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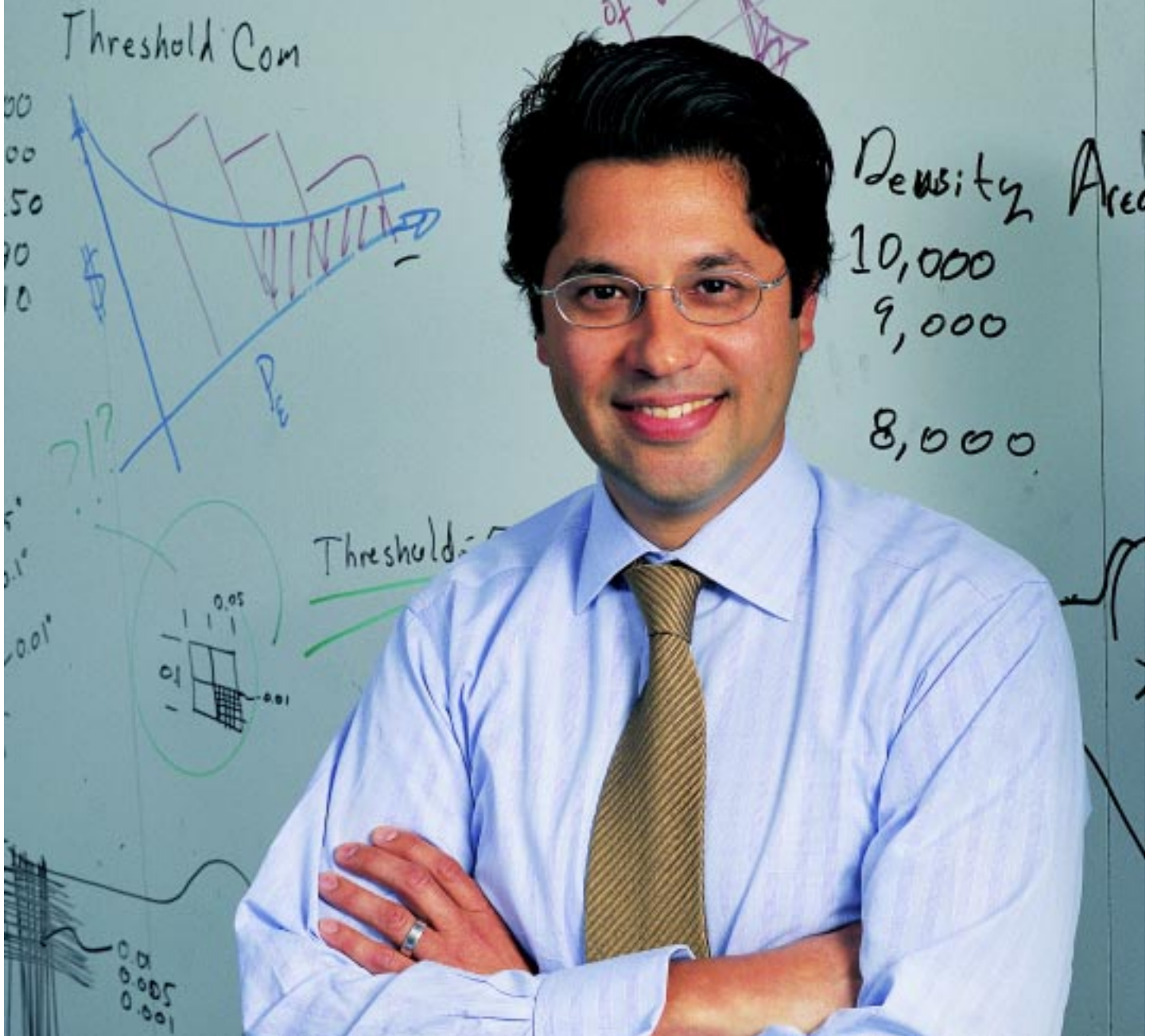
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## Model Citizen

Hemant Shah, CEO, Risk Management Solutions Inc., helped create—and sell—the discipline of risk modeling.

The story of how a young executive changed the way insurance companies model for risk.





*Hemant Shah's youthful exterior belies a very smart guy who saw that catastrophe modeling data possessed the potential to become "gold" for which insurers would gladly fork over fees.*

BY TOM STARNER

**A**s a fresh-faced Stanford graduate student in the mid-1980s, Hemant Shah expected to get a master's degree in civil engineering and launch his career.

But along the way, he took a business course, a departure from his regular academic regimen. As a result Shah not only launched his career, he also helped launch the catastrophe modeling business as a mature industry—not the “mom and pop” effort it had been.

Today, Shah, 36, CEO, president and a founder of Risk Management Solutions (RMS) Inc., based in Newark, Calif., works primarily for the property and

casualty insurance industry. RMS and two main competitors dominate the market in helping insurers and large property owners estimate, or “model,” the costs to property and people when disaster strikes—whether it be natural (earthquakes, tornadoes, wind storms, floods, etc.) or man-made (chemical plant explosions, terrorist acts, etc.).

Meeting Shah, you are immediately struck by the fact that he remains fresh-faced, with his teenage looks. But that youthful exterior belies a very smart guy who, in his Stanford days, quickly saw that catastrophe modeling data, which had been mined, at best, in a haphazard manner, possessed the potential to become “gold” for which insurers would gladly fork over fees. Of course, to get that idea across, Shah and his colleagues' early “cat” modeling efforts required careful explanations to potential clients.

“Hemant is one of those rare people who has a deep and profound understanding of technology side of catastrophe modeling, but he's also been able to move beyond that as part of his success,” says long-time RMS client Tad Montross, president of General

Reinsurance. “He’s a wonderful marketing person, because he knows the product so well.”

“Hemant is very competent and knowledgeable about the core engineering,” adds Carl Hedde, vice president for catastrophe management at American Re-Insurance, Princeton, N.J., another long-term RMS client. “But he also learned the insurance side quickly, saw the connection, and bridged that gap between engineering and insurance.

“What made Hemant and RMS successful early on is that he bridged that gap,” says Hedde. “I wouldn’t say Hemant and RMS created the cat modeling market, but both certainly played a major role in its early growth.”

The other key thing Shah has been able to accomplish, Hedde continues, is to communicate and convince insurance industry people that his vision really made sense. To make RMS a success, he also found a number of people who supported that vision and joined the company.

## Building Success

Of the three major catastrophe modeling players—AIR, EQECAT and RMS—Shah’s company holds a 50 percent share of, by Shah’s estimation, a \$200 million market (though he believes the overall potential market for cat modeling-related business is more like \$800 million). RMS has 300 employees in six offices (three in the United States, two in Europe and one in Japan), and more than 400 customers around the globe—including carriers, reinsurers, trading companies and financial institutions.

“The idea of building a model to simulate or estimate damage in a catastrophe certainly was not new,” Shah explains. “There had been a lot of ‘mom and pop’ operations working at the margins. But it wasn’t an industry segment. In this case, the ‘mom and pops’ were mainly found within divisions of larger companies.”

To Shah, RMS helped unlock

the door, realizing along with other early players that the idea of providing the insurance industry with a much more rigorous approach to cat modeling could be a big business.

“The other part, for us, was having the naiveté, vision or just luck to connect those dots,” he says with a laugh. “We thought, ‘Hey, wait a minute, this could be a real significant growth business.’”

According to Shah, the initial seed for a more rigorous approach to catastrophe modeling was planted in 1985, when a research project on earthquake damage began at Stanford’s Department of Civil Engineering, which Shah’s father, Haresh, chaired.

“We thought this would be something we would want to do, but we didn’t go into it thinking it would become a real business.”

Hemant Shah

Shah explains that the initial computer program could forecast the amount of damage a building would take in the event of an earthquake. Not just from the perspective of how the beams and columns would twist, for example, but more from the resulting economic perspective.

While that project progressed, Shah enrolled in a business class that required a business plan for a technology-based project as part of the course requirements. By 1988, Shah says it became clear that this research project might have applications to those who have an economic interest in property, notably insurance companies and large real estate lenders.

“So the company almost got started by accident,” he says. Although he was getting a master’s in civil engineering, one of the great things about the

graduate program at Stanford is the school encourages students to dabble in other departments, with the expectation that an “out of the box” idea might emerge (and Stanford, of course, is there to provide an equity stake for the better ideas).

Shah and a friend in the course presented their plan to some friends and colleagues, as well as the class professor. “At the time, we thought that maybe this would be something we would want to do, but we didn’t go into it thinking it would become a real business,” he says.

The response was extremely encouraging, so in his final year in the program, Shah began putting a more detailed business plan

together.

Shah credits Stanford’s reputation in the business community as a main reason he was able to get inside some insurance companies early on, despite the lack of a true coherent business plan. “After all, we were just grad students,” he says.

## Blissfully Naïve

RMS was born in 1988 with \$30,000 in seed

money raised from personal savings and credit cards, with the first world headquarters located in Shah’s Belmont, Calif., apartment. Employees included Shah, Dr. Weiman Dong, a Stanford faculty member and lead researcher (and still with RMS), three other grad students and a programmer pal.

“No one took a salary,” Shah says. “When I think back, it strikes me how shockingly naïve we were. But that’s probably the only reason this thing got off the ground. We didn’t know how ridiculous we were being without any serious capital line.”

In fact, Shah says with a smile, RMS actually had to ask customers to forward money to pay for travel so he and colleagues could make a sales call. RMS would then return the money to the customer when they signed on for services.

“A lot of the early days were spent bringing potential clients

into the process," Shah says. "They had a lot of input into the original model designs. We were a scrappy startup, so we asked for their advice."

According to Mark Cravens, a former RMS employee who is vice president for risk management at Wellington Underwriting, one of the largest Lloyds syndicates, working for RMS was a lot of fun, in part because of Hemant's buzz-saw style.

"Hemant is an intriguing guy, with unlimited bolts of energy," says Cravens, now an RMS customer (he also was one of the first RMS customers back while running Cravens & Co.). "In the early days, the cat modeling industry was not very organized, and that was a good thing for RMS. Hemant was very driven by a vision, which he could really get across to customers."

By 1991, Shah and RMS realized it was time to get serious, writing a new, more comprehensive business plan and raising more than a million in venture capital. As a result, the company rose to the next level.

"We added some executives and built out the business," Shah says. "We knew that to get from here to there, we needed to build a real business, not just an ad hoc group of people looking to do projects together."

He says that decision to raise capital was RMS' turning point, as the cat modeling industry transformed itself from boutiques to real businesses, and RMS became a world-class operation with professional investors.

As the years progressed, RMS continued to release new products and cat models, covering disasters such as earthquakes, hurricanes and windstorms. But soon after the events of Sept. 11, 2001, which cost the insurance industry an estimated \$40 billion, RMS and its cat modeling competitors found themselves facing an entirely new and daunting endeavor: Using their expertise and sophisticated models to analyze the terrorism risks against property in the United States.

## Growth Through CAT Modeling

One of the principles of RMS' approach is target prioritization or target substitution, whereby potential terrorist targets ranked by economic value, and how those targets change based on security measures, whether real or perceived by terrorists. RMS also relies heavily on Game Theory, which oversimplified means combining data provided by terrorism experts to form a probability model of potential terrorist attacks.

Shah says terrorism modeling is the perfect example of how RMS must innovate to serve its customers, and stay ahead of the pack.

"Five years ago, there was no cat modeling for terrorism," he says. "Sept. 11, 2001, was a litmus test for our industry, of course, putting aside the human tragedy and related business problems."

He adds that after 13 years of focusing on earthquakes, hurricanes, floods, temperature volatility and other disasters, in one day the biggest catastrophe on record was not one of those disasters.

"Sept. 11 brought to the attention of the insurance industry that this was the shape of things to come," he says with a note of sadness in his voice.

Personally, Shah had been in the World Trade Center on Sept. 10, visiting clients, and had left for Boston on that clear, crisp morning of Sept. 11. For several hours, his family wasn't sure if he was safe (he assured them all was well). He next worried for RMS clients back in New York. Almost immediately, the other RMS executives began forming plans for how to approach terrorism modeling as a new business front. At the same time, a debate within the company caused some soul searching. Was terrorism modeling the right way to go? Would customers see it as an opportunistic grab for profit, rather than a way to help them? When the Federal government passed a \$100 billion reinsurance safety net for insurers, the proviso was that insurers offer coverage to

insurers for such acts.

At that point, terrorism modeling became a "must have" service for insurers looking to provide such coverage.

"Terrorism modeling and innovating new relationships on that front without skipping a beat, I think, is a function of a pretty creative, flexible organization," Shah says proudly. "We could have spent two years sitting in meetings, or our response could have been, this isn't a natural cat, so we can't really help you with this and let someone else worry about it. But we moved fast, and connected with some of the world's leading terrorism experts to deliver our product."

To Shah, it was simply a matter of RMS being in the cat management business, its clients are struggling, and RMS could help them.

Shah says the threat of terrorism immediately raised issues about accumulation management, geography, risk, how you think about your business processes, and how you collect data.

"It caused insurers to deconstruct the entire risk management process," he says.

As soon as Sept. 18, 2001, RMS published its first white paper on terrorism which, Shah says, was seen at the time as a sort of extraordinary response by RMS to the very unsettled situation.

"We said, 'Here's the problem. Here are the consequences. Here is how you might think about modeling this,'" he says. "A lot of it was working around the clock, and without much command and control, everyone did what they had to do."

Of course, Shah worried that extending RMS into terrorism modeling might be overextending the company's expertise, as there have been "plenty of cases of companies making a series of dumb decisions and losing market leadership."

But on the flip side, Shah says other companies can lose their competitive edge because of an external event that changes the business landscape.

"We didn't want to be the Betamax compared to the VHS," he says. "We worried that other competitors might come in and we'd lose our edge."

Shah adds that RMS approached terrorism with a certain humility, because they were not the experts on this, per se. RMS has mathematicians and seismologists, physicists, and actuaries, but it didn't have terrorism experts.

"Rather than try to pretend or spin what we do, we said let's be realistic and reach out to world-class terrorism experts," he says. RMS partnered with the Rand Corp., the Centre for the Study of Terrorism and Political Violence at Scotland's University of St. Andrews, and Janes, the UK-based provider of security and risk information.

"This isn't about hiring some new consultants and re-branding yourself," Shah says. "RMS has never been about spin or marketing for the sake of marketing. This is a real problem, and we have to add something for our clients. So we needed to reach out and get the best."

In the end, Shah says RMS culture is, to a certain extent, a reflection of his outgoing, high-spoken personality.

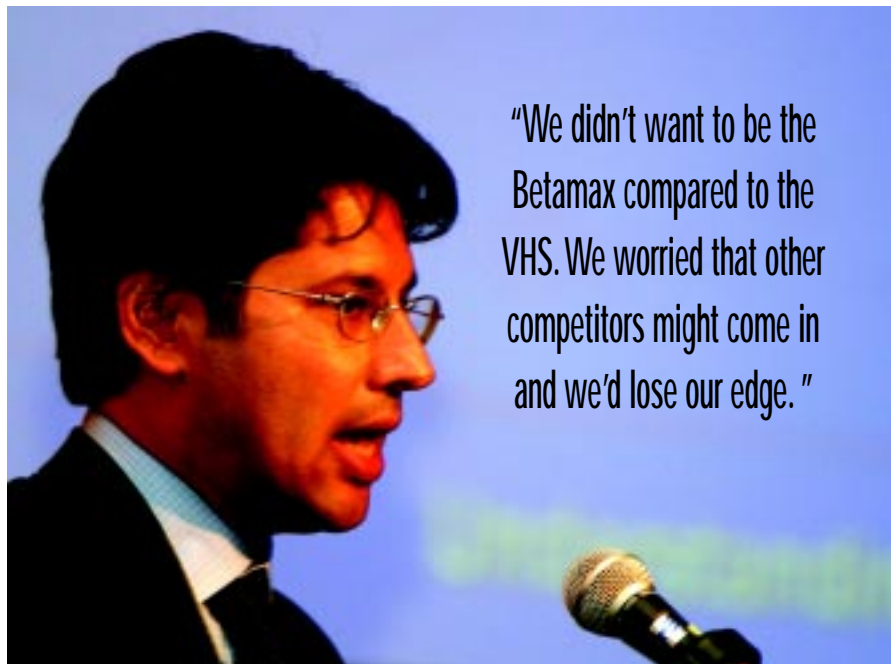
He's especially proud of what RMS has brought to the insurance industry.

While stopping short of saying the industry had been unsophisticated on the data management side of the house, he does believe the industry has not been as sophisticated as the financial services or banking industry.

That's changing, he adds quickly.

"As part of the work we and others have done in the industry, we've facilitated a real change in how the industry deals with risk and risk management," he says.

"Today, it's unthinkable for a professionally run insurer not to do things that maybe even 5 years ago only the mavericks did. Now, cat modeling is part of the professional standard about being an insurer."



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Shah adds that companies (he wouldn't name them) who adopted the cat models early are now seen as the leaders in their marketplace, being able to tap capital more efficiently, have more capacity and gain more support for their business plans. He also cites the Bermuda reinsurance market as leaders in adopting cat modeling as part of the business process.

At 36, there is plenty of reason for Shah to sit back, relax and gloat over RMS' success.

But that's not even on his radar screen (though he will be traveling less now that he and his wife expect their second child soon).

"Despite all he has done, Hemant is not cocky, and hasn't let success change him that way," says client Hedde.

## Changing Relationships

For his part, Shah says the future is about figuring out how RMS can add even more value to its clients' bottom line, helping them set the right prices for policies and make the right moves from a risk management perspective.

"The character of relationships has changed in the industry," he explains. "We've gone from being an interesting technology provider to a part of an organization that saw value ahead of the curve. We don't tell insurers how to run their

business, but the information we provide is mission critical.

"That has required us to be a more formalized in the way we interact with the clients."

The challenge then is how does RMS build an organization that supports these enterprise-wide, high-level corporate kinds of relationships, and at the same time, maintains its culture of creativity and innovation.

If another major disaster such as 9/11 were to occur, would RMS be ready?

Shah hopes so.

"We're very focused on the P&C industry," he says. "We think it's great. A lot of people spend a lot of time poking fun at the insurance industry, saying it's not innovative, blah, blah, blah. But we love it. We think it's great and certainly it's been very good to us."

The feeling, no doubt, is mutual.

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