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The Fabric of Creativity

By Alan Deutschman

When Fast Company set out to find the most innovative company in America, we wanted to rely on objective measurements, but that proved daunting. How can you qualify something as intangible as innovation? You can count up patents and discover that IBM is the leader, with a record 3,415 awarded in 2003. But patents have come to mean a lot less than they used to. The most creative companies of the Internet era – Amazon, Google, Yahoo, eBay – have only a few patents apiece. You can look at who spends the most on R&D, but a torrent of cash hardly guarantees breakthrough innovation. Over the past decade, Microsoft has poured \$5 billion or more a year into research, but its vast expenditures still haven't yielded the next big think (see page 68).

So we gave up on crunching numbers and focused on other criteria. For starters, we looked for a company with a long history of innovation. We needed proof of sustained inventiveness through multiple waves of technological and economic change. That knocked out Amazon, Google, and the other Silicon Valley startups. We also wanted a company that is as adept at product innovation as it is incredibly efficient – but not at bringing original and inspiring offerings to consumers. Apple, on the other hand, keeps coming out with dazzling new technologies, but count it out for the process: The company relies too much on the inscrutable instincts of one man. What if Steve Jobs wasn't there anymore? It's a possibility that investors contemplated recently when Jobs underwent emergency surgery for pancreatic cancer. We wanted a company where innovation is resilient and doesn't depend on the ingenuity of a single individual or even a small cadre of geniuses. That led us to a few big operations that have hatched countless new products over the decades – justly famous names such as 3M and General Electric

But then we found an outfit that does it all, without the overwhelming size and awesome resources of a GE. In other words, a company that proves that brains beat brawn. Pound for pound, the most innovative company in America is W.L. Gore & Associates.

You've no doubt heard of its most famous product: Gore-Tex fabrics, which have a transparent plastic coating that makes them waterproof and windproof but keeps them breakable. Gore is big – with \$1.58 billion in annual revenues and 6,300 employees – but not gargantuan like 3M or IBM. Still, Gore makes so many products that the total is hard to pin down – with all the variations, the count rises above 1,000 Gore's medical products, such as heart patches and synthetic blood vessels, have been implanted in more than 7.5 million patients. Its cutting-edge fabrics are worn by astronauts and soldiers, as well as trekkers at the North and South Poles and on the world's highest mountains. It makes the number-one products in industrial and electronics niches ranging from filters for reducing air pollution at large factories to the assemblies for fuel cells that convert hydrogen to electricity. Gore, a privately owned company, doesn't release its annual financial data,

but a spokesperson says that the company has had “double digit” revenue growth for the past couple of years. In the many business, Gore has come out of nowhere and seized the market lead, as did with its smooth Glide dental floss, the floss that resisted shredding, and its Elixir guitar strings, which last three to five times longer than normal strings. When Gore’s people think they can create a much better product, they’re fearless about attacking new markets.

Gore is a strikingly contradictory company: a place where nerds can be mavericks; a place that’s impatient with the standard way of working, but more than patient with nurturing ideas and giving them time to flourish: a place that’s humble in its origins, yet ravenous for breakthrough idea and, ultimately, growth. Gore’s uniqueness comes from being as innovative in its operating principles as it is in its diverse product lines. This is a company that has kicked over the rules that most other organizations live by. It is tucked away in the mid-Atlantic countryside, 3,000 miles from Silicon Valley and even further (in its mind-set) from Wall Street. And in its quietly revolutionary way, it is doing something almost magical: fostering ongoing, consistent, breakthrough creativity.

Epiphany in the Car Pool

What really distinguishes Gore is its culture, which goes back to 1958, when Wilbert (“Bill”) L. Gore left DuPont, where he had worked as an engineer for 17 years, and launched his startup. Bill liked to say that “communication really happens in the car pool.” At a launched company, the car pool is the only place where people talk to one another freely without regard for the chain of command. He also observed that when there’s a crisis, a company creates a task force and throws out the rules. That’s when organizations take risks and make big breakthroughs. Why, he wondered should you have to wait for a crisis?

So Bill Gore threw out the rules. He created a place with hardly any hierarchy and few ranks and titles. He insisted on direct, one-on-one communication: anyone in the company could speak to anyone else. In essence, he organized the company as though it were a bunch of small task forces. To promote this idea, he limited the size of teams – keeping even the manufacturing facilities to 150 to 200 people at most. That’s small enough so that people can get to know one another and what everyone is working on, and who has the skills and knowledge they might tap to get something accomplished – whether it’s creating an innovative product or handling the everyday challenges of running a business.

Gore doesn’t have an impressive campus the proclaims the company’s success. It consists of several dozen bland, low-rise buildings scattered near the Delaware-Maryland border. They’re separated far enough from one another so that each can house a small, autonomous team. Often, the buildings are set back from country roads. You can drive by and think you’re passing farmland rather than corporate sites.

What goes on inside those nondescript buildings is hard to understand unless you’ve actually worked there for at least a year or two. Consider the case of Diane Davidson, whom the company hired to work on Citywear, an effort that has persuaded designers such as Prada, Hugo Boss, and Polo to use Gore- Tex fabrics in clothing that people can wear to the office or out to a party. Nothing in Davidson’s 15 years of experience as a sales executive in the apparel industry, including a stint at Bostonian, prepared her for life in a place where there are no bosses and no clear-cut roles.

“I came from a very traditional male-dominated business – the men’s shoe business, “she recalls “When I arrived at Gore, I didn’t know who did what. I wondered how anything got done here. It

was driving me crazy.” Like all new hires, Davidson was given a “starting sponsor” at Gore – a mentor, not a boss. But she didn’t know how to work without someone telling her what to do.

“Who’s my boss?” she kept asking

“Stop using the B-word,” her sponsor replied.

As an experienced executive, Davidson assumed that Gore’s talk was typical corporate euphemism rather than real practice.

“Secretly, there are bosses, right?” She asked.

There weren’t. She eventually figured out that “your team is your boss, because you don’t want to let them down. Everyone’s your boss, and no one’s your boss.”

What’s more, Davidson saw that people didn’t fit into standard job descriptions. They had all made different sets of “commitments” to their team, often combining roles that remained segregated in different fiefdoms at conventional companies, such as sales, marketing, and product design. It took a long time to get to know people and what they did – and for them to get to know her and trust her with responsibilities. Eventually, Davidson went on to oversee the sales force and product development for Citywear. She describes herself as a “category champion.” She’s involved in marketing, sales, and sponsorship – a good example of how Gore’s associates create roles that aren’t easily defined by traditional corporate departments.

Her experience is commonplace. “You join a team and you’re an idiot,” says John Morgan, who has switched into new teams five times over a 20-year tenure. “It takes 18 months to build credibility. Early on, it’s really frustrating. In hindsight, it makes sense. As a sponsor, I tell new hires, ‘Your job for the first six months is to get to know the team,’ but they have trouble believing it – and not contributing when other people are.”

Leaders Are Talent Magnets

Gore’s knack for innovation doesn’t come from throwing money or bodies at a challenge, or from building a great ivory tower of an R&D lab. It springs from a culture where people feel free to pursue on their own, communicate with one another, and collaborate out of self-motivation rather than a sense of duty. Gore enshrines the idea of “natural leadership.” Leaders aren’t designated from on high. People become leaders by actually leading, and if you want to be a leader there, you have to recruit followers. Since there’s no chain of command, no one has to follow. In a sense, you become a talent magnet: you attract other talented people who want to work with you. You draw them with your passion for what you’re working on and the credibility that you’ve built over time.

“Natural leadership” is how Gore, which has no experience whatsoever in the music business, wound up inventing Elixir, the top-selling acoustic guitar string and a big advance in a field that had gone three decades without a technological breakthrough. Elixir came out of an unlikely place: one of Gore’s medical-product plants in Flagstaff, Arizona. Dave Myers was an engineer there who helped invent new kinds of plastic heart implants. Gore encourages its associates to spend some of their time – typically around 10% -- on speculative new ideas. As a side project, Myers was

working on his mountain bike, trying to make the gears shift more smoothly. He coated the gear cables with a thin layer of plastic, much like Gore-Tex. His tinkering resulted in Gore's Ride-On line of bike cables. That success inspired Myers to try to improve the cables used for controlling the movements of oversized animated puppets at places such as Disney World and Chuck E. Cheese's. He needed cables that had small diameters, so he tried taking guitar strings and coating them with a similar plastic. His eureka moment came in 1993, when he asked himself: "Gosh, would this make a good guitar string?" He had an instinct that the coating would make guitar strings feel less brittle.

Myers wasn't a guitarist himself, so he sought out help from a colleague who was: Chuck Hebestreit, an engineer who knew firsthand the frustrations that musicians have with the instrument. The natural oils on their fingers, which carry particles of dust and skin, contaminate the strings when they get into the minuscule nooks between the tightly wound wire coils. The accumulation of this tiny debris dampens the sound of the vibrating string and makes it maddeningly unpredictable. And metal corrodes over time, just from exposure to the air. So the strings have short, unpredictable lives.

The pair experimented for two years without success. Then another colleague at the Flagstaff plant, John Spencer, heard about their project. Spencer has recently finished working on Gore's launch of Glide, which two years ago racked up \$45 million in sales. He sensed there was a chance to create as big an advance in guitar strings as they had made in dental floss. He joined the guitar effort, contributing in his spare time even as he worked on his main "commitment," which was more prosaic: to help develop an inventory-management system for doctors and hospitals.

Gore puts its R&D technologists and its salespeople in the same building as its production workers, so the entire team can work together and roles can blend. The trio in Flagstaff persuaded a half-dozen colleagues to help with improving the strings. They all did it in their spare time. Finally, after three years of working entirely out of their own motivation – three years without asking for anyone's permission for being subjected to any kind of oversight – the team sought out the official support of the larger company, which they needed to actually take the product to market.

Breakthrough Ideas Need Breakout Marketing

Beginning in 1958, Bill Gore tried to create the ideal environment for a guy like himself – a geeky buttoned-down engineer. The place still seems like nerd heaven, and it's more than a little retro. After all, these are the wonks who took the advice that Dustin Hoffman's character rejected in *The Graduate* – they got into plastics in a very big way. Longtime associates say Gore feels like a university as much as a corporation. And Gore's strategy still depends on its engineering prowess: The company insists that its new ideas have to be "unique and valuable" – dramatic improvements, not me-too products. But since the 1980s, the company has learned that superior technology often isn't enough. You also need breakthrough marketing to push past entrenched but inferior market leaders.

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Gore's first marketing coup came with Gore-Tex. For Gore, which in essence is a component manufacturer, the challenge was to find a way to outflank the middlemen and talk directly to potential consumers – the people who buy clothing in retail stores. Gore simply sold the laminated

Fabrics to apparel manufacturers, which in turn relied on retailers. The solution: Gore created tags for the final garments that said “Gore-Tex: Guaranteed to Keep You Dry.” This pathbreaking idea was later copied in the 1990s by Intel, with its “Intel Inside” ad campaign and its conspicuous stickers on personal computers.

Since then, Gore has repeatedly broken through resistance from hidebound industries. For 20 years, it kept trying to interest consumer-products manufacturers in its technology for creating a better dental floss, but the industry resisted. In the early 1990s, Gore took Glide to market itself and build a following by giving out free samples to dentists and hygienists, who spread their enthusiasm to their patients. It was an early example of viral marketing – Gore’s decision to give away lots of Glide floss predates Netscape’s move to give away its browser. Gore followed the same tactic with Elixir guitar strings, which retailed for \$15 apiece, three to five times as much as other strings. The products was so expensive that merchants refused to carry it. But the Gore people figured that consumers would demand it when they realized how much better it sounded. They gave away 20,000 samples in the first year, sending the products to the subscriber lists of guitar magazines. The strategy worked brilliantly – with a 35% share, Elixir now leads the market for acoustic guitar strings.

Innovation for the Long Run

Gore’s humanistic culture is the legacy of Bill Gore, who died in 1986. If you were asked to list the great visionaries of American business in the 20th century, other names would be more famous, but Wilbert L. Gore surely deserves to be on the roster. He’s the closest thing thing to an East Coast version of David Packard and William Hewlett, both for his company’s far-ranging engineering acumen and its reputation as an uncommonly benign place to work.

Colleagues describe Bill as quiet, humble, and completely approachable. His company has always been private, which helps to keep it out of the news. His wealth was considerable but inconspicuous. He never moved from the house where he started the company along with his wife, Genevieve, and their son, Bob, who at the time was a sophomore at the nearby University of Delaware. Even though Bill has been an engineer at Dupont, it was young Bob’s experiments in the chemical lab that produced the startup’s first product: a plastic coating for insulating electrical cables (foreshadowing Dave Myers’s work decades later). Bill and “Vieve” raised seed capital from their bridge club. Their early employees slept in the basement and set up a production line in the backyard, often raiding Vieve’s kitchen for cooking equipment they could adapt for manufacturing. They used an eggbeater to coil the cables. Early customers were surprised to find blades of grass mixed in with the cables they bought.

Four-six years later, Vieve still lives in that same house, which is down a nature path from the office where the company moved in the 1960s and which is still used as its headquarters. When Bob took over as CEO in the 1980s he still drove a 1955 station wagon. His associates say that they would be embarrassed to pull up to one of the company’s parking lots in a fancier car. Joe Rowan, who works in medical products at Gore, says he once used frequent-flier miles to upgrade to business class on a flight, only to look back to the economy-class section and see Vieve Gore sitting there with a member of the company’s board of directors. Colleagues say that success never went to the heads of any of the Gores, and the family’s values are still strong in Bob’s children, the third generation to work for the company.

The Gore organization isn’t as fanatically flat as some idealized accounts have made it out to be.

There is indeed a president and CEO, Chuck Carroll, a quiet man who succeeded Bob four years ago. And the company necessarily has some structure. The four divisions (fabrics, medical, industrial, and electronic products) each have a recognized “leader,” as do certain companywide support functions (human resources, information technology) and specific business units. But there is no codified set of ranks and positions as there is in the typical corporation. As a Gore “associate,” you’re supposed to morph your role over time to match your skills. You’re not expected to fit into some preconceived box or standardized organizational niche. Your compensation is tied to your “contribution” and decided by a committee, much the way it’s done in law firms. The company looks at your past and present performance as well as your future prospects. Gore encourages risk taking. When Gore people pull the plug on a failing initiative, they’ll still have a “celebration” with beer or champagne, just as they would if it had been a success.

“We were a lot more radical compared to the norm in 1958,” says Brad Jones, who leads the industrial-products division. “The gap between Gore and other companies has narrowed. But we’re still different. Companies may have fewer layers today, but they still pyramids and reporting structures. You can still feel the difference in an organization when the only person speaking in a meeting is the top person. It’s easier to compare us to a startup company.”

Even though Gore is private, it rewards its associates with stock, just as if it were a real startup. Everyone who has worked there for at least one year receives the equivalent of 15% of their salary in the form of stock in the private company, which they can cash out if they leave after they’re fully vested (independent consultants determine the stock’s value). The stock’s appreciation – its incentive value – depends on the company’s ability to continue growing at a rapid pace. That might make it harder to count on ideas that develop from small, ad hoc teams the way that Elixir did.” As you get to be a bigger and bigger company, it’s hard to rely on one-person ideas,” says Mongan, who’s leading an effort to develop fuel cells to power cars.” Twenty years ago, a \$10 million business was exciting. Now we need bigger ideas and bigger markets to keep us going.” Fuel cells are a good example: It’s a huge long-term opportunity, and already Gore is working with General Motors. It’s not a spare time side projects the way that Elixir was.

“Gore has immense patience about the time it takes to get it right and get it to market.”

Gore’s patient, private ownership has allowed it to sustain innovation over the years. Without the pressures of reporting quarterly results, the company can comfortably take many years to bring a new product from invention to profitability. “Gore has immense patience about the time it takes to get it right and get it to market,” says Bob Doak, who leads a Gore plant in Dundee, Scotland. “If there’s a glimmer of hope, you’re encouraged to keep a project going and see if it could become a big thing.”

But a \$1.6 billion company can’t run on hope. Gore next big challenge is to keep up its double-digit growth rate even as it gets bigger. That means venturing into hazards of the greater world, where Gore might find it difficult to safeguard its unusual culture. It means teaming up with giants like GM, the quintessential hierarchical organization. It means expanding overseas to tap new markets and new sources of talent. While the Gore culture is progressive for U.S. business it’s radical almost everywhere else. “Europeans generally like hierarchies, job specs and knowing who the boss is,” says Doak. He has a career in the British government before joining Gore. Recently, he met with a member of Parliament who asked, “How are you getting along at Gore? Is it still the Moonies?”

Gore isn't a cult. But its culture is much like Gore-Tex, its most famous product. As Gore grows from nearly 7,000 employees to 14,000 and then 21,000, it must continue to invent ways to protect its people from the harsh outside elements, even as it lets their big and creative ideas breathe – and prosper.

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