

# THE ACCIDENTAL ENTREPRENEUR

Passionate about helping businesses and organizations solve highly complex business problems by building simulation models, **George Danner** lives the dream at **Business Laboratory**.

» SPECIAL TO NSIDE  
» Photography: JUSTIN CALHOUN

**G**EOERGE DANNER never considered becoming an entrepreneur. But he found himself on a new career path when his employer, Arthur Andersen Business Consulting, was shut down in 2002. A self-proclaimed nerd, Danner has founded two companies since then and doesn't see himself running anyone's business but his own.

Danner is the founder of Business Laboratory, which performs scientific simulations and model-based analyses for mid-size and large businesses and government agencies. He has helped more than 40 organizations around the world, including oilfield operators, national retailers and air carriers, with forecasting, optimization, business strategy and other complex business problems to achieve operational efficiency and maximize the bottom line while promoting innovation and productivity.

Business Laboratory solves problems such as IT optimization, retail store location, supply chain analysis, product development, sales forecasting and even counter-terrorism. His impressive client roster includes large corporations, gov-

ernment agencies and nonprofit organizations such as BP, Sun Microsystems, Schlumberger, Target Stores, the Laura and John Arnold Foundation, AstraZeneca, National Grid (U.K.) and the U.S. Navy.

Danner is passionate about math and science, and he advocates businesses and organizations thinking like scientists and using real data to deal with the complexity of the modern business environment. While many companies capture vital information, they do not utilize it. Companies often make the mistake of trying to predict the future and adapt their strategy based on those predictions. Because so many variables and unknown factors exist, it is difficult to accurately forecast the future.

Instead, it is possible to run computer simulations for hundreds or even thousands of scenarios, each one based on different assumptions about what the future may hold. This allows companies to develop a robust strategy that will work for many of the plausible futures.

"We chose the name, Business Laboratory, because a laboratory is a place to experiment and share ideas and

**"AT BUSINESS LABORATORY, WE EXPERIMENT WITH BUSINESS MANAGEMENT CONCEPTS AND PRINCIPLES TO PROMOTE INNOVATION AND PRODUCTIVITY."**



A man in a dark suit and light-colored shirt is looking out of a window with horizontal blinds. The blinds are partially open, and the man's face is visible through the slats. The window is set in a dark grey or blue wall. To the right of the window, there is a large, dark, leafy tree. In the background, a street scene is visible with a motorcycle parked on the sidewalk, a white car, and a yellow building.

**DANNER WORKS ON PROJECTS  
RELATED TO** POLITICS, CRIMINAL  
JUSTICE, FINANCIAL SERVICES,  
RETAIL AND HEALTH CARE.





that is exactly what we do: experiment with business management concepts and principles to promote innovation and productivity," Danner explains. "If a business model is not well understood, simulation allows companies to safely change the parameters and see how the business behaves under a variety of situations. With this experience, they can move to optimization – getting the greatest possible reward for the least possible cost."

Danner caught the science bug early on while watching the first moon landing as a child. He graduated from Texas A&M University with a degree in mechanical engineering and spent the next decade working on automation and process control software for a number of companies. While he enjoyed the work, he missed seeing the "big picture." That inquisitiveness pushed Danner to pursue a career in corporate strategy and decision-making. He sold most of his belongings and moved to Boston to study system dynamics and game theory at the renowned Sloan School of Business at the Massachusetts Institute of Technology (MIT).

"I always felt there was something about the business strategy behind a company itself and the complex layers of decisions that led to its creation and operations," Danner says. "My time at MIT enabled me to think deeply and quantitatively about business problems and gave me a whole new analytical approach to strategy that allowed me to see things I had not noticed before."

With his new skill set, Danner joined Arthur Andersen Business Consulting, where he spent five years using simulation models as a means to jointly solve problems with clients. "I had a front-row seat on very complex and unusual problems with some of the world's best-run companies," he says. "It was the most gratifying work I had ever done, and I was devastated when the firm was shut down. I took a hard look at myself at the ripe old age of 40 and asked myself one simple question: What am I passionate about?"

The answer was easy: building simulation models and using them to solve highly complex business problems. Danner was uncertain if there was a market for him to operate as a sole practitioner, though. He was convinced he would go broke within six months, but he decided to pursue his passion. He named his first company Industrial Science to reflect that his methods were derived from science and then applied to industrial work. With his low expectations, Danner was delighted when the first client walked in the door. A few months later, another client came along. Then another. Pretty soon, the business was in fulltime mode and turning a profit.

"One of my very first clients was a gentleman who ran a marine transportation business," Danner says. "He needed a simulation model to optimize the number of vessels in a fleet for a particular oil company customer. He wisely engaged a gain-sharing arrangement with his customer, so he participated in the savings as vessels were removed from the system. I believe we cut the number of ships nearly in half by

analyzing the routes and crafting a more efficient system. The model was a huge success, and I went on to build six more models for them in the next five years."

Industrial Science went on to optimize supply chains for BP; model IT systems for Ford Motor Co.; and streamline operations for Shell Chemical. The company was so successful that Danner was approached five years later by a software company with an offer he couldn't refuse. He sold the business and remained for another two years to guide the firm before realizing he missed running his own company. So

an organization daring to throw out the old rules for managing [baseball] teams and discovering new ones to build a successful franchise through data and analytics. A few months after the movie came out, we started receiving phone calls from clients interested in creating their own 'Moneyball' story. Who would have thought that a movie could spark interest in a particular business strategy?"

Danner supports using outside experts to build business models. Too often, subject matter experts carry industry baggage with them, losing the "naive

**DANNER ADVOCATES BUSINESSES AND ORGANIZATIONS THINKING LIKE SCIENTISTS AND USING REAL DATA TO DEAL WITH THE COMPLEXITY OF THE MODERN BUSINESS ENVIRONMENT.**

he founded Business Laboratory in 2009.

The new company still uses scientific simulation and advanced forecasting to solve business strategy problems, achieve operational efficiency and maximize the bottom line. It also places high value on visualization, especially when building a model to address problems that are less physical and tangible to allow clients clearly "see" and understand complex relationships, parameters and behaviors.

"Models are not mechanisms that make decisions, but the means to leverage human thinking," Danner says. "Therefore, people should be 'in the loop' for any important strategic decisions to be made, and visualization helps tremendously to clearly show complex issues to non-technical, non-mathematical audiences, which make up the majority of business professionals and executives."

Danner is excited about the rapid changes in computer technology, making simulation and optimization accessible to smaller businesses and nonprofit organizations. He believes any industry, any company and any organization where complexity exists can be modeled and benefit from resulting optimization.

Computing power is getting better and cheaper, which means simulations can run faster and more scenarios can be considered. Simulations shifted from being conducted by small research communities to widespread collaborative exercises performed worldwide, and Danner works on projects related to politics, criminal justice, financial services, retail and health care.

In 2011, Danner noticed an increase in prospects approaching him about simulation and was surprised to learn he owed this sudden increase in demand to the movie, "Moneyball."

"I never saw that one coming!" he says. "I had read the book and loved it. It told an important story about

questions" and important discussions they stimulate. Instead, he recommends selecting someone who has never set foot in a given industry, but is experienced in many other industries that have mastered important problems and thinks in "systems" that transcend company or industry.

"True business models are not packaged software applications – they are bespoke to the industry and the problem at hand," he says. "Too many times, companies and their IT departments try to break analytics down into some software solution that can be bought (and worse yet, standardized upon across the company). This is a horrible practice, and misses the point entirely."

Danner calls himself an accidental entrepreneur and says he has made every mistake that can be made in business. With his analytical nature, he took the time to document his mistakes, to think them through and to build upon lessons learned. He is now working on a book – a compilation of all the mistakes he's made and the fun his team had making them.

"It's an important piece of work and a story that needs to be told – a how-to guide for practitioners," he says. "I hope my legacy is that I've inspired a few young people to take up the banner of analytics and work to make our organizations around the world better by using science as a prism through which business problems are viewed. I'm looking forward to hearing the stories of their journeys."

For more information on George Danner and Business Laboratory, please go to [www.business-laboratory.com](http://www.business-laboratory.com).