

# Chapter 1

## A Mighty New Idea

*I think we should welcome all peaceful people to our country. They get to pursue the American dream and we get to benefit from all the wonderful things that immigrants bring to our country—like good old-fashioned soccer.*

—DREW CAREY

**Y**et-Ming Chiang was alone in his office on the campus of the Massachusetts Institute of Technology when Ric Fulop, a college drop-out from Venezuela, walked in and spun his life in a new direction.

Neither man had ever met before, but they shared a few key qualities. Both were immigrants to America. Both had experience as entrepreneurs, people who start businesses from scratch. Both liked to dream big, although they ran at different speeds.

Chiang, who came from Taiwan as a boy, was a career scientist who amiably applied himself to his research, pioneering work in ceramics and, more recently, renewable energy, the emerging clean technology that could replace fossil fuels.

Fulop, a serial entrepreneur, lived life on a treadmill. Restless and bold, he started his first computer company in Caracas at age 16.

He launched four more businesses—watched them soar and watched them crash—before he walked in on Chiang, introduced himself as a high-tech rock star, one of *Red Herring* magazine’s Top 10 Entrepreneurs, and told him about the idea keeping him up at night.

It was 2001, the dawn of a new millennium. The Internet bubble had popped, gasoline prices were climbing, the climate was warming, and the world would soon desire a clean, powerful source of energy. He had heard there was a professor at MIT doing interesting work with batteries. Was he right?

Chiang, then 42, could have exerted his rank. He was an accomplished scientist at one of the nation’s elite universities, the youngest tenured professor in the history of his department. While experimenting with very small lithium battery materials, he had discovered a way to extract double the power from conventional battery cells. He thought that some day he might take his idea to private industry, leave academia, and go into the battery business.

Now here was a brash young man at the door, a stranger nearly 20 years his junior, saying the time was now. Chiang takes pride in the aspect of his personality that allowed him to say, “Okay, what do you propose?”

“Plenty,” Fulop replied. He envisioned a battery company that would power the next generation of electric cars and eventually power America. He was prepared to pitch the idea to venture capitalists, investors who bankroll promising start-up companies, usually in exchange for a share of the ownership.

Chiang cared little about the business side of the adventure. What fascinated him was the technology. That, and the inkling that his work could change the world. He agreed to go along for the ride. The ride of his life.

Only a few months into their quest, the pair met and impressed a key catalyst, legendary New England entrepreneur Gururaj Deshpande. Desh, as he’s known in technology circles, came from India in 1973 with an engineering degree and parlayed ideas on fiber optics into companies that made him one of the richest men

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in the world. When Fulop and Chiang came calling, he was chairman of Sycamore Networks and a venture capitalist.

Deshpande not only invested in the new company, he recruited other investors and became chairman of its board of directors. He saw a good idea backed by intriguing technology. More than that, he saw a good team, one he suspected would work wonders to achieve its dreams.

Young Fulop, especially, intrigued him.

“He’s a good example of an entrepreneur,” Deshpande said one day in his office in suburban Boston. “He quit school. Started five or six companies. Raised \$100 million. Blew it all. Nothing worked.”

He paused and softly said, “I think this one is going to stick.”

Chiang and Fulop teamed up with Bart Riley, an American-born engineer and an old friend of Chiang’s, to found A123Systems in late 2001. They named the company after a mathematical equation that is critical in nanotechnology and that begins “A123. . .”

Chiang needed another breakthrough in the lab to make the technology work as envisioned. More than once, the nimble team had to change its approach, but sooner than anyone expected, the promising start-up was offering a battery that packed 10 times the lifespan of conventional batteries and twice the punch.

By early 2009, A123 batteries were powering Black & Decker’s pro-model power tools, having knocked out the Japanese supplier. A prototype car battery had sent a motorcycle rocketing at 160 mph. Under the direction of Chiang, the batteries were being refined to propel the new generation of electric cars that automakers promised at the 2009 North American International Auto Show. The company had attracted more than \$250 million from investors. It was employing 1,800 people on three continents.

Still, the dream swelled. Fulop, A123’s marketing manager, knew that automakers and government leaders alike wanted America’s next-generation power source to be made in America, ensuring that the nation was not again dependent on a foreign supply of energy.

He envisioned manufacturing plants in Michigan employing thousand of workers putting out 200,000 car batteries a year. He was seeking nearly \$2 billion in new investment.

“This is happening in an amazingly short amount of time,” Chiang observed one day in early 2009. “It’s mushrooming.”

But the company he co-founded was not in a marathon. It was in a sprint, a death race. A123Systems was one of several companies worldwide vying to create the next essential power source. There was the possibility that Chiang’s batteries, for all their promise, could be eclipsed by a better technology or beaten by a company in a nation with a more aggressive energy policy, that it could all fade into a costly sunset.

No one knew this better than Deshpande, who more than once had tasted bitter defeat. But he also knew something else about Chiang and Fulop and the leadership team that had assembled around them, some immigrant, some not. He knew that if they fell, they would get up. If they hit a brick wall, they would find a way around it. If they did not succeed the first time, they would try, try again.

He knew that Chiang would never again be just a lab researcher, not after having launched one of the hottest companies in New England. There was no stopping Fulop from diving head-first into the next audacious idea. All three men belonged to the same exhilarating phenomenon. They belonged to the force driving the new, knowledge-based, global economy.

They were entrepreneurs, but more than that, they were immigrant entrepreneurs—the most remarkable business people of the era.

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The personalities behind A123Systems belong to a culture that took root in America with the easing of immigration restrictions in 1965, changes that allowed for a surge of immigrants from non-European nations—many of them highly skilled. This culture fell comfortably into the detail work of advanced technology and

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restlessly asserted itself in the Internet age. Its members founded Intel, Sun Microsystems, Cirrus Logic, Yahoo, Hotmail, Google, and other marquee companies of the dot-com era.

By early 2009, in the midst of an economic downturn so severe some called it the Great Recession, that immigrant culture stood poised to help create the next wave of innovation—the clean technology that would drive an emerging green economy.

The dreamers at A123 are far from alone. From university laboratories to urban neighborhoods, from high-tech to bio-tech companies, immigrants are playing dominant roles as innovators and job creators. They created more than half the companies to rise in California's Silicon Valley, the heart of the high-technology industry, between 1995 and 2005. Across America, fully one quarter of all new engineering and technology companies created during that span had an immigrant founder.

Researchers have long known that immigrants are more likely to start a business, to strive to be their own boss. But recent studies reveal an astonishing rate of entrepreneurship. America's immigrants are far more likely than non-immigrants to launch a company. They are over-represented as leaders in not only high technology but also in the arts, transportation, and the hospitality industries. They exhibit a knack for innovation and invention that is placing American companies at the cutting edge of their industries. A college-educated immigrant today is twice as likely to obtain a U.S. patent as a college-educated nonimmigrant. What's going on?

"First of all, you believe in the American dream thing," said Fulop, in a rare moment of calm. "You get here and you say, 'OK, I have to make something happen.'"

Historians have long cited immigrants as one of the nation's uncommon strengths, typically noting the people who dug canals or poured steel or opened corner stores and pizzerias. The positive impact of those hard-working immigrants is still being felt. However, a new, more remarkable immigrant has emerged, one uniquely positioned to excel in a fast-changing, global economy driven by innovation.

The young men and women who fly to the United States today with two suitcases and a coveted visa are a self-selected group of dreamers, often well schooled in math and science. They are people courageous enough to leave home and resilient enough to endure the hardships of starting over in a new culture. Often, they are frustrated by the controlled economies and rigid cultures of their native lands.

They fall into capitalist America like seeds into the good earth. And they bloom here, hatching ideas and launching companies at a pace never seen before.

These new immigrants are exhibiting something very old and very American, a can-do spirit borne of the immigrant experience. Once again, immigrants are America's competitive edge, but not as wage workers. Like the immigrant trio charging a mighty new battery, they are the innovators who will create the companies and the jobs of the future—if we let them.