives of all corners of the P/C insurance industry to describe some ways in which insurers are using information satellite and aerial imagery. They include:

- Automating property inspections to



improve pricing and underwriting processes.

- Enhancing flood maps and information in catastrophe risk models.
- Tracking supply chain risks and marine transportation backlogs.
- Developing new insurance products with parametric triggers for weather-related small business interruptions, event cancellations and crop yield coverages.
- Improving catastrophe responses to get to customers in their time of need.

“You can create this bespoke, concierge-level experience all while doing it even more efficiently than you are now, because you often don’t have to put people in the field,” Ryan Bank, managing director of the Geospatial Insurance Consortium, told Fitzgerald in one video interview, emphasizing the last bullet point. Bank described the phone conversation between an insurer’s service representative and an insured that had to evacuate a storm- or wildfire-damaged property, with the carrier rep offering to have clothes and supplies delivered to the policyholder—a conversation triggered by an image of the insured’s home delivered to the insurer the day after a natural disaster.

GIS information isn’t just beneficial to property insurers, Fitzgerald said. “If you think about a retail location, many times general liability is [evaluated based] on sales...The number of sales you have represents the number of people you had on site, which represents your risk. But there is the ability now to just look at how many cars are in the parking lot and track that over time, and then come back and adjust the premium,” he said.

Referring to the growing impacts of climate change on insurers, and on vulnerable populations in harm’s way, speakers participating in a CM Roundtable moderated by Fitzgerald—Pranav Pasricha, global head of P&C Solutions for Swiss Re; Bessie Schwarz, the CEO of Cloud to Street (a group of scientists engaged in flood mapping); Giacomo Favaron, a pricing and GIS data specialist from AXA XL; and James Rendell, CEO of BirdsEyeView, an

MGA developing parametric products based on satellite data—agreed that revolutions in space technology and AI hold the promise of creating a world that is safer through loss control activities and coverage developments to fill protection gaps, all made possible with geospatial information. (Related article, “Seeing Through Clouds,” p. 44)

Science and Business Model Changes

All of these possibilities start in the sky—with ultra-sensitive cameras the size of mini-refrigerators on board airplanes capturing high-resolution images of ground activity—and in space, where satellite constellations with radiometers can see through clouds and process spectrums of light that the human eye cannot see.

“When scientists start talking about the ability to look at not just two or three different color spectrums but 25 or 26 at one time, or when you hear them reference [developments] like government satellites that are not commercially available yet, which can measure one inch of sea-level change from 800 miles above the Earth,” you begin to understand the enormity of the technological advances that are actually out there, Fitzgerald said, recapping some highlights of the video Roundtable, which he moderated.

“That’s the reason I think we haven’t even begun to tap into the number of applications and the number of possible use cases. [And], I don’t think this is a 10-year-away thing. There’s going to be a huge entrepreneurial push around figuring out creative ways to use the data and combine the data and deliver it back.”

Fitzgerald introduced the topic with a definition of GIS. “GIS is a collection of technologies involved with mapping the Earth—and with deriving insights from information that help explain what is happening on our planet,” he said. “An important aspect of a GIS is interpreting and making sense of the data—using analytic tools such as artificial intelligence to assemble the range of geospatial data into a layered set of maps, allowing

complex themes to be analyzed and then communicated to wider audiences,” he said. “This ‘layering’ is enabled by the fact that all such data includes information on its precise location on the Earth’s surface.”

Attributing the definition to the American Association for the Advancement of Science, Fitzgerald also shared a mesmerizing video from AGI, a provider of simulation, modeling, testing and analysis software for aerospace, defense and intelligence applications (with permission). Tracking developments in the satellite world, the video depicts the number of vendor applications for licenses to launch satellites at various points in time as dots around the globe, Fitzgerald explained. At the start of the video, the Earth is clearly visible behind a sparse collection of dots in 2019, and then partially obliterated by multiple dots in 2021. (See p. 32, top and middle images.) Five years later, it’s hard to see the Earth’s landscape, which is hidden behind an array of dots coming together to form a veil around it, representing the explosion of satellite launch applications through 2026. (p. 32, bottom image)

But “this is not all futuristic and about ‘Star Wars’ R&D,” he noted. “It’s about business process innovation,” he said, going on to describe the work of space technology companies Planet and Skytek, which helped insurers track risk accumulations from supply chain disruptions that ensued when the Ever Given ran aground in March of this year. (See related article, p. 49.)

“Within hours, Bloomberg published some facts that even five years ago wouldn’t have been available,” he said, noting that the news organization accessed Planet’s satellite data, as well as publicly available weather data, to illustrate that this ship was actually speeding through the canal while there were very high winds that were blowing across at a certain direction, that basically turned it in the narrow channel and ran it aground.”

“Previously, the business model would have been for insurers to send risk managers to the site, try to get access to the

continued on next page

Meet the Guest Editor

Mike Fitzgerald, principal analyst, Insurance for CB Insights, served as a guest editor for this edition of *Carrier Management*. In addition to conceiving the idea for the featured topic, geospatial information systems, Fitzgerald developed the individual article topics and interviewed participants in the GIS space, offering perspectives from the worlds of commercial insurance, a global reinsurer, a managing general agent, a consortium of property/casualty insurers, and vendors specializing in flood mapping based on satellite data, as well as offering storm and wildfire analysis based on aerial and satellite images.



Mike Fitzgerald

A frequent contributor to *Carrier Management*, Fitzgerald also served as the guest editor for a section of *CM*'s May/June 2019 magazine, titled "Innovation How-to-Guide." Last year, he also moderated *Carrier Management*'s Virtual Roundtable—"Is Insurance Innovation Overrated?" (available on demand on the *Carrier Management* channel of InsuranceJournal.TV).

Over the course of a 40-plus-year career, Fitzgerald was himself involved in leading innovation initiatives in the insurance industry, working on both the technology and business sides of the insurance sector.

"My background is a hybrid background," he said. "I've worked in IT; I've worked in business operations. I have my CPCU as well as my PMP, the project management designation. So, I've actually had a foot in both the core insurance world as well as the IT automation world."

The dual perspective, "at times, has really caused me to feel a bit like the Swiss diplomat who can speak many languages, seeing many sides to the same problem," he told *CM* in a 2019 interview. "That uniquely set me up for the analyst job I stepped into 11 years ago," he said, referring to a prior role at Celent and his current position at CB Insights, where he has been involved with researching the application of technology for business value in insurance.

Before becoming an analyst, Fitzgerald said he was able to work on many change-the-business assignments—the longest lasting four years when he was in charge of the area that revamped the legacy automobile system at Royal & Sun Alliance in the U.S. Shorter assignments at other organizations, including Zurich, saw Fitzgerald working on major change initiatives and introductions of brand-new products.

Research at CB Insights

Fitzgerald joined CB Insights in 2020. Earlier this year, he co-hosted the CB Insights "Tech Market: Digitizing P&C Insurance," a two-day event featuring more than 25 rapid-fire demos across six major technology categories shaping insurance, including geospatial analytics for underwriting and claims.

More recently, he contributed to the CB Insights research report "Geospatial Analytics In P&C Insurance—ESP Vendor Matrix," ranking GIS vendors based on their execution strength (evaluated based on team strength, funding and patents) and market strength (based on business relationships and partnerships). Featured vendors offering three different types of solutions—satellite data collection, insurance-specific turnkey apps and geospatial data analysis tools—included Arturo, Cape Analytics, Carto, Descartes Labs, ICEYE, Insurdata, Planet and SafeGraph.

Companies adopting geospatial technology from these providers include AXA XL, Canopus, State Auto Insurance, State Farm Insurance, Swiss Re, Tokio Marine Insurance Group, The Philadelphia Contributionship, among others. [CM](#)

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black box recordings, try to get GPS information to determine the speed of the vehicle, the speed of the ship, but it wouldn't have been public information," Fitzgerald said. "It became public almost instantaneously, therefore allowing insurers to take a different approach."

Turning to the work of Skytek, Fitzgerald said the company was able to match up satellite images with ship manifests—unstructured photo data with structured company data that was publicly available—to produce reports that identified which ships were stuck and where. No longer do insurers, brokers and shipping companies have to scramble to figure out where insured assets are located and what the risk aggregation impact might be, he said.

"If you think Google Maps and Navigation is cool, then hold on. We're going to have a whole lot more with these capabilities," Fitzgerald said.

For insurers, the new world opened up by GIS may seem daunting, with firms specializing in satellite and aerial imagery data collection, insurance-specific turnkey apps, and geospatial data analysis tools all proliferating. How can they sort through the possibilities?

"The important thing is not to wait to start," Fitzgerald said, warning against inertia on the part of insurers. "Anything that an insurer that is not currently involved with geospatial can do will position them better," he said. "Property lines of business are a great place to start. And marine has a ton of applications, too. But I would look for some line of business which is strategically important. Then look at the different solutions," focusing particularly on solutions that have operated in insurance before. "There are some vendors out there that are quite sophisticated in GIS but also who have delivered it to an impressive list of insurers," he said. [CM](#)

(Editor's Note: Earlier this year, CB Insights published a report on *Geospatial Analytics in P&C Insurance*, presenting an "ESP Matrix" of GIS vendors, assessing them on execution and market strength, as well as relative positioning in the technology category.)

A Top-Down View of Insurance Risk: Understanding the Geospatial Insurance Consortium

Executive Summary: “Insurance touches everything, and everything that insurance touches has a location.” Ryan Bank, the managing director of the Geospatial Insurance Consortium, explains the history and the business model of the GIC, a member-centric organization that gives insurers aerial views of every location they need to analyze at costs they can afford.

Watch related videos: “The World’s Largest Aerial Imagery Program—Managed by Insurers” and “A Top-Down View of Insurance Risk: Unlocking the Benefits of Geospatial Technology” on the *Carrier Management* channel of InsuranceJournal.TV

By Susanne Sclafane

Edited by Mike Fitzgerald, CM Guest Editor

One of the best-kept secrets about the property/casualty insurance industry is a member-centric organization that manages the largest aerial imagery program in the world.

That’s right. The world’s largest high-resolution aerial imagery program in existence isn’t something that was developed by Google or Microsoft. It was created by insurers and reinsurers, who also pay to keep a fleet of fixed wing aircraft equipped with special cameras flying over every square inch of the continental U.S., most of Canada, Puerto Rico, all of Western Europe, the UK, Scandinavia, Australia and New Zealand.

“And we just announced our expansion of the GIC consortium into Japan as well,” Ryan Bank, the consortium’s managing director, reported recently.

Even with more than a hundred manned planes flying through the clouds over the U.S. alone, the Geospatial Insurance Consortium (GIC) was an under-the-radar organization to *Carrier Management* until Guest Editor Mike Fitzgerald interviewed Bank in October.

The GIC, conceived by the National Insurance Crime Bureau, is a partnership between NICB and Vexcel, a provider of camera sensors and image processing technology. Vexcel’s team and technology developed Microsoft’s Bing Maps, Bank said, going on to explain the nonprofit cost-sharing model that makes the GIC possible to Fitzgerald, the principal insurance analyst for CB Insights.

“There is not an insurer on the planet who can afford to do this themselves,”

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Photos supplied by GIC and Vexcel

Technology: Geospatial Information Systems

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Bank said. Microsoft and Google are the only two companies that were able to do this in the past, he said. “It is hundreds of millions of dollars...It is massive.”

He explained, “The way that we’ve been able to make the model work is we stripped all profit motive out of it. So, this is done at pass-through costs. We divide it proportionately by all of the participating carrier members, based on how much premium they write in any given territory. And we did a unique partnership with Vexcel where they also contractually committed to providing the imagery through to us at that pass-through cost.” In other words, “they’re turning around and getting some subsidization from other industries on their commercial model. We as the insurance industry are the beneficiaries of that.”

“We then get all of the data that they fly to our spec, to our direction, but divided then at cost and proportionately across the industry.”

According to Bank, “It’s the largest [aerial capture] program in the world, including Microsoft and Google. And we’ve been able to divide that so that every carrier can afford it.”

After Bank’s conversation with Fitzgerald, the GIC announced a new update to the business model in late October that will make access to imagery captured by the Vexcel equipment even

“You can create this bespoke, concierge-level experience all while doing it even more efficiently than you are now, because you often don’t have to put people in the field.”

more affordable for some carriers. Marketing Director Kris Wagner said insurers can now opt to participate in a “no-risk transaction program”—a pay-per-use model that lets GIC members elect to pay only for images they use, but never pay more than their assessed market share based on the premium calculation that Bank described. (Under the existing model, the market share-based cost is the member cost, assessed on a quarterly basis.)

While some carriers are innovating fast, others want to start slowly with geospatial information, Wagner noted, giving the example of a carrier that could pay for one staffer to access 1,000 images in the month



of July for a specific region under the no-risk program. If the carrier started ramping up to use more imagery across more divisions over time, it would continue to pay per-image costs up until the aggregate total reached the assessed market share cap.

Location. Location. Location.

“Insurance touches everything, and everything that insurance touches has a location,” Bank said. “Literally, the sky’s the limit in the usage of this.”

“We’re just getting started. We are just getting the world initially collected, and what we do with it’s going to be open to academic opportunities, research opportunities, private analytics opportunities. There’s an entire ecosystem around figuring out where we are and what we do about it,” he concluded during the interview with Fitzgerald videotaped by *Carrier Management*.

Before looking far into the future, Bank described the consortium’s early days, current insurer use cases for Blue Sky (pre-catastrophe) and Gray Sky (post-catastrophe) images delivered by the GIC, and near-term possibilities on the horizon.

Fitzgerald: How did the GIC get started?

Bank: I was originally in communications and media production...We started looking



“Insurance touches everything, and everything that insurance touches has a location.”

Ryan Bank, GIC



at social intelligence technology, at disaster response technology—really at what we could do for the [insurance] industry. I had a relationship with NICB, [and] we started to look with their board, which is made up of some of the top claims executives in the industry, at what we could do together. How could we better respond to disasters from a technical standpoint? From an information standpoint?

We realized that geospatial was going to be a key.

There’s a saying in the industry that 80 percent of all data in the world has a geospatial or location-based component to it. But I feel that in this industry, it’s got to be closer to 100 percent. Everything happens at a location.

As a result of that, we started to [figure out] how to gather as much information about the world around us at scale. And that’s a really large problem to solve.

[Vexcel] had flown over all of North America and 18 Western European countries in just over a year prior. And they had that capability.

That was how we were able to get super high-resolution aerial imagery collected. It

really was trial and error with some of the leaders of the [insurance] industry to see what was most needed...

Fitzgerald: When did you start the process with the NICB board and then engage Vexcel?

Bank: Initially around 2015, 2016. [And then], we first responded in 2017 to the storms—Harvey, Irma and Maria, just in a row. We had been exploring the technology, and then when we saw these—Harvey was the first big storm that hit—and we went to the NICB, they said, “Yes, let’s do it. We need this. We need the help.”

And so, we launched the aircraft. We collected a ton of high-resolution imagery, got it distributed to the industry to use. And the rest is history.

What’s interesting is we break it down blue sky and gray sky. Blue sky is our ongoing imagery collection program; gray sky, our cat response program. You can’t have one without the other.

We did have to scale the program up to where it is now, where we fly every single location, every single address, every single point in the continental U.S. at a very high resolution. That gives us that [pre-event] imagery but also [information] for other non-claim uses as well.

Lawnmowers in the Sky

Fitzgerald: So, help us understand. You’ve got a fleet of aircraft and drones pre-positioned, and they have regular flights. And then, of course, they have catastrophe response flights. How does it all work? How many sites? How many different pieces of equipment?

Bank: We fly exclusively with fixed wing aircraft—manned planes. And we have over a hundred of them in the program, just in the U.S. Each of those planes has a flight crew and a Vexcel-manufactured sensor on it.

These sensors or cameras are about the size of a mini-fridge. They’re really complex pieces of equipment. They are made to do aerial survey. They’re mapping grade. So, they shoot in every

What Is Resolution?

The articles in this featured section on geospatial imagery and information systems often refer to differences in resolution for images captured from aerial cameras, drone cameras and satellite cameras. It’s clear that higher resolution means a better image. But how is the term “resolution” precisely defined for aerial imagery?

Arturo, an InsurTech that uses satellite and aerial images and deep-learning analysis to provide near-real-time physical property characteristics to carriers, offers the following explanation in a white paper available on CM’s Research & Trends platform.

“In geospatial terms, image resolution is known as spatial resolution. This industry term refers to the smallest spatial element or object discernible on the image...”

“Spatial resolution is often represented in units of meters or centimeters. Ground sample distance (GSD) states the physical distance between pixel centers of a given aerial imagery product. When thinking about resolution in this way, a pixel represents a certain distance on the ground...From a geospatial perspective, practitioners describe imagery as ‘two-meter resolution imagery,’ which means that one pixel is equivalent to two meters on the ground. One-meter resolution imagery would have a higher resolution than this, and 50cm resolution would have an even greater resolution.”

direction as we fly along and they cover a very, very broad area.

We’re able to fly these aircraft—basically a lawnmower in the sky—back and forth, back and forth, collecting all of this data. It

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Technology: Geospatial Information Systems

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gives us imagery at multiple times higher resolution than high-resolution commercial satellites. So, it gives us that drone-level view but at continental scale.

Fitzgerald: Tell us what this allows insurers to do that's different from what they currently do. And then, looking to the future, what is it positioning them to be able to do?

Bank: If an insurer uses geospatial data well and properly, it changes the entire experience—[for] underwriting, claims, pricing, risk management. But it also changes it for the end customer...

What's unique about this program is it's all built for AI. So, all of the data is completely identical in terms of how it's collected, how it's processed, where it's sourced from, what sensor was used,

everything. It's one spec globally. And so, that means that you can train AI once and then use it repeatedly.

So, if you're able to automate that, which is what a lot of our more advanced carriers are doing, [then] you can take those efficiencies.

But it's what you do with them that I think matters.

Let's take a claims experience. A storm comes through, a fire comes through, [and] you had to evacuate. Your insurer can now call you and say, "Are you OK? You had to evacuate. Here's the status of your house. Here's what it looks like. Here's your neighborhood. Fortunately or unfortunately, here's what happened, but we'll get through it. We're here with you. What do you need? We got you a hotel room, a rental car. We'll get you supplies and clothes and whatever off of Amazon." But at no point are we discussing that claim.

That's both efficiency from the carrier's perspective and [improved] customer experience from the customer perspective. You can create this bespoke, concierge-level experience all while doing it even more efficiently than you are now, because you often don't have to put people in the field.

We've got large national carriers that are doing this at scale. They're able to settle about 90 percent of their large loss claims from a catastrophe event within hours of having the imagery. Our imagery is available within 24 hours of collection...

Fitzgerald: There is a subtlety here that I have picked up from what you just said that I wasn't aware of before.

One issue with AI implementations is garbage, in garbage out. Insurers collect a lot of data, and a lot of it is bad, a lot of it has to be categorized, or it has to be cleaned, or it has to be scrubbed and fill in the blanks. It's an awful lot of work.

It is a big barrier to success for a lot of insurer AI initiatives...But if GIC is collecting this digitally already, it's almost a greenfield data collection source...It's a fresh set of data.

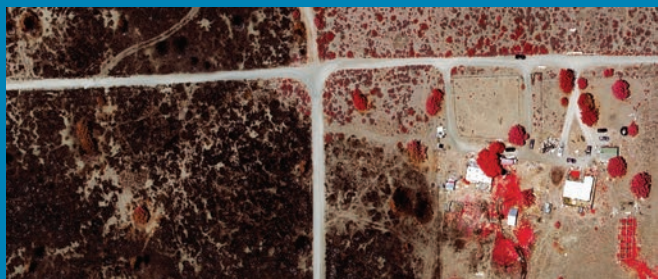
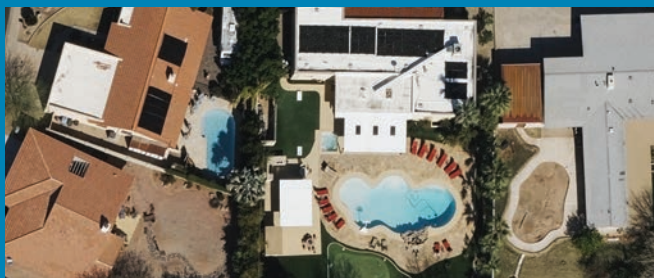
Seeing the World at Different Angles

The Global Insurance Consortium's operations partner, Vexcel, provides geospatial data using cameras and sensor technology aboard a fleet of fixed wing aircraft to deliver images at multiple angles. Included are:



Oblique images, giving a 45-degree multidirectional view of urban areas at 7.5cm or better.

Ortho images, giving a straight-down aerial view of properties and locations at 20cm.



Multispectral or near-infrared (NIR) imagery, used to help classify vegetation and to assess and build better fire risk analyses.

Bank: If you have quality in, you get quality out. There was no other program that we looked at where it had that homogenous data, but at the resolution that we need. We need to be able to see individual roof shingles, things like that. It's not enough to just see a building.

And we have to do it at scale. So, it's not enough to fly a drone over an individual house...

To me drones replace ladders. They don't replace people. And here, what we can do is we can provide people with so much better information and intelligence—and we can do so in an automated way...

There are over 180 million insurable buildings in the U.S....How are you going to look at those?

We had one national carrier that was seeing their properties, on average, only every 12 [months] on renewal. Well, if you add a deck, if you add a swimming pool, if you had an addition, then that should flag something in a system that then pops up a warning and says, "Take a look at this. There's a material change to this house. This was added." That's possible now...

Insurers don't want to shy away from risk. They just want to understand it and price it appropriately. They want to insure good risk. And this quantification and qualification of what risk exists where can only be done through a dataset that provides the ground truth and a workflow that provides the scale.

Fitzgerald: Give us a view of what will be happening in three to five years. What will carriers be doing fairly commonly that they are doing rarely or not at all now? Paint the picture for us.

Bank: Beyond just imagery and 3-D geospatial data, I think the industry is also starting to benefit from using decision trees or complex AI to identify what factors actually cause risk.

An example would be maybe a trampoline...I wonder if the math would actually show if it's a risk factor [directly resulting in claims] or if it's a visual indication of your tolerance of risk as a

Privacy Not an Issue, Insurance GIS Players Say

When *CM* Guest Editor Mike Fitzgerald asked representatives of the Geospatial Insurance Consortium and InsurTech Cape Analytics to talk about data privacy issues they have had to deal with, he got what may have seemed like a surprising answer.

They haven't run into any data privacy issues at all.

"I think that can be explained by a couple of factors. First, our imagery capture partners follow all national and local regulations that govern the capture of imagery. So, any images that Cape analyzes have already been vetted in that regard," said Kayvan Farzaneh, chief of marketing for Cape Analytics, an InsurTech that uses geospatial imagery and machine learning to provide actionable property vulnerability and risk insights to insurers. (See related article, "Beyond Claims: How Carriers Use Geospatial Analytics to Underwrite Property," to learn more about Cape Analytics.)

"Also, we focus exclusively on analyzing property characteristics and do not collect or transmit any personally identifiable information. For those reasons, we have not had the privacy challenges of other data sources, like

credit, that are focused on individuals and their behavior," Farzaneh said.

Ryan Bank, managing director of the Geospatial Insurance Consortium, a partnership between the insurance industry and Vexcel, a global aerial imagery provider, had a similar

response. "We're in public airspace with commercial aircraft looking down. So, you can't identify faces yet. You can't identify or read license plates. The physics just don't work out because of the angle that we capture at. But we're also flying

where there's no reasonable expectation of privacy."

"We don't take PII data," he said, noting that GIC pushes imagery data to carriers, who then might overlay PII data.

"We're just augmenting the data that they have," he said, responding to a related question from Fitzgerald about regulatory issues. "Carriers aren't basing product solely on this data yet. So, you don't have to go get new rates approved or anything like that because it's not changing it. It's just giving you information that you could have gotten by sending a guy in a van with a ladder [to a property]. Now you can just do so automated and from the desktop."



homeowner. [Beyond] the fact that somebody [could] get injured from that trampoline, [maybe] the fact that you allow a trampoline to be in your home means that you're probably OK with other risk factors as well...

Looking at tons of insurance data, claims data, property data could start to tease things like that out...We can start to look differently at how we evaluate what risk actually is, what risk is acceptable, what

crosses the line, etc.

The future is about...doing things at a scale that we could never do, but to provide us more insight into the same kind of process that we're dealing with now. I don't think that [insurance] is going to be completely automated in three years. I just think that a lot of it will be, and [different types of tools] will be providing us better data to make better claims and underwriting decisions. **CM**

Beyond Claims:

How Carriers Use Geospatial Analytics to Underwrite Property

Executive Summary: With use cases of geospatial imagery and analytics expanding from claims response to upfront underwriting and pricing, the job of curating data and matching individual images to specific properties being assessed probably isn't a do-it-yourself exercise, according to representatives of two geospatial analytics vendors who help insurers make sense of the visual information increasingly available from manned aircraft and satellites.

By Denise Johnson
Edited by Mike Fitzgerald, CM Guest Editor

If there is a bright side to the tumultuous ride that was 2020, it's the surprisingly agile turn property insurers took to move away from traditional reactive approaches toward more proactive customer experiences.

At the center of this change is the drive in demand for aerial and satellite imagery. At the onset of its introduction into the property/casualty sector, geospatial imagery typically was procured after catastrophe losses. The imagery provided a way for property carriers to analyze large swaths of damaged properties in a short amount of time, leading to faster claims resolution. Fast forward to the present, and geospatial imagery is being tapped by a variety of departments, including underwriting and risk management, in addition to claims.

According to Neil Pearson, IT strategy officer for Chicago-based Arturo, a spinoff of an American Family Insurance research

and development initiative, gone are the days of an agent completing a labor-intensive questionnaire about a property with the insured's assistance to secure property coverage.

Geospatial imagery offers the ability to create a knowledge base in and around a property, Pearson said. In the past, carriers traditionally relied on a variety of resources to develop an aggregate risk score. "With artificial intelligence (AI) and machine learning technologies, we can tell you what is wrong with that home, what the insurance risks around that home are with a confidence score in the high 80s, up to the early 90s," he added.

"We identify the types of risk, the concentration, the propensity so that they [carriers] can better price the target customer, as well as understand the personas within the customer base," Pearson said.

California-based Cape Analytics, founded in 2014, began using computer vision and machine learning algorithms to analyze imagery on a large scale, providing the information in milliseconds. "We have over 60 insurance customers who are using our information for quoting, for underwriting, for renewal and inspection management, as well as some post-catastrophe analysis," said Kayvan Farzaneh, chief of marketing.

Roof condition is one characteristic most insurers are familiar with, Farzaneh said. "We know with high-rigor statistical understanding that a poor or severe condition roof is going to perform much

"We identify the types of risk, the concentration, the propensity so that they [carriers] can better price the target customer, as well as understand the personas within the customer base."



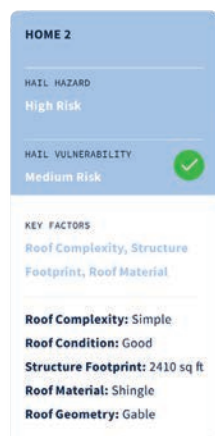
Neil Pearson, Arturo

worse in a windstorm, for example, or a hailstorm," he said. "It's going to be much more vulnerable to damage."

That information can be used by the insurer for underwriting eligibility, rating and filing.

"The key thing that we are doing is segmenting and managing risk for the insurance carrier," Arturo's Pearson said.

Initially focused on underwriting and claims, Arturo is now getting into pricing. By accessing the most recent property analytics available, actuaries can identify property characteristics—and changes—that influence price for an individual



Which house has higher risk for hail damage? With a larger complex footprint and a hip configuration, Cape Analytics scores the roof on the right more vulnerable.

property or entire portfolio, Arturo's website reveals. Arturo's pricing solution provides access to 50-plus property characteristics and also allows carriers to alternatively configure specific property insights to best support their pricing needs.

"Based on imagery we have for Australia or the U.S., we can run the whole country in its entirety within days, not weeks, so that we can give actuarial a view of what's happening across a country today...or what might have happened in prior years," Pearson said.



"The magic of machine learning and artificial

intelligence is that you can start to understand connections that you wouldn't be able to understand otherwise."

Kayvan Farzaneh, Cape Analytics

Early Questions, Data Curation Issues

When geospatial imagery was first introduced to property carriers, there were a lot of questions, said Farzaneh at Cape Analytics.

Insurers wanted to know more about the technology, its use, accuracy and value. Carriers wanted to know, "If it's used in underwriting, is it worth the cost of the data to incorporate into the system?" Other questions centered on how the technology could power better decision-making, underwriting eligibility or pricing decisions, he said.

"We spent the better part of a few years educating the market, because it's the first time they heard about something like this," Farzaneh added, noting Cape Analytics has gone from early stage use cases to much broader applications across an organization and an entire book of business for four national carriers.

At this point, Farzaneh said insurers see the return on investment. It's not a question of should we integrate a solution like this; it's do we go with one company versus another, he said.

By and large, both Farzaneh and Pearson said data curation problems most often occur when an insurer tries to build a system themselves.

"The data wrangling is big and can get super complex," Farzaneh said, noting it's a fast-moving industry with new imagery

Spatial Resolution Matters

While Cape Analytics uses both aircraft and satellites, their primary source of geospatial imagery is from aircraft typically flying at 12,000 to 15,000 feet. "It's quite a bit higher resolution than satellite imagery," said Kayvan Farzaneh, chief of marketing. "With aerial imagery, you get something closer to 5 to 7 1/2 centimeters."

Satellite imagery resolution is typically 30 centimeters. The higher resolution is needed for harder-to-detect property characteristics. "You can't tell the condition of a roof from a satellite image," Farzaneh said.

Arturo has turned off some satellite remote sensors in the 30- to 50-centimeter range because they provide little value when it comes to extracting property conditions, said Neil Pearson, Arturo's IT strategy officer. But such imagery can prove helpful for monitoring fire burn and the location of wildfires, he added.

Recency of image is important, he said, noting that planes may fly over an area multiple times in the course of a year. "With the Tier 1 carriers that we're working with where we have access to imagery from aerial aircraft, it's a 7-centimeter resolution," Pearson said.

Aerial providers are improving to produce higher resolution and fly at higher altitudes capturing more imagery. Arturo has run some imagery at 2 centimeters in Australia. This translates to better classification of materials and risk severity for wind and hail damage. **CM**

providers entering the market. "Of course, a big part of their business is bringing in data sources and dealing with them," he said, referring to the fact that carriers incorporate other types of data sources into their processes on a regular basis. "We see the geospatial analytics and imagery needs as being a little bit more challenging."

According to Pearson, there are the obvious challenges around rural books of business not typically captured by aerial

continued on next page

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imagery. “The issue is how do we make it smart enough to understand that, in data curation terms, the whole United States isn’t covered by imagery,” Pearson said.

“Yes, it is covered by satellite imagery. But aerial imagery, it ranges from 60-80 percent of the populated areas of the U.S.”

Geocoding is another area where issues can arise. Ensuring the house being viewed is the same address that is being underwritten takes sophisticated technology and infrastructure behind the scenes to make it as accurate as possible, Farzaneh said.

It becomes more complex with commercial property, where there are multiple structures on a single property, or there might be one business that’s part of a multibusiness structure.

Then you layer in traditional property records or hazard information that aren’t part of the imagery analytics but if taken in concert can provide powerful data, Farzaneh said.

“We have a multiple-source approach that allows us to give more actionable

information to the underwriter or to the carrier in terms of the risks associated with the property,” he said.

New Risk Signals

As carriers embrace more agile business models, they seek new ways to exploit their own data and merge it with geospatial imaging.

In order to monitor the health of a portfolio and decide whether to accept or reject a risk requires a carrier’s understanding of spatial diversity across a region, Pearson said. Carriers don’t typically spatialize their data, he added.

“If we can bring in some of the information,...then we can start to solve some climate change resilience problems” impacting carriers and insureds, he said, asserting that natural peril is the new norm. That new normal creates an imperative to be more proactive with risk.

Gaining a spatial understanding of risk will allow carriers to better predict hazard outcomes.

“We can see how improvements to what

we enforce, in terms of rebuild and replacement, allow us to actually see the improvement in those loss ratios over time,” Pearson said. “So that if we do start to put stronger requirements around having roof materials that are likely to become less damaged and are going to be stronger against hail, then that’s going to benefit the premiums and the policyholder and obviously claims for potential hail events.”

In addition, now that historical imagery is available, carriers can determine if there is a propensity for more swimming pools in one particular state or county, explained Pearson. They can review coverages offered to evaluate whether additional products are necessary.

“These are things that insurers are requesting as they continue to innovate their processes,” said Pearson.

Near-time geospatial data is available from different sensor types that can change a carrier’s responsiveness to risk on the ground. Pearson offered an example of a project with an overseas carrier—the creation of an event control center that pre-estimates risk exposure to natural weather peril, like wildfire, flood inundation, wind and hail damage. An exposure rating on policies in force is provided within 48-72 hours of a major event, he said. The triage process is further supported through connectivity with Arturo’s applications that contain pre-imagery data regarding what happened prior to the event, such as the condition of a roof. This information could prove useful during the estimating or adjusting process.

Cape Analytics also taps into carrier claim databases.

“We have 20 million records spanning the last five or six years. We can go in and analyze properties and look at specific characteristics and at the eventual claims that occur after that image is taken,” said Farzaneh.

Examining other aspects of a property can assist in predicting the likelihood of a liability claim in the future, he said. Things like the condition or lighting in a parking lot, or vegetation around a home, for



Clearing the vegetation around this property could change a house at high risk for fire damage into low risk, according to Cape Analytics.

example, are among the indicators of potential liability.

It becomes a conversation with carriers to determine if the information is needed and useful, Farzaneh said. And then, Cape Analytics works closely with customers on integration to determine where in the actual coding or underwriting workflow the data is surfaced.

A lot of information is analyzed and ready to go, he added. The analysis portion doesn't necessarily have to be tasked unless the carrier wants to review something specific in the past. For example, a carrier may want to know, for the 10,000 addresses provided, how the roof condition performed in terms of claims sustained.

According to Pearson, carriers want the option to review their book of business going back five years and see what changed and how it impacts their overall pricing approach.

"We're typically not building things without quite a bit of conversation with our carriers and with prospects to make sure that there's some relevance to property risk," Farzaneh said.

On the Horizon

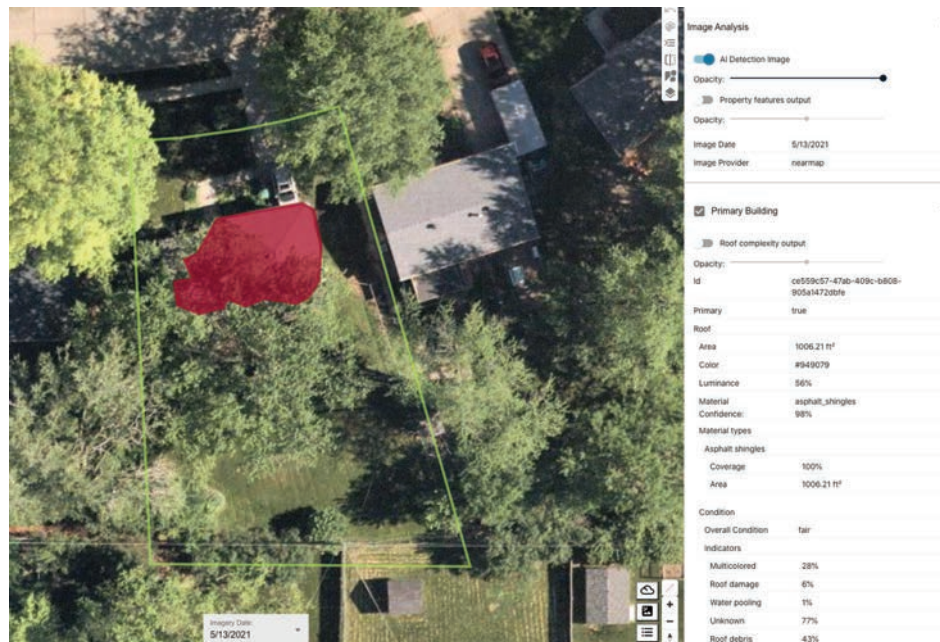
Besides the quest for better resolution, carriers can expect the refresh rate to improve.

"Rather than every three or four months in an urban area and a couple of times in a rural area, it's once a month everywhere," said Farzaneh, forecasting the future.

The industry seeks new data sources to aid in understanding riskier areas within the hazard zones. Pearson sees the growth of near-time weather forensics, whether it's around tornado, hail, wind or other weather-related events.

The chief strategy officer sees a convergence from carriers that desire everything geospatially available—from weather to three-dimensional views of the environment to digital elevation models depicting where a property is situated.

Arturo is examining ways to facilitate better information related to historical flood records by using advanced



Arturo is heavily investing in Gray Sky operations to help carriers aid their customers during and after a natural disaster. Carriers are able to run property analytics against gray sky imagery (imagery collected immediately following a catastrophic weather event) to detect the extent of damage by comparing it to previous imagery.

technology like synthetic-aperture radar to help with flood inundation mapping. SAR is a form of radar used to create two- and three-dimensional reconstructions, like landscapes.

There will continue to be innovation surrounding the drive to marry resources, Farzaneh said, bringing in even more non-image data resources, creating a superset of analytics for a holistic understanding of the property and how it is evolving over time.

"The more accurate you can get, the closer you can get to understanding risk up front, the more transparent and efficient the entire insurance workflow is going to be," Farzaneh added.

Carriers are interested in joining the imagery captured during inspections by their adjusters or partner companies with geospatial imagery to provide a holistic view of the interior and exterior of a home, allowing AI firms like Arturo and Cape Analytics the ability to analyze conditions

and alert carriers of potential issues.

"At the end of the day, they have to make a decision of what's coming through from the AI," said Pearson. "They want to visualize it. They want to understand the risk score associated with it. Or they'll want to understand potential claims losses."

There's definitely a sea change on how property insights can be gained through a geospatial viewpoint, he added.

Farzaneh noted, "The magic of machine learning and artificial intelligence is that you can start to understand connections that you wouldn't be able to understand otherwise."

Advances in the use of geospatial imagery show no signs of slowing down.

"We're still in the early days, and there's a lot of promise behind the technology," he said. [CM](#)

Denise Johnson is a freelance journalist based in Arizona. She is also the former editor of Claims Journal. Reach her at denisejohnson@yahoo.com.

Seeing Through Clouds: Why Now Is the Time for Geospatial Technology in Insurance

Executive Summary: *CM* Guest Editor and *CB Insights* Analyst Mike Fitzgerald hosted a Roundtable bringing together participants in the world of geospatial information systems, seeking to understand reasons behind the increased interest in applying imagery data to existing and emerging insurance problems. In Roundtable highlights here, representatives of a commercial insurer, a global reinsurer, a flood mapping specialist and an MGA creating specialty parametric insurance products describe a confluence of technology developments that are making satellite imagery more accessible to insurers of all sizes, and broader environmental concerns that are fueling demand, as well as some remaining obstacles to broad-based acceptance by insurance underwriters.

Watch the entire Virtual Roundtable—“Seeing Through the Clouds: Satellites in Insurance,” on the *Carrier Management* channel of *InsuranceJournal.TV*

By Susanne Sclafane
Edited by Mike Fitzgerald, *CM* Guest Editor

The prospect of property/casualty insurers and reinsurers adding information from geospatial imagery to their toolkits for underwriting, product development and claims handling isn't an entirely new idea. But it's one that is getting a lot more attention in 2021.

Industry giants including AXA XL and Swiss Re have been using geospatial information systems (GIS) for property risk modeling and pricing, post-catastrophe loss adjusting, parametric insurance product innovations, and climate sustainability models for a number of

years. But now the rest of the industry is starting to get on board, including insurers serving small business customers and homeowners, a panel of participants in the GIS space told *Carrier Management* recently. (See related article, p. 31 for GIS definition.)

“Why now?” asked Mike Fitzgerald, principal insurance analyst for *CB Insights*, kicking off a *Carrier Management* Roundtable event on geospatial information systems titled “Seeing Through the Clouds: Satellites in Insurance,” in mid-October.

Bessie Schwarz, the co-founder and chief executive officer of Cloud to Street, a team of scientists that harness the power of satellites for flood mapping, agreed that “this love affair [has] only really now started to take off and go deeper into the market”—some 10 years after the start of what she referred to as a “massive revolution” in micro-satellites. Offering her take on why this moment in time is different, Schwarz said the development of technologies outside of space tech has made data insights from satellite imagery more accessible. And beyond that, an

appreciation of risk is a key factor driving demand for insurance products leveraging information from satellite imagery—and from insurers and consumers.

“None of this would be possible without two other technical revolutions,” she said, referring first to cloud computing. “That’s finally enabled planetary scale computing at relatively low cost,” she said. The other is artificial intelligence, or more specifically the computer vision subset of AI technology. “Computer vision has completely, in many ways, leapfrogged what we’re able to do in terms of deriving insights from the satellite imagery themselves,” she said. “We just don’t even in many ways understand how machine learning can see through clouds in certain places to see the flood underneath. But we’ve published papers on it. It’s quite effective.”

In addition to those papers, scientific analysis from Cloud to Street was published in *Nature* magazine as the publication’s August 2021 cover story (“Satellite imaging reveals increased proportion of population exposed to



Top: Pranav Pasricha, Mike Fitzgerald, Giacomo Favaron. Bottom: James Rendell, Bessie Schwarz

floods”). Another co-founder, Dr. Beth Tellman, who is also chief science officer of Cloud to Street, was the lead researcher for the paper, which was published along with the largest open database of flood maps in the world. Combining the flood maps created from satellite images, instead of typical ground measurements, with population data, the researchers found that 58-86 million people moved into areas with satellite-observed inundation between 2000 and 2015, representing an increase of 20-24 percent in the proportion of the global population exposed to floods—10 times higher than previous estimates.

Such findings open up opportunities for insurers and brokers to enter new markets with flood insurance products using parametric triggers, Schwarz told Roundtable listeners, referring to Cloud to Street partnerships with the P/C insurance and reinsurance community—most notably, as a Willis Research Network partner. “We’re beginning our work with those partners in the U.S. in early 2022,” she said, stressing that beyond the breakthroughs in science, the demand for new insurance products is driving an interest in satellite technology. “I really think the massive amount of catastrophes and the amount of uncertainty that really everyone is feeling—whether you’re a corporate with supply chain risk all around the world, in China where the massive floods happened this summer, or you’re a homeowner who’s looking at sea-level rising in a more serious way—[has] everyone looking at ways where they can take their risk more seriously and where they can diversify their risk.”

“That’s going to drive demand in ways that will converge all the things we’re talking about”—satellite technology, cloud computing capabilities and AI—“in really fascinating ways,” Schwarz predicted.

Pranav Pasricha, global head of P&C Solutions for Swiss Re, spoke to the increased demand from insurers and reinsurers as climate-related events continue to impact the industry. “It’s super critical that we keep evolving our catastrophe risk models that we have for all

of these perils...Historic events in the last 12 months—the floods in India, European floods, [Hurricane] Ida, you name it. We all know what we’re dealing with. And so, there is a sense of urgency in organizations

like ours to both update our models with current event data, with footprints, with damage assessment, and also to build very fast capabilities to respond to these events,

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High and Rising: Cloud to Street’s Research on Flood Exposure

The title on the cover of the August 2021 edition of *Nature* magazine—“High and Rising: Satellite images reveal an increasing number of people and places exposed to floods”—gives a sense of what scientists at Cloud to Street spend their days studying: the far-reaching global impact of floods.

By harnessing the power of global satellites, AI and community intelligence, Cloud to Street tracks worldwide floods in near real time and remotely analyzes local flood exposure “for virtually any pixel on Earth without using ground equipment,” according to Cloud to Street CEO Bessie Schwarz.

“By going not from the ground up but from the cloud down,” Cloud to Street overcomes some of the limitations of existing flood models, which can totally miss flooding incidents in some regions, she said.

The research featured in *Nature* found that the total population in locations with satellite-observed inundation grew by 58-86 million from 2000 to 2015. That means that the proportion of the global population exposed to floods has grown by 24 percent globally since the turn of the century.

The starting point for the research was a database of more than 3,000 large flood events derived from news media reports—the Dartmouth Flood Observatory database. Using satellite information, Cloud to Street developed a Global Flood Database, systematically mapping the maximum observed surface-water extent during 913 of the DFO-documented large flood events

from 2000-2018.

The total inundation area from these events was over 2.2 million square kilometers, directly impacting 255-290 million people.

Among other findings:

- The proportion of the population exposed to floods increased in 70 countries, across all continents. This finding is in contrast to previous studies that report increases in only 22 or 55 countries, concentrated in sub-Saharan Africa and Asia.
- The satellite data also uncovered previously unidentified increases in flood exposure in Southern Asia, Southern Latin America and the Middle East.
- By 2030, climate and demographic change will add 25 new countries to the 32 already experiencing increasing floods.

According to the researchers, even their results may underestimate the extent of global flooding and exposed populations. They note the limitations of MODIS (Moderate Resolution Imaging Spectroradiometer) instruments on board the NASA satellites relied on for the research. With images taken twice daily at 250-meter resolution, urban and short-duration floods are underrepresented in the Global Flood Database.



Technology: Geospatial Information Systems

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to be able to help our carrier partners respond to Ida. Where do I send my adjusters? For which clients can I just write a check to and get clients and consumers back on their feet? For us, this is a priority,” he said.

“As a major global reinsurer, being the backstop to a large part of the global insurance industry, we feel it’s our responsibility to drive innovation and progress in the industry. There’s a lot of change going on in the industry, and we are there to help our insurance partners be future-proof, to improve their underwriting results and then to navigate these changes,” Pasricha said.

Providing a commercial insurance company perspective, Giacomo Favaron, senior specialist, Insurance Pricing for AXA XL, said the decreasing cost of satellite launches is something that can’t be overlooked in answering Fitzgerald’s “Why now?” question. “On the engineering side, we have seen a huge technical progress, because satellite manufacturing saw a big decrease in production costs. Satellites are getting smaller, lighter and therefore generating a lower payload cost per launch.”

“Also, the advent of reusable rockets has slashed overall cost per launch. And that’s why we see now the coming of constellations of satellites put in orbit, made of cheap satellites, maybe with a

“The majority of the market seems to focus on the post-event analysis rather than the data harvesting and data enrichment of what could be available. There’s probably a focus on around what the human eye can see, rather than what actually a sensor can give you back.”

Giacomo Favaron, AXA XL



short lifespan, that can give you that almost near-perfect global coverage with very brief resolution time that wasn’t possible just few years ago,” he said.

According to Favaron, before the advent of reusable rockets, the average cost per kilo per launch was \$9,000 or \$10,000 compared to just \$1,400 or \$1,500 per kilo today. (A kilogram is roughly 2.2 lbs.)

“There are definitely more and more companies jumping on this new trend, and we’re going to see the increase of these massive constellations in the very near future,” he said, adding that as more players compete in the market for satellite launches, those costs will fall even more.

Fitzgerald said there also has been a business model innovation for satellite launch services, referring to SpaceX’s Rideshare program. “We’re used to hearing what rideshare is on the Earth [with] Lyft and Uber. But they changed their approach to pricing to where you can have multiple of these micro-satellites on the same launch and share the fixed costs of getting up there,” he said.

Still, even as launch costs decline and cloud capacity increases, insurers face the need to understand ever-growing quantities of higher-precision data, which don’t quite mesh with historical data used for underwriting and pricing. For some, that adds layers of complexity and cost that are best borne by groups of insurers or consortiums, Roundtable participants said.

“Even if we think about what is currently available, we are just scratching the surface of how we are using satellite data,” Favaron said. “The majority of the market seems to focus on the post-event analysis, for example, rather than the data harvesting and data enrichment of what could be available. There’s probably a focus on around what the human eye can see, rather than what actually [a satellite] sensor can give you back,” he said.

Recalling the early 2000s, when state-of-the-art satellite instrumentation supplied panchromatic data (from the visible RGB spectrum), Favaron reported that today’s satellite constellations supply information from 21 spectral bands at different

“Everyone is looking at ways where they can take their risk more seriously and where they can diversify their risk.”

Bessie Schwarz, Cloud to Street



resolutions. “You have temperature radiometers, technical pressure radars, microwave radiometers...”

“The majority of the [geospatial information] products I’ve seen around [are] still imagery-type products. Maybe they come [paired] with some artificial intelligence model behind for recognizing objects on the ground, [or] recognizing if a place might be under water or not...But the real treasure, in my opinion, is in all those other instruments that are able to capture what the human eye cannot see because we only see a very tiny range of the lights.”

Referring to microwave sensors, in particular, Favaron said, “We could, in theory, already with some of the products around, map buildings and know their heights, know almost exactly their shape.” And all of those can have direct impact on insurer pricing models.

With the advent of cloud storage and cloud computing, “we are really starting to exploit all these data sources,” he said. But technological progress on the space tech side isn’t stopping. The resolution of these instruments continues to improve. At the same time, the amount of data grows. “This is why, in my opinion, you see more products that are akin to post-event type of analysis, because the study area[s] are still confined and are more manageable to process. For all these activities, there’s a cost associated as well.”

Favaron said he hopes to see more widespread use of satellite data at the country and continent level in the next few years, in conjunction with other data sources, such as urban planning or building ownership datasets—in order “to enrich these datasets to give us a near-true

representation of what's on the ground."

"We are in an age where we can see or predict natural events. But still, [insurers] need to know on the ground who owns what, when that building was built, will it withstand a particular natural event," he said, noting products filling in those blanks are emerging now.

Favaron sees the promise of satellite data insights reaching beyond the property insurance world. He notes that satellite information "can be used as proxy for human or animal activities"—informing environmental underwriters, for example, what type of pollutants are generated from a production plant. That might give a liability insurer an idea of the type of manufacturing taking place at the plant or how much storage they have, he said. AXA XL underwriters in lines beyond property have reached out after seeing applications and pricing tools created by Favaron's group for the property lines, he reported.

Why Not Now?

"I don't think the technical side is the main thing that needs to move forward," said Schwarz, also suggesting that insurer innovation on product development, underwriting and pricing is the wave of the future that's starting to take shape now. "I say this as a scientific-first company and a team of scientists primarily," she said.

In the insurance world, Schwarz envisions the development of more robust business interruption insurance products from satellite data. "I feel pretty strongly that the widespread disruption from climate change that's coming over the next years...is just going to disrupt economies really on all scales, to orders of magnitude potentially beyond what we've just seen in the last two years," she said, referring to business interruption losses related to pandemic shutdowns.

"Suddenly, with high-quality, satellite-based analytics, you can see risks to distribution from a port to your gold mine in Ghana or your agricultural facilities across Nigeria that a significant portion of operations, and then supply chains, are relying on," she said.

Offering an insurance product innovator's perspective, James Rendell, chief executive officer of London-based MGA BirdsEyeView Technologies Ltd., responded to questions from Fitzgerald about other factors holding the industry back from moving forward with parametric products that his firm and others are designing from space data.

BirdsEyeView takes the developments occurring in the Earth observation sector and deploys those into the insurance market by structuring new parametric insurance solutions for climate change risks, specifically targeting customers in the [small] and mid-market sectors, Rendell explained.

"We're looking at Earth observation datasets the whole time, and there are some fantastic things you can do" with them, he said, noting that small satellites "can see a car on the road or an individual."

While that is valuable for claims and damage assessments and post-event recovery, "you can't escape from the fact that you still need to do the [upfront] risk modeling. That's fundamental to insurance." Since that fantastic high-resolution live data never existed before, "that creates problems for the underwriter because it's not baked into the pricing and risk modeling."

In other words, in Rendell's view, what insurers are uncomfortable with is a mismatch in the historical data going into risk and pricing models—basically, the blend of coarse resolution data for part of the historical experience period used in the models and very high-resolution data now available to use for settlement.

He gave the example of multispectral imagery captured by the Sentinel-2 satellite that had the ability to measure chlorophyll in plants (a metric that can be used to develop a vegetation index, assessing whether or not an area being observed contains live green vegetation). "But it's only been capturing data since 2015. So, for risk modeling, you've maybe had a much coarser resolution from Landsat from 2000 to 2015," he said.

"All underwriters ever ask you—the first thing that they ever ask me is how much historical data have you got and how consistent it is," Rendell reported. While parametric insurance developers can present correlations between historical data and live data to answer the questions, "it just leads to twitchy feet and being uncomfortable," he said. "That's where the risk modeling needs to catch up."

For parametric insurance development, "you're extrapolating the probability of X event happening again in the future. And a lot of the underwriters we spoke to, even if we found high-resolution satellite data, if there wasn't enough historical data available of the same dataset, they were unwilling to underwrite," he said. For example, for a parametric rainfall-based product, they get worried that the new dataset is more sensitive than the historical dataset, he said. He added, however, that

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London-based MGA BirdsEyeView takes the developments occurring in the Earth observation sector and deploys those into the insurance market by structuring new parametric insurance solutions for climate change risks, specifically targeting customers in the small and midsize enterprise sector.

With satellites monitoring rainfall amounts, a weather risk product for farmers, for example, pays out a predetermined amount triggered by certain amount of rain.

Event and contingency covers for global sporting events, mine closures and construction project stoppages, as well as for the hospital and retail sectors (responding to unseasonal rainfall or snow that reduces customer traffic), are similarly structured.



Technology: Geospatial Information Systems

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BirdsEyeView is now working with Lloyd's syndicates that are more willing "as long as we prove to them from a data science perspective that it aligns with their pricing."

Schwarz and Rendell agree that insurers are looking for satellite information providers to do some of the work of organizing data and to overlay insights on their exposure base information in ready-to-use formats.

"Our users on the ground, even the sophisticated ones within the insurance industry, don't actually care about the millions of pixels we're crunching all the time or the cool new algorithm that we just published on it," Schwarz said. "They don't even want the map. They don't even really want the analytics or the insight. They want just the answer to their question, which is often just a CSV table [comma separated values file] of their assets and which ones are flooded today and not."

Molding the information for insurers that don't have resources to make sense of the data is a more important task for vendors operating in the geospatial space—from analytics companies to satellite operators—than adding information from a new spectral band, Rendell said. "The key to cracking this is [to remember] that not every underwriter or insurance company is like Swiss Re, which has a Research Institute and every bright young person coming out of a Swiss university."

"You need to be able to give it to them on a plate," he continued. "It might be as basic as giving them an Excel file and saying, 'We've got this data; you should be pricing it like this,' [or] 'You use Sequel Rulebook', and we can integrate it into that.'" (Editor's Note: Sequel Rulebook is a combination rules engine, underwriting desktop and analytics tool. Verisk acquired Rulebook, a provider of business intelligence and software solutions for the London Insurance Market, in 2018.)

Favaron said that insurers run the risk of being overwhelmed by improvements in satellite technology and applications. "In the next few years, we'll be bombarded by new products coming into the market and all these satellite providers coming to us

and saying my product is better than this other company because of this and that."

"It is very important for the insurance industry to have the right capacity and know-how within the company, but not just within the company—[also] by working together with the academic world."

"I see, probably in the future, the opportunity for a consortium of different

types of industries—not just insurance—to [pull] together the economical backing that we need to harvest that data and to process that data together with the academic world and some other players. And I think countries, governments should also be behind these," he said, noting that such initiatives already are taking shape. [CM](#)

Why Swiss Re Cares About GIS

"We believe in climate change. We want to take affirmative action...We want to close the protection gap and make the world more resilient. We believe in that—and we also want to take action in helping the industry deal with it."

Pranav Pasricha's simple but impactful statements during *CM*'s recent Roundtable event on geospatial information systems gave an understanding of why Swiss Re has been active in the GIS space for 15 years.

Pasricha, global head of P&C Solutions for Swiss Re, was responding to a question from panel moderator Mike Fitzgerald, who asked what insurers and reinsurers need to do to successfully move forward with GIS applications.

"It starts with the mindset," Pasricha said. "At Swiss Re, we've always prided ourselves in being that standard bearer for innovation and progress in the industry. And that's not just for economic reasons. We believe in climate change and its significant impact," he said.

During the Roundtable, Pasricha noted that Swiss Re dedicates extensive talent and data resources to natural catastrophe modeling, flood monitoring, agricultural monitoring and land subsistence monitoring. The global reinsurer also taps internal expertise and engages in partnerships to build climate

change and sustainability models, and to find ways to improve post-catastrophe responses from insurers.

"Sometimes I go to our teams in Zurich and it seems like we've hired pretty much every class, every year of all the PhDs in remote sensing out of UZH [University of Zurich], which is one of the top universities in the world," he said, referring to the knowledge of Swiss Re's workforce in the GIS area.

"We have made significant investments in partners on the analytics and the toolkit side, both very strong and established partners like Palantir [and] Microsoft," while also working with "emerging geospatial vendors who can then help us make sense of the data coming in."

In March, Swiss Re announced a partnership with ICEYE, a synthetic-

aperture radar satellite operator and flood monitoring provider. "The partnership will enable us to develop solutions, advance our services to the benefit of our clients and enable faster claims payouts," Pasricha said at the time.

"The real magic gets delivered" when Swiss Re helps its carrier partners to

move forward with more accurate underwriting tools and better catastrophe response tools, ultimately benefiting consumers, he said at the Roundtable. [CM](#)



Pranav Pasricha



“Our whole legacy has been with the space industry. We understand the industry; we understand all the technologies there. And that’s the experience we’re bringing to the insurance industry.”

How Skytek Tracks Supply Chain Risks —and More—*From Space*

Executive Summary: Skytek is a developer of software solutions for industry, with products derived from space and satellite technology, including REACT, a one-stop geolocation and satellite positioning service for the insurance sector and other industries.

Here, CEO Dr. Sarah Bourke describes some of the use cases of REACT, both in assessing property claims involving fixed and mobile assets before and after loss-causing events, and risk scores for upfront underwriting of marine risks and other global assets.

By L.S. Howard

Edited by Mike Fitzgerald, CM Guest Editor

Oil spills, port explosions, blockages in the Suez Canal and supply chain risks are just some of the events global space company Skytek has analyzed over the past year for its insurance industry customers.

The company helps insurers manage their global positions, combining space technology, big data, artificial intelligence and machine learning in a service called REACT. With REACT, Skytek tracks both mobile and fixed assets around the world, in real time, both before and after loss events, Skytek’s chief executive officer, Dr. Sarah Bourke, told *Carrier Management*.

“We can now tell you, in near real time, where all your assets are, what your aggregations are, what your accumulations are. We can track what your assets are doing and where they are traveling to.”

The system can count all the cars and the containers in ports across the globe that are in an insurer’s portfolio. “It’s a whole new way of managing risks,” she affirmed.

With its Earth observation imagery, Skytek works with insurers and brokers during the U.S. windstorm season to provide pre- and post-event imagery to identify affected assets in a portfolio.

Despite such accurate and fast real-time analysis, Bourke does not think this technology will replace risk and catastrophe models. She said this technology complements such models by providing more granular data—cargo accumulation at ports and satellite imagery for pre- and post-loss assessment, for example. Skytek can validate a model because “we can tell you in real time where

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Technology: Geospatial Information Systems

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are your top five exposures in the world.”

Ever Given in the Suez

One example of Skytek’s service involved the giant container ship Ever Given, which ran aground in the Suez Canal in high winds on March 23 this year, halting traffic for weeks in both directions and disrupting global trade. Skytek



provided insurers with both satellite imagery and an analysis of exposed assets. (See photos, below left.)

The minute people realized there was a problem in the Suez Canal, the Skytek system was able to react. “Our insurance company clients have portfolios within our system. So, they knew immediately what assets were in the area at the time.”

During the COVID-19 crisis, Skytek was asked to analyze the risk accumulation of cruise ships, given the fact that vessels were laid up and billions of dollars’ worth of risk were situated in one location. In just one of its findings, Skytek discovered that England’s Port of Southampton had gone from having no risk to \$5 billion worth of cruise ship risk in the period from March to October 2020, Bourke explained.

Cargo accumulation and delays are a major news story for 2021. Using its latest Earth observation and AI technology, Skytek can help carriers to understand global supply chain issues. A recent Skytek analysis of Los Angeles port showed the magnitude of the problem. (Photo, p. 51.)

Unmodeled and Modeled Catastrophes

Skytek’s services also were used after the deadly Port of Beirut explosion on Aug. 4,

2020, when a large amount of ammonium nitrate stored at the port exploded. Skytek was easily able “to tell the insurance sector about the expected loss in Beirut” by examining pre- and post-loss imagery.

There was relief provided for the sector in the wake of the event because Skytek quickly confirmed that several container vessels in the port were not destroyed. Bourke said insurers find it helpful to be able to access such information quickly.

Skytek also tracks windstorms as part of its catastrophe toolkit. “We’re able to tell insurance companies where their assets are and what’s the value of the assets in the cone of uncertainty.”

Using its Earth observation imagery, which employs satellite imagery, AI and machine learning, Skytek can determine the location of insurers’ assets and perform pre- and post-event comparisons. In other words, it analyzes images from all available external resources, such as the National Oceanic and Atmospheric Administration.

Skytek also tracks oil spills and leaks, detecting what vessels were in the affected area at the time and the likely candidates that committed the environmental issue, according to Bourke. Skytek has tracked the recent oil spill off the coast of California



and is currently investigating the scale of the event using its satellite technology.

Space to Innovate:

Front-End Underwriting

Skytek also can help insurers with their underwriting—at the front end of a risk.

For example, with a marine portfolio, the system provides analysis at both the vessel and portfolio level. “We’re able to tell the insurance companies all the details about the vessels, such as their flag, their classification and society. We’re also able to give them a flavor of the voyages, so they’re able to see how many miles a vessel has sailed in a year, where did they go and what ports they called at,” she said.

Insurers can compare an individual ship’s data points to the global fleet. “Is it underperforming or overperforming?”

Skytek also provides risk scores for each asset tracked by its REACT platform. “For example, we take things like the age of the vessel, the type of vessel, the flag it sails under, and then we assign a risk score,” Bourke explained.

When underwriters log into the REACT system, they get a risk score for a vessel and for a portfolio. While this information is publicly available from about four or five different sources, Skytek pulls it all together into one easily accessible platform, she said. “Even though we’re very sophisticated in what we do, the user interface is really simple, so you don’t need to be in any way technical. You just log in, get your information, and off you go.”

ESG Risk Scores

In addition to natural catastrophes and manmade events, like port explosions, Bourke said Skytek also helps customers analyze compliance with environmental, societal and governance (ESG) risks and impact assessments. “That’s keeping an eye on things like CO2 emissions, deforestation and shipping activity in environmentally sensitive areas.”

Last year, there was a lot of focus on sanctions compliance related to Iran, for example. “This year, however, the focus of a lot of CEOs and boards of insurance



companies is on ESG compliance.”

“Ships have a very heavy environmental footprint, and so now the focus is on monitoring and that kind of activity.” As a result, Skytek also is providing ESG risk scores for vessels. “You have to be able to pivot, depending on what’s happening within the industry.”

Above the Clouds

Skytek doesn’t own or develop satellites; it has relationships with providers. “The big challenge is tasking the satellite. We task the satellite, we get the images, and then we give them to the insurance companies,” said Bourke.

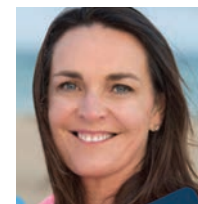
Skytek has strategic partnerships with NASA and the European Space Agency as well as leading European companies and organizations such as Airbus and EUMETSAT. It also has a long-term strategic relationship with insurance broker Aon, according to Skytek’s website.

Dublin-headquartered Skytek was launched in 1997 as a software company, specializing in the space industry. It now has clients all over the world. One of its key projects was to develop the International Procedure Viewer (iPV) system, which has been used on the International Space Station (ISS) for more than a decade.

Like a sophisticated technical manual, the iPV system contains more than 15,000 procedures used by the astronauts on the ISS to guide them through routine

“We’re able to tell the insurance companies all the details about the vessels, such as their flag, their classification and society... They’re able to see how many miles a vessel has sailed in a year, where did they go and what ports they called at.”

Dr. Sarah Bourke,
Skytek



procedures and mission-critical events such as space walks and emergencies. Its iPV procedures also are employed on Elon Musk’s SpaceX missions to the ISS.

Besides insurance, Skytek has developed intelligent software solutions for marine transport, energy, aerospace and defense.

“Our whole legacy has been with the space industry. We understand the industry; we understand all the technologies there. And that’s the tried, tested and trusted expertise that we’re bringing to the insurance industry.” [CM](#)

Executive Summary: Even transportation companies could be ensnared in a future wave of lawsuits aimed at mitigating the effects of climate change, said executives of Praedicat in September. During a Rendez-Vous presentation, they reviewed past climate cases against fossil fuel burning plants, ties to overall social inflation trends and a current crop of cases focused on the secondary effects of global warming. They also looked to the future, predicting near-term litigation events against the diesel and meat production industries—including transportation companies—and far into the future at climate effects like vector-borne pandemics and urban heatwaves.

By Susanne Sclafane

A rising amount of litigation tied to the environmental and health impacts of greenhouse gas emissions prompted a question from the leader of a liability risk analytics company in September: “Is it about climate liability or the liability climate?”

Robert Reville, chief executive officer and co-founder of Praedicat, asked the question during a virtual Reinsurance Rendez-Vous de Septembre presentation, after colleagues Stephen Jones, general counsel, and Adam Grossman, senior scientist of Praedicat, gave a summary of past waves of litigation against greenhouse gas emitters and developing waves against proximate defendants who don’t seem like natural contributors to global warming.

Reville’s reference to the “liability climate” suggested that the dynamics of social inflation and litigation funding have spawned new tactics for bringing lawsuits seeking damages for climate change harms, after an initial wave of litigation failed to produce rulings against a narrow set of greenhouse gas emitters.

Jones explained that a 2011 U.S. Supreme Court ruling effectively put an end to a handful of early cases brought by state governments against energy companies and one auto maker (General Motors) with causes of action centered around federal public nuisance claims. The Supreme Court dismissed the case *Connecticut v. AEP*,

which had been filed in 2004 by eight states, the City of New York and three land trusts against various energy companies that operated fossil fuel burning power plants.

The dismissal hinged on the idea that federal common law torts regarding greenhouse gas emissions have been displaced by the Clean Air Act. In other words, since Congress has given the Environmental Protection Agency responsibility for regulating emissions in the energy sector, “judge-made law allowing federal public nuisance claims is no longer in effect,” Jones said, noting the High Court decision prompted a second

wave of cases starting in 2017.

Praedicat has counted 18 cases so far in this new wave of litigation against energy companies. In these newer cases, plaintiffs exclusively make claims under state tort law “to sidestep the federal displacement issue that derailed the cases in the first wave,” Jones said. There are 140 unique defendants in these cases associated with 60 different parent companies in the energy sector.

Focusing in on the timing of the start of the second wave—six years after the Supreme Court ruling—Reville said that proliferation of cases occurred “around the same time that we’ve seen more generally

Social Inflation or Science: What



What Is Fueling Climate Litigation?



a new rise of mass tort litigation in the United States. It happens to coincide with the timing of the rise of Roundup litigation [and] of the opioids litigation,” Reville said, asking Jones and Grossman whether they thought advances in climate science or litigation funding fueled the newer cases.

There is “better science to support these claims, but it’s absolutely also about the litigation environment,” Jones said, noting that, similar to the situation with opioids litigation, this wave of climate liability cases involved more cities and counties as plaintiffs as opposed to states. “That means more numerous plaintiffs. It’s more

attractive for litigation finance,” he said.

“With litigation funding ramping up and providing the resources to take on these really large cases, there’s few that are larger,” said Grossman, who went on to share Praedicat’s insights about a third wave of cases developing in the not-too-distant future in which meatpackers, trucking companies and makers of diesel engines could be added to the list of defendants. And even further into the future, landlords, builders, golf courses and nursing homes

could be targets of litigation emerging out of the consequences of climate change, he added.

Just one category of cases in the potential next wave of litigation—those naming users and makers of diesel engines—will amount to \$84.3 billion in damages, Grossman said, revealing the result of a Praedicat model of potential litigation. While the figure tallies economic damages rather than just insurance losses, and it is much lower than insurance industry losses for asbestos, “the reinsurance industry has its work cut out for it,” he said, explaining the clash of general liability and securities class actions combined in this scenario.

Is Toxic Baby Food a Climate Risk?

Before Grossman explained the third wave in some detail, Jones gave specifics about the progress of the second wave of cases, as well as a set of cases arising from climate change impacts against utility companies and baby food makers.

He said that although most of the second-wave cases initially were filed in state courts (in attempts to skirt around the federal displacement issue that doomed the four first-wave cases), all of them have been removed to federal court. Current battles center around whether the removal itself was proper. “Defendants are making the case that federal regulation of greenhouse gas emissions preempts state climate torts, and thus these cases should all be decided in—and ultimately dismissed—by federal courts,” Jones said.

In June, the 9th Circuit rejected the

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“There are legal scholars who are publishing law review articles



every day that suggest where litigation could go and thinking up new ways of bringing cases and phrasing causes of action.”

Adam Grossman, Praedicat

theory that the Clean Air Act preempts state climate torts, at least as a basis for removal to federal court, Jones said, also noting that the Supreme Court denied review of the 9th Circuit’s decision. “So, at least in the 9th, this is the law of the land. And although there are other bases for removal that are still being argued, it appears this wave of cases may overcome one major hurdle that was fatal for the first wave.”

Speaking just one day before the firm Singleton Schreiber McKenzie & Scott announced that it has filed two new lawsuits on behalf of nearly 200 plaintiffs alleging that utility company PG&E caused California’s Dixie Fire, Jones identified wildfire litigation as one of two additional types of climate lawsuits—lumping them together with toxic baby food lawsuits under a category he termed “secondary effects litigation.” The “secondary effects” suits are filed against defendants who, unlike the fossil fuel companies and auto makers named in earlier cases, “played no role in causing climate change.” Instead, power utilities and landscaping companies, responsible for clearing brush around the power lines, “failed to protect or failed to prevent [damage] from the effects of climate change,” Jones said.

“A proliferation of climate cases occurred around the same time



that we’ve seen more generally a new rise of mass tort litigation in the United States. It happens to coincide with the timing of the rise of Roundup litigation and of the opioids litigation.”

Robert Reville, Praedicat

As with oil companies in earlier cases, this litigation has spawned follow-on securities class actions against PG&E and Southern California Edison for misleading investors on wildfire risk, Jones noted. (PG&E’s failure to safely maintain electrical equipment has been blamed for some of the deadliest wildfires in California, and the utility negotiated billions of dollars in settlements during a period of bankruptcy that ended last year.)

Explaining the link between climate change and toxins found in baby food, Jones said that more frequent drought conditions have produced greater concentrations of arsenic, a chemical that naturally occurs in soil. In addition, elevated temperatures can cause rice harvests to pick up increased levels of arsenic. “It is predicted that as much as half of the global production of rice will have arsenic levels that may be dangerous to children over the next 40 or 50 years,” he said.

A mass litigation event officially began earlier this year spurred on by a congressional report on arsenic levels in baby food. *(Editor’s Note: In addition to being a known carcinogen for adults with long-term exposure, the report notes that arsenic can have a “significant negative effect on*

“Climate change is going to result in secondary effects litigation,



pushing the bounds of the liability footprint to sectors that may be rather remote from the traditional fossil fuel company defendant.

Stephen Jones, Praedicat

neurodevelopment” in children.)

The Third Wave: Time to Act

Beyond bucketing climate litigation trends in waves, Grossman referred to a different categorization of emerging risks that Praedicat frequently uses to highlight levels of action that insurers and reinsurers need to be taking to react to them, putting an upcoming third wave into the “emerging damage” phase.

The “emerging damage” phase, he explained, lies between an early “emerging interest” phase, for which there is less than a 1 percent likelihood of litigation starting in the next several years, and the “emerging litigation” phase, where cases already have landed in the courts. Both the direct litigation against oil and gas companies in the first and second waves and the wildfire and baby food secondary effects litigation fall in the “emerging litigation” phase. “It’s time to defend against the claims,” Grossman said.

In the middle phase of “emerging damage,” there’s an opportunity for insurers and reinsurers to do more. The risk is mature enough so that insurers can manage it by taking underwriting and capital management actions, “but not so

mature as to present an immediate risk of mass litigation” or a huge loss event hitting carriers’ books, Grossman said. In short, “it’s really time to act,” he told insurers and reinsurers viewing the virtual session.

Praedicat gets a read on these risks by analyzing both scientific research and legal scholarship. “There are legal scholars who are publishing law review articles every day that suggest where litigation could go and thinking up new ways of bringing cases and phrasing causes of action,” he said. In particular, moving further beyond oil and gas companies, plaintiffs lawyers are setting their sights on ports, trains, buses, trucking firms and makers of diesel engines in what the Praedicat executives called “proxy litigation.”

Here, plaintiffs aren’t contemplating bringing suits “about climate change.” Instead, they’ll attempt to “extract huge dollar sums” from defendants and use it to mitigate climate change, Grossman said, noting that U.S. Vice President Kamala Harris sued the ports of Los Angeles and Long Beach when she was California’s attorney general, alleging that diesel emissions increased cancer and other health risks for people living near the ports.

“Diesel litigation could become the next opioids [or] the next tobacco,” Grossman said, explaining that very small particles (PM2.5) get stuck in people’s lungs and increase risks of cardiovascular disease and autism. Autism brings huge cost to state and local governments for special education, he said, drawing a parallel to state government suits aimed at recovering disease costs in opioid and tobacco litigation.

Turning to another industry sector that’s a ripe target for both direct climate litigation and proxy litigation, Grossman displayed the cover page of an article titled “Animal Agriculture Liability for Climatic Nuisance: A Path Forward for Climate Change Litigation?” (Daniel E. Walters, Regulation Fellow, University of Pennsylvania Law School, 2019, Colum. J. Envtl. L.) He noted that “Section Two is directly about how suing animal agriculture for greenhouse gas emissions and public nuisance is meant to get around

displacement from the Clean Air Act.”

Grossman cited past research finding that roughly one-third of greenhouse gas emissions are from agriculture, taking into account the entire production chain, which includes the making of fertilizer through the packaging and transportation of food. Sixty percent of that third is attributable to meat production in general, with “industrial meat” being the largest contributor, he said, referring to large feeding and slaughterhouse operations.

In addition to suing meat producers directly for greenhouse gas emissions, proxy litigation mimicking the suits for opioids center on the ill effects of meat consumption and the impacts to the health budgets of states and localities, he said.

The defendant footprint expands beyond meatpacking and industrial livestock industries to include transportation and retail supermarkets, and even the makers of fertilizers for growing the food that the animals eat.

Summing up the emerging damage

scenarios, Reville said insurance industry clients are facing an environment with increased risk of large-scale events within lines of business and increased risk of clash across lines. “Just simply counting the number of articles in legal scholarship network that cite climate and liability, that’s tripled since 2014, which is an indication of an increased interest from the legal community.”

For reinsurers, “there’s a lot to take on” in terms of helping insurers manage the risks for starters, Grossman said.

“There’s also a huge opportunity to innovate and bring new products into the market, be they named-peril, be they insurance-linked securities and beyond.”

“These are risks that we can see coming, [and] the industry is here to help manage risk, not to just avoid it,” he said. [CM](#)

(Related articles on CarrierManagement.com: “Attribution Science’ May Help Plaintiffs Benefit Push Climate Lawsuits Farther” and “Is Climate Litigation Covered by Insurance?”)

Climate Change and the Next Pandemic

In spite of the fact that there is less than a 1 percent chance of climate-related litigation in the immediate future for risks falling in the “emerging interest” category, Grossman said that scientific evidence linking climate change to the increased growth of mycotoxins, vector-borne illnesses and urban heatwaves expands potential defendant pools for climate-related litigation over the longer term.

- **Mycotoxins.** Global warming creates an environment where fungi, including mycotoxins, are more likely to grow. Some mycotoxins are endocrine disrupters that can affect reproduction or cause obesity. “Those who are storing food, for example, need to be on notice that they have to be taking more care so that mycotoxins are not spreading,” Grossman said.

- **Vector-borne illnesses.** Scientific research also shows that *Aedes aegypti* mosquito populations will move further north in the U.S. under warming climate scenarios, carrying with them diseases like dengue, Zika and yellow fever—in short, the next pandemic. “What duties exist for businesses to protect people from mosquito bites?” he asked. “Do employers have a particular duty to protect their workers from potentially hazardous mosquitoes? What about builders and landlords, or anywhere that there is standing water, like a golf course? Do they have a duty to mitigate that, and how do they protect their patrons?”

- **Urban heatwaves.** Grossman raised similar questions as he contemplated massive numbers of fatalities from future heatwaves, noting that such an event in Paris in 2003 caused 70,000 deaths. Referring to large-scale power outages during heatwaves, he said a wide variety of industries could become potential lawsuit targets in the wake of fatalities, starting with health care and assisted-living facilities. [CM](#)

What Do You Do With Emerging Interest Risks?

Executive Summary: What's interesting to scientists should always be of interest to liability insurers. That's the message that Praedicat executives deliver as they review some of the "emerging interest" risks being investigated in a small but growing volume of toxicology and environmental literature. Among the risks are chemicals that may be persistent, mobile and toxic—plasticizers, insecticides and fungicides—and food emulsifiers, all of which are subjects of new hypotheses linking them to health consequences.



Adam Grossman, Ph.D., is Praedicat's Senior Scientist and Vice President of Modeling.



Robert Reville is CEO and Co-Founder of Praedicat.

Every emerging risk strategy must begin with a horizon scan. At Praedicat, our strategy is to scan the scientific literature for indications that scientists are investigating a new hypothesis that some commercial activity or product might cause bodily injury.

We call the risks identified at the literature horizon "emerging interest" risks. Scientists' interest may result in literature growing from a small number of articles into a large literature (which we call "emerging damage") and ultimately to the point when scientific evidence could be admitted in "emerging litigation."

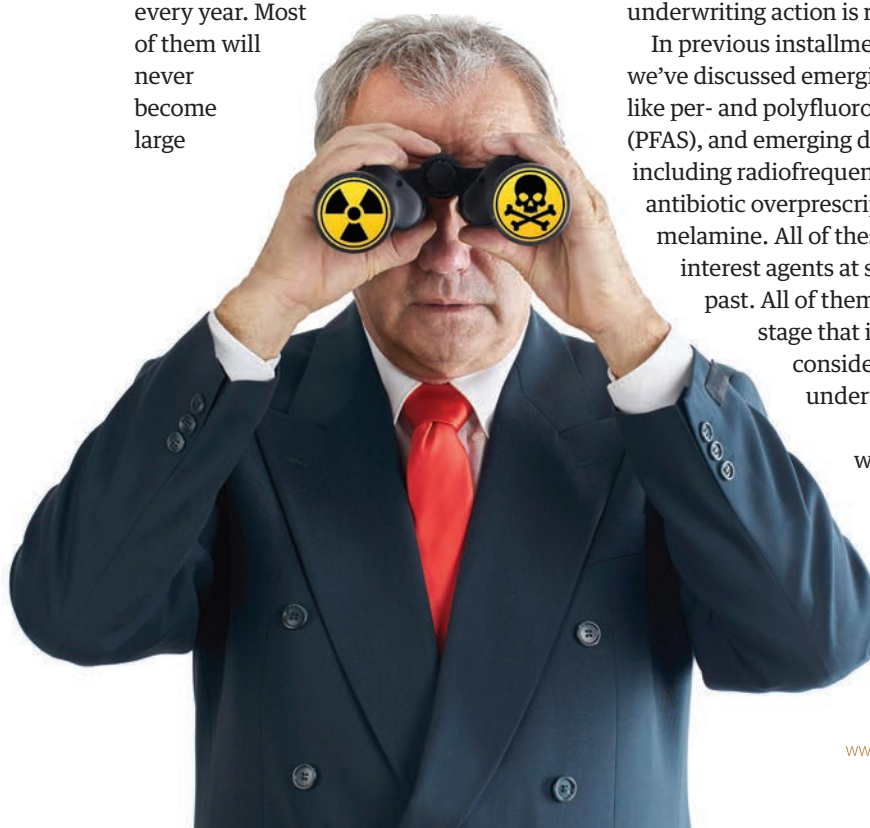
The toxicology and environmental literatures are filled with tens of thousands of hypotheses, and at least a dozen completely new hypotheses hit the major scientific journals every year. Most of them will never become large

literatures, and obviously fewer will become involved in mass torts. But interest to scientists should always imply interest to liability insurers.

We call the emerging interest phase the "time to prepare." It is the time that insurers should evaluate and monitor their portfolios for potential accumulation risks. If the literatures progress to the emerging damage or litigation stages, and if the insurance is written on the occurrence form, additional policy years will only add to the accumulation. It is also the time to begin dialogue with clients about their product stewardship efforts or their environmental, health and safety programs. The manufacturers should be expected to know about the risk if it is published in a scientific journal, and the businesses downstream will benefit from their insurer's insights that come before underwriting action is required.

In previous installments of this column, we've discussed emerging litigation agents, like per- and polyfluoroalkyl substances (PFAS), and emerging damage risks, including radiofrequency exposure, antibiotic overprescription and melamine. All of these were emerging interest agents at some point in the past. All of them are now at the stage that insurers should be considering immediate underwriting actions.

In this installment, we will draw attention to several risks that are on the literature horizon and have newly entered the



emerging interest stage.

Scientists and environmental activists have been paying more attention to so-called “PMT” chemicals—those that are **persistent** in the environment, **mobile** in water, and **toxic** to humans or animals. PMT chemicals are not currently regulated explicitly, although there are proposals to treat them the same as PBT chemicals that bioaccumulate rather than flow easily around the world.

The first PMT chemical that has begun to attract scientific attention is N-butyl benzyl sulfonamide (NBBS). NBBS is a plasticizer commonly used to keep plastics soft, but unlike their phthalate counterparts, they are used in different resins like polyacetals, polyamides and polycarbonates. Items made from these plastics include kitchen utensils, consumer electronics, food-contact film and carpet. The potential for widespread exposure and the environmental persistence of NBBS has led scientists to start exploring its toxic effects. Thus far, they’ve published studies looking at kidney, neurological and developmental injuries.

A second emerging interest stage PMT risk is an insecticide called fipronil. This is one of the newer insecticides available and has been used extensively on crops around the world. Closer to home, this is also one of the most commonly used ingredients in flea collars and treatments for pets. Aside from the few studies conducted right around the time fipronil was approved for use in the mid-1990s, there has been little interest in studying its toxicity until recently, when scientists published studies showing it may have neurotoxic effects in mice. Furthermore, the United States Geological Survey conducted a study of streams in the U.S. and found fipronil was present in 20 percent of streams nationwide. This also illustrates an important feature of PMT chemicals: Their mobility means they can easily get into waterways and are very difficult to remove. If either of these chemicals are found to pose significant human health or environmental risk, the cleanup costs could be significant.

Sticking to the pesticide theme, the next risk we highlight is a class of fungicides called strobilurins. This includes some of the most commonly used fungicides, like azoxystrobin, kresoxim-methyl and pyraclostrobin. Like many other pesticides, strobilurins were first discovered in nature and then adapted to create commercially useful versions. In the 25 years since approval, strobilurins have found myriad uses on crops but also are used now as a prophylactic treatment for wallboard used in housing construction. One recent paper showed that these fungicides seep out of the wallboard and get incorporated into house dust, which often leads to significant risk of human exposure.

Much of the toxicology literature to date has focused on their effects on zebrafish, an organism that is commonly used to evaluate ecological toxicity. Because strobilurins are used on crops, they are often found in the environment. This class of fungicide does not always break down completely during food processing, meaning that we may be exposed to more of it than regulators expect. Insufficient regulation of potentially toxic substances leaves a wider window for liability to manifest at such time that these compounds are found to be toxic at common exposure levels.

The last class of risk we’ll discuss in this article is food emulsifiers. These food additives are used to improve the texture of food and keep mixtures of oil and water from separating. They are used in all sorts of food, including ice cream, salad dressings, cottage cheese, frozen foods and baked goods. They’re also commonly used in personal care products like toothpaste. Three of these emulsifiers have attracted scientific attention recently: carrageenan, carboxymethylcellulose and polysorbate-80. When used according to FDA regulation, these additives are considered safe based on the results of regulatory studies; however, recent attention being paid to the gut microbiome and its effects on human health suggests that perhaps they are not as safe as we thought.

Recent studies suggest that emulsifiers can interact with the cells lining our gut and with the gut microbiome to both initiate and spur on inflammation. Inflammation in the gut is a known cause of intestinal cancer alongside other inflammatory bowel diseases like celiac disease.

Like other food additives considered “safe,” we are only now beginning to learn about some of the effects they have on the cellular and molecular level in our bodies. We should expect to see additional studies, probably in mice and rats, looking at whether doses corresponding to realistic human exposures to these emulsifiers is linked with intestinal cancer. One final track of this research seeks to understand how different chemicals interact in our guts, and a startling recent finding shows that polysorbate-80 consumption can disturb the intestinal barrier to the point where we will absorb a phthalate plasticizer—DEHP, an emerging damage risk—more efficiently into our bodies when both are in our food.

All of these risks are currently in the emerging interest phase, and some may evolve to become emerging litigation agents. Of course, before that happens, almost all risks will spend at least some time in the emerging damage phase, where active management of underwriting and risk appetite is critical to overall enterprise risk management. When any of these risks move into the emerging damage phase, you can expect to read about it here. [CM](#)

Read About Emerging Damage Risks and Emerging Litigation in these *Carrier Management* articles written by Praedicat executives:

- *PFAS Litigation Levels Already at Epic Proportions*
- *Fifth-Generation Wireless Technologies: Suspicion vs. Evidence*
- *Opioids Are the Next Tobacco. Are Antibiotics the Next Opioids?*
- *Emerging Damage: The Case of Melamine*
- *Are Forever Chemicals a Forever Problem for Insurers?*

Carpe Futurum: How to Reorient Your Company's View of Risk to Seize the Future



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By Carol A. Williams

Executive Summary: Insurance company leaders focus on risks like ongoing litigation and increasing claim volumes, but they may not be mindful of risk-related areas around goal setting, strategic planning and operational risk that can damage their companies, too, consultant Carol Williams reminds them.

Never before in the modern era has the world witnessed such an extraordinary level of risk and uncertainty.

In-depth surveys like the 2021 State of Risk Oversight Report from North Carolina State University show that 67 percent of organizations across the board believe that the volume and complexity of risks is “mostly” or “extensively” increasing, a 12 percent jump over last year.

Insurance companies are by no means immune from this uncertainty. Issues ranging from industry-specific threats like ongoing litigation, increased claim volumes and skyrocketing reinsurance rates to society-wide trends like shifting employee expectations and the constant threat of displacement by more agile competitors hang over insurers like the proverbial Sword of Damocles.

As a leader in an insurance company, you are certainly familiar with risk. After all, your company is in the business of helping policyholders manage risk. Good carrier leaders have a solid grasp of underwriting, investment and other financial risks since you manage them day in and day out.

However, there are other risk-related areas where many insurers make mistakes that can prove disastrous if left unresolved, including but not limited to:

- Moving on an idea without considering its place in the strategy—a.k.a., the “shiny-object” syndrome.
- Having too many goals, which causes company focus and resources to be spread too thin and ultimately leads to failed or delayed projects.
- Tending to think only about impacts to outside parties like policyholders, possibly at the expense of internal impacts such as to personnel, processes, internal communications and more.
- Doing any “risk management” at the departmental level with little to no connection to strategic objectives, which often leads to new risks.
- Only considering the near term (one to three years) without thinking about the long term (10-plus years) as well.
- Limiting the view of opportunities to business expansion without also considering potential efficiencies in the organization’s structure or expanding use of existing tools to address manual processes, especially as the company grows.

Having a deep understanding of the types of risk your company underwrites isn’t enough. You need to lead a fundamental change in how you and everyone in your company views risk to remain competitive in the long-term. It may seem daunting to change your current approach. Let’s face it—many of these issues, especially on the operational side, just are not sexy topics. But it is critical to your company’s future that risks aren’t handled on a case-by-case basis, potentially marring your company’s journey with turbulence as you scramble from one crisis to the next.

On the operational side of the coin, many companies commonly overlook risks emanating from third parties, cyber- and privacy-related issues, a lack of succession planning, no cohesive interdepartmental or team communications, and an absence of basic corporate policies like

communications with external parties (i.e., regulators, policyholders, the press), records retention and disposal, and more.

Not sexy, huh?

Although these operational topics are not exciting, addressing them without being stifling or bureaucratic provides a solid foundation for your company. Think of

“It is strongly recommended you only have one (yes, one!) overarching goal for the year based on your company’s mission.”

it this way: If a house is built on quicksand, how long do you think it will stand?

Additionally, having an agreed-upon approach for initiatives and goals rather than an ad-hoc process will go a long way, but only if everyone—including you and fellow executives—is held accountable for following it.

With these issues in a place where they can support goals and initiatives in an agile way, you are ready to begin developing a more systematic and informed approach to strategic decisions.

As mentioned above, shiny-object syndrome is a challenge for many carriers. To address this, it is strongly recommended you only have one (yes, one!) overarching goal for the year based on your company’s mission, at least in the beginning.

With the annual goal in hand, tools like scenario planning can be brought in to understand what could get in the way of achieving the goal, what needs to be in place for it to be successful, opportunity costs of a particular course of action and more. (See related article: “How to Achieve Organizational Goals With Scenario Planning,” in *Carrier Management’s* third-quarter magazine, p. 8 and available online.)

Advanced simulation and modeling can

be used to gauge the likelihood of success for a particular course of action, but only if your company has the capability to do so.

From here, you can then begin to get an idea of what risks will need to be managed, which ones you can accept, and which you need to monitor short- and long-term. Identifying those buckets requires an understanding of the kind and level of risk the company is willing to take in pursuit of its goal and what actions you will take if—or when—the situation changes from when you initially decided to move forward.

This applies not only to threats to accomplishing your goal but also to opportunities. Are there measured risks you can be taking to increase the odds of success? As we learned in the list above, opportunities do not have to mean expansion only in the traditional sense but can also include how your company is structured and operational matters like the kinds of tools you use and more.

Contrary to the perception many have, this enterprise-level risk management is not just about preventing losses, satisfying regulators, following a particular standard, or getting every known risk on a list down to a “green” or some other acceptable level. Instead, as Norman Marks writes in his book “Risk Management in Plain English: A Guide for Executives,” it is “about understanding the interrelations between risks, how they impact goal(s) and incorporating this into decision-making in a systematic way.”

Regardless of how your company defines success, addressing operational gaps and taking a risk-informed, systematic approach to decision-making has to be a part of enabling that success. In the end, you cannot purchase an insurance policy (or six) to cover the risk of a failed strategy, disgruntled employees, or displacement or acquisition by a more agile competitor.

Is your company prepared for what lies ahead?

Will you enable your company to move into the future with confidence, or will you always be reacting and scrambling from one crisis to the next?

Are you ready to seize the future? [CM](#)

PUSH FOR LITIGATION

Funding Disclosure GROWS

Executive Summary: *Claims Journal* Editor Jim Sams reviews the history of litigation funding, research that reveals information about the returns achieved by investors in litigation, as well as legislative efforts—and slowly developing case law—to push toward the disclosure of funding agreements. Also revealed is a newer development—legal finance—used by companies and law firms to finance commercial litigation, serving the needs of companies that don't want to pay hourly fees to lawyers and lawyers who can't assume the contingent risk of being paid based on what they recover in litigation.

By Jim Sams

Jim Sams is the editor of *Claims Journal*, a sister publication of *Carrier Management*.

The privacy once enjoyed by investors who finance other people's lawsuits was rarely questioned before Hulk Hogan brought a media spotlight onto the niche industry after winning a \$140 million jury verdict that forced the Gawker website into bankruptcy.

When Terry Jean Bollea (the professional wrestler's real name) filed an invasion-of-privacy lawsuit against Gawker Entertainment in 2013, it was generally assumed that the existence of a litigation finance agreement was nobody's business other than the plaintiff and their counsel. But after Bollea reached a \$31 million post-judgment settlement agreement with Gawker, the press cited confidential sources to report that Silicon Valley tech billionaire Peter Thiel had funded the lawsuit.

Since then, tort reform advocates have made some progress toward requiring more disclosure when litigation funding agreements are used. Wisconsin in 2018 passed a law that requires disclosure of any litigation funding agreement that is in place. West Virginia passed a similar statute in 2019, but it relates only to litigation finance agreements with individual consumers, not corporations.

At least two federal court districts—the Northern District of California in 2017 and the New Jersey district earlier this year—have adopted rules requiring disclosure of



the existence of any litigation funding contracts in a case.

In the meantime, the American Bar Association has outlined best practices for attorneys who use litigation funders. The California Bar Association has also issued guidance about ethical considerations.

Jonathan H. Colman, a Los Angeles-area insurance defense attorney, discussed those legal developments during the Combined Claims Conference held in Garden Grove, Calif., in August. He said lawyers who aren't careful when they share information about a case with a litigation funder can potentially open a path for defense attorneys to compel disclosure.

"The concern would be the trap doors for the plaintiff where they inadvertently provide information that violates the attorney work-product privilege or attorney-client privilege," he said.

The case law is thin. Colman noted only two cases where judges considered whether the identity of litigation funders was relevant to the case, which arguably would make them subject to disclosure through the discovery process.

In a patent lawsuit filed by CXT Systems against several major retailers, Magistrate Judge Roy S. Payne for the Eastern District of Texas ruled in January 2020 that the identity of litigation funders was not relevant to the issue being tried and barred testimony regarding the source of funding.

But in another patent lawsuit filed by Continental Circuits against Intel Corp. and one of its suppliers, Senior U.S. District Judge David G. Campbell in Arizona ordered the plaintiff to provide the defendants with the identity of all persons or entities who had a financial interest in the outcome of the lawsuit. Campbell rejected the defendants' request to disclose the actual litigation funding agreement and the identities of litigation funders who declined to invest in the case.

"There isn't a lot of precedent," Colman acknowledged. "It is certainly getting much more active. When I first looked in 2018, I didn't have any of these cases."

He said even though the defense didn't get what it wanted in the Texas case, it is notable that a federal judge considered whether a litigation funding agreement might be relevant to the issues at hand.

"There was nothing like this three years ago," he said.

Abusive Litigation?

The U.S. Chamber of Commerce Institute for Legal Reform first sounded an alarm about litigation financing in white papers published in 2009 and 2012—and the industry has only grown in size and legitimacy since then. The Chamber's papers cautioned that third-party funding for lawsuits increases the amount of abusive litigation because investors will buy an interest across an entire portfolio of cases, including cases that are weak on merit but have a small chance of returning a significant award. Litigation funding agreements also compromise the attorney-client relationship because the attorney will feel an obligation to maximize investor returns, which may not always be in the client's best interest, the Chamber said.

A recent update of the original white paper pointed to one especially seedy story about litigation funding that ended with a criminal contempt conviction of a plaintiffs attorney. Investors funded lawsuits against Chevron by indigenous persons in Ecuador for pollution to the Lago Agrio region of the Amazon rainforest. The funding agreement guaranteed a return of at least \$55 million to investors even if the court awarded only \$70 million, according to the Chamber.

(According to the 2012 Chamber paper, the investment agreement in that case included a "waterfall" repayment provision, providing for a higher percentage recovery on the first dollars of any award. The paper reported that under this agreement, the litigation funder would receive roughly 5.5 percent, or \$55 million, on any amount starting at \$1 billion. If, however, plaintiffs settled for less than

\$1 billion—for as low as \$70 million—the litigation funder's percentage of the award would rise, allowing the investor to get the same \$55 million.)

The courts in Ecuador awarded the plaintiffs \$9 billion, but in 2014 Chevron persuaded U.S. District Judge Lewis Kaplan in Manhattan to bar enforcement of the award because of corruption. In 2016, Kaplan ruled that attorney Steven Donziger and attorneys for the investors had paid a \$500,000 bribe to a judge in Ecuador. He sentenced Donziger to house arrest for criminal contempt.

The 2nd Circuit Court of Appeals in March affirmed five of the six criminal contempt charges against Donziger, vacating one because it was ambiguous. In the meantime, Donziger was convicted of separate but related contempt charges in July, and on Oct. 1, 2021, a U.S. District Court judge in Manhattan, N.Y., sentenced him to six months in jail for violating orders from Kaplan's to turn over documents and electronic devices that would help determine whether Donziger had been profiting from the judgment against Chevron.

Empirical Data

A 2018 research paper published by Cornell Law Review said third-party litigation funding has been part of the American legal system for more than two decades, but the general public wasn't widely aware of the industry until the press reported Thiel's involvement in the Gawker litigation. Media coverage of the #MeToo movement also increased public awareness.

Stories that focused on alleged abuses by litigation funders attracted the attention of lawmakers, according to the paper, written by law professors Ronen Avraham and Anthony Sebok. *The New York Times* reported in one story that litigation funders were charging interest rates "as high as" 100 percent, the researchers said. ("How the Finance Industry Is Trying to Cash In on #MeToo," by Matthew Goldstein and Jessica Silver-Greenberg, *The New York Times*, Jan. 28, 2018)

continued on next page

Litigation finance investors enjoyed a 91 percent return on investment, on average.

continued from page 61

Reform legislation followed two streams. Avrham and Sebok said the litigation funding industry generally supported the “transparency” approach taken by Maine, Nebraska, Ohio, Oklahoma and Vermont, which passed laws that explicitly allow litigation funding but impose controls such as standardized contract language, minimum cancellation periods and prohibition against attorney referral fees.

Other states passed laws advocated by tort reform “pressure groups” such as the Chamber of Commerce, the paper says. In this group, Arkansas, Indiana and Tennessee place caps on the maximum amount funders may charge in annual interest rates against the amounts they advance to consumers in consumer litigation.

But Avrham and Sebok said there was little empirical data available on which to base public policy. The researchers examined 191,144 funded and unfunded litigation finance applications submitted to a major funding firm to gain insight about the funders’ “modus operandi.”

The paper says agreements are typically structured in two ways: For sophisticated litigants such as corporations, the litigation funder typically takes a share of the proceeds from a lawsuit after the case is resolved. But litigation funders who finance lawsuits by individual litigants typically structure the agreements as loans that charge a specific interest rate, so the cost increases as long as the litigation remains pending.

The researchers said that on paper, litigation funding agreements typically require the litigants to

repay 115 percent of the amount of money advanced for litigation, but after defaults and discounts, or “haircuts” taken by funders off of the amount owed, the average annual interest rate amounted to 43 percent. That rate of return is less than the average amount permitted by Indiana’s litigation funding statute, which allows a maximum interest rate of 36 percent plus 10 percent in additional fees.

The authors also report that litigation finance investors employ a robust underwriting process: 52 percent of the applications submitted were rejected, either outright or after review. For the cases that were accepted, the funder was repaid more than the amount advanced to the litigant in 88 percent of cases, and 12 percent of cases ended with a default. Litigation finance investors enjoyed a 91 percent return on investment, on average.

The researchers said their findings suggest reasons to be skeptical about claims that litigation financing

contracts encourage frivolous litigation. However, they said litigation finance agreements were often complex and that consumers may benefit from regulations. For example, more than 8 out of 10 of the agreements require the plaintiffs to pay interest that compounded monthly. That has the effect of turning a 42 percent simple interest loan into a 51 percent return for a typical case that takes 14 months to resolve. With those kind of returns, it is no wonder litigation funding is a fast-growing investment class.

Westfleet Advisors reported that from June 2019 to June 2020, 46 active funds managed \$11.3 billion in assets allocated to commercial litigation in the United States, up 18 percent from the previous year. Total dollars committed to new litigation financing investments grew 6 percent to \$2.5 billion despite court

slowdowns caused by the pandemic, Westfleet said in January.

One litigation funder—Burford Capital—is listed on the New York and London stock exchanges (and incidentally pays Sebok, one of the authors of the research report mentioned above, as an ethics adviser). Burford said in its 2020 annual report that it recovered \$1.6 billion in assets since its inception in 2016 and earned a 91 percent return on the capital invested.

Burford said that court slowdowns caused by COVID-19 caused business to slip in 2020, but a new kind of customer helped fill the gap. The company said corporate clients are starting to see the benefits of paying attorneys based on the amount they recover rather than hourly fees, but law firms typically don’t have the balance sheet necessary to pay operating expenses

without a steady stream of income.

“Legal finance has grown rapidly over the past decade to bridge this gap,” the report says.

Third-party funding may increase the amount of abusive litigation because investors will buy an interest across an entire portfolio of cases, including cases that are weak on merits but have a small chance of returning a significant award.

The Argument for Disclosure

Rules requiring disclosure of litigation finance agreements are not necessarily an impediment to further growth.

Michael McDonald, a finance professor at Fairfield University in Connecticut, operates an investment consulting firm that carefully tracks litigation finance. In an article series he wrote in 2017, McDonald said usury laws were the most important factor for states that landed on his list of “worst states for litigation finance.”

McDonald said usury arguments—the concept that excessive charges for borrowers is improper—can be used to invalidate litigation funding contracts. Colorado courts have held that litigation funding agreements are subject statutory limits, while courts in other states have used different approaches:

- Alabama courts have held that litigation financing agreements are a form of



“gambling” or speculating in litigation and are therefore void as against public policy.

- A Kentucky statute renders litigation financing contracts void.
- Pennsylvania recognizes the “doctrine of champerty,” which holds that it is improper for a party not involved in a suit, other than attorneys, to have a financial interest in the outcome.

In an email, McDonald said the litigation finance industry generally resists rules requiring disclosure of funding contracts, but in his view that is short-sighted, and he expects more jurisdictions to require disclosure in the future. “Disclosure helps to bring transparency to the situation and is actually good for all sides—it provides more insight for defendants on who they are up against and the motivations of plaintiffs, and it has some marketing value and very little in the way of stigma for funders/plaintiffs.”

McDonald agrees with Colman that courts are increasingly seeing disclosure of litigation funding contracts as a reasonable step. He also agrees that disclosure can create some landmines for attorneys on a case, but that problem will sort itself out over time. “Once attorneys understand what the requirements are around disclosure and have taken those steps a few times, then mistakes or oversight is less likely to occur,” he said.

Generally, the existence of a litigation funding agreement is protected by the work-product doctrine, which holds that written or oral materials created to prepare for litigation do not have to be disclosed to the adverse party. But that protection is not absolute. It can be waived if the other side shows an undue hardship or substantial need. Also, an attorney can inadvertently waive the protection by disclosing the information to a third party, such as a litigation funder.

The courts have been divided on when privilege is waived, but professional organizations urge lawyers to use caution. In August 2020, the ABA published a report outlining best practices for attorneys to consider before entering litigation funding

arrangements. The report says attorneys should assume “the litigation funding arrangement may well be examined by a court or the other party at some point in litigation.”

The California State Bar Association, in a formal opinion last year, reminded attorneys that their first and foremost duty of loyalty is to their client and the funder cannot be allowed to interfere with the litigation. Attorneys must obtain their clients informed consent before sharing any confidential information.

Some courts are requiring disclosure even when privilege hasn’t been waived. The federal Northern District of California was the first, adopting a rule in 2017 that requires parties to disclose the identity of any person or entity that is funding any class action lawsuit.

A rule adopted by the U.S. District Court in New Jersey that took effect in June goes further. A party who receives litigation funding must identify the funder and describe the funder’s financial interest in the case. The rule also requires disclosure if the litigation funding contract requires the funder’s approval of any litigation decisions or settlement.

John J. Hanley, a New York attorney who represents litigation funders, said about a third of the federal district courts have adopted rules regarding disclosure of litigation funding but they are not uniform. He said a simple non-disclosure agreement signed by the client and the funder will usually protect a plaintiff’s attorney from any argument that the work-product privilege has been waived. Hanley said various disclosure requirements have been adopted by some courts and state legislatures, but most don’t require the actual litigation funding contracts to be disclosed. The Wisconsin statute is an exception.

Hanley, a partner with Rimom Law, said he also agrees that attorneys who don’t tread carefully can open a door that would allow a defendant to require disclosure. But he said most attorneys working the industry are aware of the pitfalls. He said the courts have been adopting rules that

Read More About Third-Party Litigation Funding

- Still Selling Lawsuits: Third-Party Litigation Funding A Decade Later (2020)
- Stopping The Sale On Lawsuits: A Proposal To Regulate Third-Party Investments In Litigation (2012)
- Selling Lawsuits, Buying Trouble: Third-Party Litigation Funding In The United States (2009)

The above white papers were prepared for the U.S. Chamber Institute for Legal Reform by Skadden, Arps, Slate, Meagher & Flom LLP

- Avraham, Ronen and Sebok, Anthony J., “An Empirical Investigation of Third Party Consumer Litigant Funding” (March 9, 2018). 104 Cornell Law Review (2018), Cardozo Legal Studies Research Paper No. 539, U of Texas Law, Law and Econ Research Paper, available at SSRN: <https://ssrn.com/abstract=3137247>

require disclosure when a litigation funding agreement exists and may even require the plaintiff to identify the funder, but typically the courts don’t require anything more than that. “The trend is not in support of disclosure of the actual funding agreement,” he said.

In a statement, the International Legal Finance Association said that most courts have ruled that financing agreements are not generally discoverable. “Materials created for and provided to a potential financier because of litigation are typically protected under the work-product doctrine. Additionally, the court in Continental Circuits ruled that such agreements in the case were work product and thus not subject to disclosure,” the association said.

“Finally, while bar associations often issue guidance that exhorts attorneys to be mindful of their ethical obligations, it is a vast overstatement to say that sharing information with funders can risk the privileges and protections that apply.” [CM](#)

8 EMERGING RISKS TO WATCH: Climate Change, Tainted Products, Deepfakes

By Kimberly Tallon

Even the most vigilant insurers and reinsurers scanning the risk landscape for potential future liability problems are likely to fall into landmines. What insurance risks of the immediate or distant future are being overlooked now? Here, we highlight risks associated with climate change, tainted consumer products, pandemic-related risks and satellite deepfakes.



1. Critical infrastructure at risk.

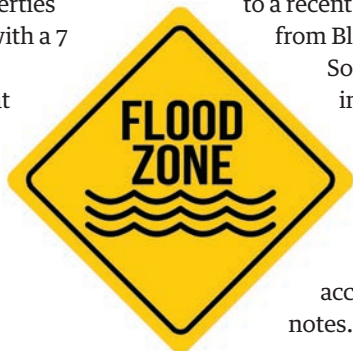
New research by First Street Foundation finds that 25 percent of critical U.S. infrastructure is at risk of flooding today—and that number is expected to increase another 6 percent over the next 30 years.

Additionally, 2.0 million miles of road (25 percent) are at risk today, with that number expected to increase by 3 percent by 2051.

Both residential and commercial property are also at increased risk, the study found.

There are currently 12.4 million residential properties (14 percent) at risk of flooding, expected to increase 10 percent over the next 30 years. Meanwhile, 20 percent of commercial properties (918,540) are at risk today, with a 7 percent increase expected.

The study also reveals that the highest concentration of community risk exists in Louisiana, Florida, Kentucky and West Virginia, as 17 of the top 20 most at-risk counties in the U.S. are in these four states.



Source: “Infrastructure on the Brink,” First Street Foundation, Oct. 11, 2021

2. Stress prompting return-to-office lawsuits.

Many employees are being forced to return to the workplace despite requesting accommodations for mental health issues such as anxiety, stress, depression, agoraphobia or PTSD. This has led to a spike in lawsuits, according to a recent report

from Bloomberg Law.

Some of these lawsuits “could involve tricky gray areas under the federal Americans with Disabilities Act, such as when leave or telework can be reasonable disability accommodations,” the article notes.



ADA claims will be easier to prove for workers with a documented pre-existing mental health condition, but Bloomberg

said that some pandemic-induced mental health issues could also qualify for accommodations.

While employers can cite an “undue burden” on business operations to deny some accommodations, Bloomberg notes that it will be difficult for businesses to raise that defense if

employees have been allowed to work remotely for more than a year.

Source: “Pandemic Spike in Anxiety, Stress Prompts Office-Return Suits,” Bloomberg Law, Aug. 19, 2021

3. Cheeseburger, with a side of phthalates.

Many U.S. fast foods contain industrial chemicals that have been linked to serious

health problems, according to a new study published in the Journal of Exposure Science and Environmental Epidemiology.

Researchers at the George Washington University purchased 64 fast food items from different restaurants and asked for three pairs of unused food handling gloves. The team tested food items and the gloves for 11 kinds of phthalates and other plasticizers, finding that:

- 81 percent of the food samples contained a phthalate called DnBP, and 70 percent contained DEHP. Both have been linked to fertility and reproductive problems as well as increased risk for learning, attention and behavioral disorders in childhood.
- 86 percent of the foods contained the replacement plasticizer DEHT, whose impact on human health is still unknown.
- Foods containing meats, such as cheeseburgers and chicken burritos, had higher level of the chemicals studied. They also had the highest levels of DEHT. The researchers noted that food handling gloves collected from the same restaurants also contained this chemical.



Phthalates and replacement plasticizers are chemicals used to make plastics soft and can migrate out of plastics into the food, which is ingested. Some sources of plastics include food handling gloves, industrial tubing, food conveyor belts and the outer packaging used to wrap fast food meals available in restaurants.

Source: "Potentially harmful industrial chemicals detected in US fast foods," George Washington University, Oct. 27, 2021; "Phthalate and Novel Plasticizer Concentrations in Food Items from U.S. Fast Food Chains: A Preliminary Analysis," Journal of Exposure Science and Environmental Epidemiology

4. AI can create fake satellite imagery.

Geographers from the University of Washington are warning that deepfake

satellite imagery could be used to create hoaxes about wildfires or floods or to discredit stories based on real satellite imagery.

Such AI-generated images of cityscapes and countryside might even be a national security issue, as fake satellite imagery could be used to mislead tacticians and mess with mission planning.

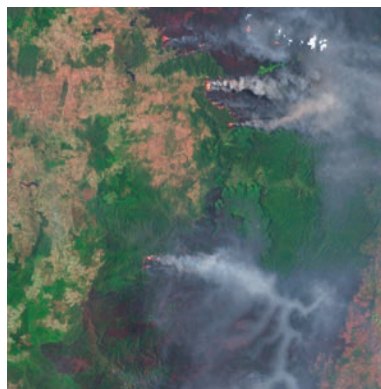
The fake satellite images are "uncannily realistic," said Bo Zhao, lead author of the study published in the journal Cartography and Geographic Information Science. He noted that "untrained eyes would

easily consider they are authentic." And while detection software can spot the fakes based on characteristics like texture, contrast and color, these tools need constant updates to keep up with improvements in deepfake generation.

Source: "Deepfake satellite imagery poses a not-so-distant threat, warn geographers," The Verge, April 27, 2021; "A growing problem of 'deepfake geography': How AI falsifies satellite images," University of Washington, April 21, 2021

5. Cyber criminals taking advantage of empty office buildings.

Office buildings across the globe were



abandoned when businesses suddenly transitioned to work-from-home amid pandemic lockdowns—and many remain empty, or nearly so. These empty buildings offer myriad opportunities for cyber criminals looking to attack organizations or even feed off their networks, experts

warned during a September episode of Insurance Journal's "Insuring Cyber Podcast."

Justin Fier, director for cyber intelligence and analytics at cybersecurity technology company Darktrace, said that office buildings emptied during the pandemic can present concerns ranging from something as sophisticated as entrepreneurial criminals setting up bitcoin mining systems in closets that nobody knows about, or something as simple as a criminal walking into a building and plugging into an empty ethernet port.

The hybrid style most companies seem to be embracing will create new security challenges, he said, noting that his company has found "all sorts of things customers didn't even realize were on the network..." And then there's the IoT devices, "like FLIR (thermal imaging) cameras checking the physical temperatures of people when they walk through the security gate to make sure they don't have a fever or symptoms, or air quality sensors making sure the carbon dioxide levels are within specs with all of the air scrubbers that are happening all over the place." IoT is still "wildly insecure," he added.

Michael Bahar, litigation partner and co-lead of the global cybersecurity and data privacy practice in Eversheds Sutherland's Washington, D.C. office, said companies need to be prepared for the worst-case scenario while maintaining the flexibility to quickly

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adapt to new threats. He warned that, beyond the breach itself, “the worst-case scenario can be the litigation, the regulatory enforcement action, the business interruption and the reputational damage that could come from a breach that was not optimally handled, precisely because it wasn’t well planned for.” He noted, “That is what transforms a bad day into potentially a tragic year or tragic years.”

Source: “Employees May Not Be Working Inside Office Buildings, But Cyber Criminals Are,” *Insurance Journal*, Oct. 8, 2021

6. Smartphones, pacemakers don’t mix.

Smartphones and watches can interfere with implanted medical devices, according to a recent study published in *Heart Rhythm*.

Researchers affiliated with the Center for Devices and Radiological Health (CDRH) at the FDA warn that patients should keep any consumer electronic devices that may create magnetic interference, including cellphones and smart watches, at least six inches away from implanted medical devices. Implantable pacemakers and cardioverter defibrillators include a “magnet mode” designed to be used when a patient is undergoing a procedure where electromagnetic interference is possible or when suspension of the device is necessary for medical treatment. However, this feature can also be triggered accidentally from strong magnetic fields greater than 10G, which can change how the device works and could seriously harm the patient, the researchers say.

The investigators tested the magnetic field output of all iPhone 12 and Apple Watch 6 models at varying distances from the devices. They found that all the devices have static magnetic fields significantly greater than 10G in close proximity. However, when a separation distance of six inches or more is maintained, the phones and watches will

not trigger magnet mode.

Source: “New cell phone and smart watch models can interfere with pacemakers and defibrillators,” *Elsevier*, Aug. 26, 2021; “Static magnetic field measurements of smart phones and watches and applicability to triggering magnet modes in implantable pacemakers and implantable cardioverter-defibrillators,” *Heart Rhythm*, Aug. 25, 2021

7. There could be 200 million “climate migrants” by 2050.

Climate change could push more than 200 million people to leave their homes in the next three decades and create migration hotspots unless urgent action is taken to reduce global emissions and bridge the development gap, a World Bank report has found.

The report said the impacts of slow-onset climate change such as water scarcity, decreasing crop productivity and rising sea levels could lead to millions of “climate migrants” by 2050 under three different scenarios with varying degrees of climate action and development.

Under the most pessimistic scenario, with a high level of emissions and unequal development, the report forecasts up to 216 million people moving within their own countries across the six regions analyzed. Those regions are Latin America; North Africa; Sub-Saharan Africa; Eastern Europe and Central Asia; South Asia; and East Asia and the Pacific.

Meanwhile, in the most climate-friendly scenario—with a low level of emissions and inclusive, sustainable development—the number of migrants could be as much as 80 percent lower but still result in the move of 44 million people.

The report didn’t look at climate migration across borders or the short-term impacts of climate change, such as effects on extreme weather events.

Source: “Climate Change Could Force 200 Million People to Abandon Their Homes by 2050,” *Associated Press/Carrier Management*, Sept. 15, 2021



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8. Fatal infections tied to room spray from Walmart.

A rare bacterial infection that killed two people has been linked to an aromatherapy spray sold at Walmart, the CDC says.

Four people in four states were infected by the rare tropical disease melioidosis, after being exposed to bacteria in Better Homes & Gardens Lavender & Chamomile Essential Oil Infused Aromatherapy Room Spray with Gemstones.

The \$4 room spray was sold at about 55 Walmart stores and online, according to the Consumer Product Safety Commission, which issued a recall for the roughly 3,900 bottles sold this year.

Source: “Mysterious fatal infections tied to room spray sold at Walmart,” *Washington Post*, Oct. 22, 2021 [CM](#)



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