



CORNING

Everything Old is New Again

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For the past few years in the communications industry, Contemporary has been King. However, in today's market, where every day may seem unpredictable, smart companies are breathing new life into the classics that never went away -- quality, integrity and excellence.

"I believe passionately that the companies dedicated to quality, to performance, to integrity, to their people and to their other values are the only companies that will survive in this increasingly complex business world." James R. Houghton, chairman and CEO, Corning Incorporated, Feb. 7, 2003

Analysts have heralded a "flight to quality" throughout a depressed global economy, and particularly in the communications industry. The flight to quality -- that tendency, during times of economic upheaval and uncertainty, of customers to turn to companies they recognize as solid and enduring. Where new can become a bit of a dirty word and stability has a suddenly provocative allure.

It's not without logic. With an alarming number of bankruptcies and a smattering of scandals rocking customer and investor faith, and capital investment freezing then contracting, the market is finding comfort in its most venerable institutions.

The basic drivers of telecommunications have not changed, though they get less attention than they've been used to. Bandwidth demand continues to grow, infrastructure drives inevitably closer to the end user, and optical technology remains the transcendent solution. However, what *is* notable is that the most important fundamentals of telecommunications, the foundation it was born to and has grown upon -- the values of quality, integrity and excellence -- are making headlines again. And the companies who are surviving the downturn are the ones who not only didn't forget the basics, but also are reinvigorating them for a new era.

Suddenly, everything old is new again.

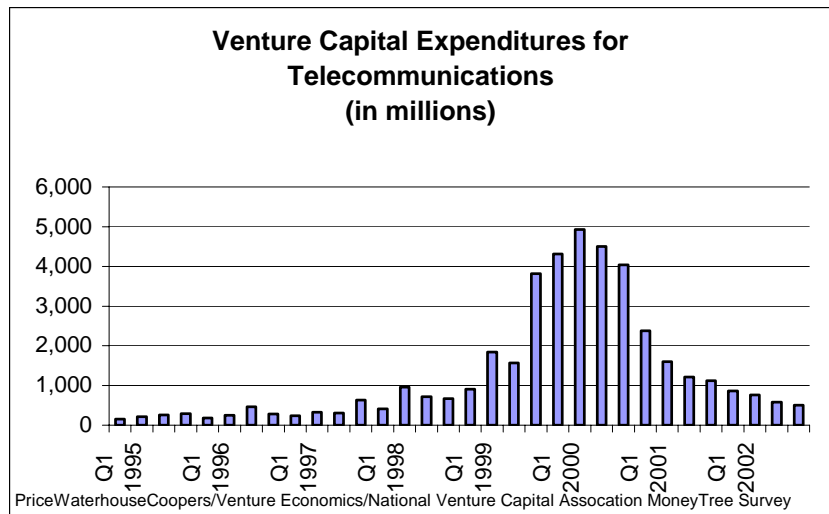
The Way We Were

In hindsight, the industry has looked back at those breathless years at the turn of the millennium and defined it as a "bubble," which can sound deceptively innocuous

considering the impact upon its bursting. During those heady days, there seemed no stop to the deluge of growth, and largesse of capital turned a steady drumbeat of innovation into a frenzied staccato. If it was new, it almost certainly captivated investors and captured headlines.

"The industry got caught in a serious trap called 'straight-line thinking'," says Jamie Houghton, Corning's chairman and chief executive officer, who has been part of Corning for four decades. "Everyone was on the up ramp and it looked as though it would go on forever."

One example of this phenomenon can be seen in venture capital, which had experienced only modest and fairly flat investment for years. In the years of the bubble, venture capital investments in telecommunications spiked drastically during "the bubble years," then fell just as dramatically after a heady two years.



But C. David Chaffee, editor of the noted telecom daily fibertoday.com with decades of his own experience in the industry, told *GuideLines Online* that even during the industry rush, the ground rules had already been established years before by companies like Corning. And therefore, regardless of the sometimes-frenetic activity, quality and performance were never off the radar.

"It's interesting. Even when there were billions of dollars pouring into our industry, the vast majority of the credible ideas had already been put in place by bedrock companies like Corning," Chaffee says. "Don't forget that Corning was the first to make a commercial grade optical fiber. You can't put a price on that type of experience. There are things you learn from these experiences that you can build on and grow from that otherwise are simply missing. The mistake quotient for products these days based on that know-how is generally zero."

Innovation: New Will Always Have A Place

This is not to say that "new" has ceased being an elemental aspect of the communications industry. Regardless of the market environment, innovation will always drive the value of communications, as long as the advancements -- either through

revolutionary technologies or evolutionary ones -- can realize genuine value for the customer.

Corning ensures that innovation is driven by true value to the customer with its five-stage Innovation Process, a system unique to Corning that provides a framework of processes, operating behaviors and analysis for turning ideas into commercial reality. A notable aspect of this process is its continual linkage to customers, from idea generation to prototype evaluation, testing to deployment. At Corning, long before an optical fiber design makes it to market, its value to the end user has been clearly defined and confirmed.

Consider the phenomenon of Corning's LEAF[®] fiber, introduced to a fairly tepid market in early 1998 that had only recently moved away from standard single-mode fiber for long-haul and regional applications, and seemed content with standard non-zero dispersion-shifted fibers (NZ-DSFs). But Corning scientists had discovered something crucial that would transfigure the value propositions of long-haul operators' networks -- it was possible to increase the size of the NZ-DSFs effective area, 30 percent larger than the NZ-DSFs being offered by other fiber suppliers. The result was improved power-handling capability, capacity and distance between amplifiers. And that translated into significant cost savings for the customer.

LEAF fiber went on to become the best-selling product in Corning's history and can be found deployed on six of the world's seven continents. In fact, so much LEAF fiber has been installed since 1998 that the total of it could stretch to the moon and back dozens of times.

That same year, Corning similarly revolutionized the shortest distance market -- the premises market -- with the introduction of InfiniCor[®] optical fibers, the first laser-optimized[™] multimode fibers. This new technology allowed premises network operators to effectively use lower-cost lasers rather than the light-emitting diodes (LEDs) currently in use, achieving high-bandwidth performance at significantly lower costs. Corning did it again with its Vascade[™] line of submarine optical fibers less than two years later. There will always be a place for a product that makes customers more successful, particularly when innovation comes from a trusted leader in fiber optics.

This truth is also a critical part of the fiber-optic heritage. "Innovation has taken us from one channel per optical fiber operating at 90 million pulses per second to dozens of channels flowing through one optical fiber with each operating at 10 billion pulses per second," says Chaffee. "It has brought us from a little-known laboratory phenomenon . . . to a highly sophisticated medium that now serves as the go-to source for long-haul and increasingly metro telecommunications and data communications. It will eventually lead us to the wholesale replacement of the electron by the photon for communications and information."

Despite the market challenges, Corning has continued to deliver value-adding products to its customers. Corning introduced its enhanced single-mode fiber, SMF-28e[™] optical

fiber, just as the market began to decline in 2001, yet its benefits to metro core, edge and access operators has made it attractive to operators even during capital-constrained times. Likewise, during the trough of 2002, Corning introduced the most advanced fibers in the InfiniCor line, InfiniCor SX+ and InfiniCor SXi fibers for 10 Gb/s premises applications.

Strong companies, however, realize that innovation is not solely the introduction of new products. Innovation is constantly evaluating, and evolving, the technologies that customers value now, lengthening the product's life and value to the customer.

Quality: A Form of Innovation

"I think it is important to keep looking to get more from quality," says Houghton. "We must always remember that quality is a journey and not a destination. It is a process for never-ending improvement."

In essence, quality is a form of innovation.

"We call quality 'performance excellence' and it has been a bedrock of our company's values," continues Houghton, who was instrumental in instituting a formal quality management program during his first tenure as Corning chairman in 1983. "Corning has been involved in Total Quality Management since 1983. It is an important force in this company and we believe much of our business success since 1983 can be attributed to this initiative."

Corning and its Optical Fiber business have a time-honored history of total quality. In 1995, Corning Optical Fiber became the only optical fiber manufacturer to receive the prestigious Malcolm Baldrige National Quality Award. Additionally, Corning has continually met or exceeded industry standards, including ISO 9001 and TL 9000 registration, and participates in international and national industry standards organizations, including the International Standards Organization (ISO), the International Telecommunications Union (ITU), the International Electrotechnical Commission (IEC), the Institute of Electrical and Electronics Engineers (IEEE) and the American National Standards Institute (ANSI).

This firm commitment to quality, along with rigorous processes to ensure it, has made Corning Optical Fiber the standard setter for product excellence. Corning optical fibers are known for their handleability, ease of splicing and durability over time -- all of which can reduce installation and repair costs for network operators, adding long-term value. A great deal of credit for this can be given to Corning's fiber manufacturing process, including the Quality Architecture system that rigidly controls production of the fiber using precisely calibrated computers to ensure that consistency -- the most tangible form of quality in an optical fiber -- is built into each layer of the fiber. [More information on Corning's manufacturing process can be found in the feature article "China's network operators feel the pain of counterfeit goods" in this issue of GuideLines® Online.]

Corning Optical Fiber builds its Quality Architecture into each step of product development and manufacturing, ensuring an interdependence between product specifications, raw materials, testing and measurement, production process control and information technology systems. It is this interlocking and mutually dependent architecture to oversee manufacturing, and that assurance of consistency throughout the manufacturing process, that makes Corning confident that the fibers it supplies are world class.

"When we talk about quality, we frame it up as doing it right, the first time, every time," says Barry Linchuck, director of global product line management for Corning Optical Fiber. "That's the level of quality we aim for, because we won't settle for less, and we wouldn't ask our customers to settle for it either."

And in the light of quality as innovation, Corning Optical Fiber regularly evolves the optical fibers in its portfolio to ensure world-class specifications and the long-term value that goes with them. LEAF fiber has had periodic improvements since its introduction in 1998 and is in its fourth generation today. SMF-28[®] optical fiber, Corning's standard single-mode fiber and the most widely deployed optical fiber in the world, is perceived by customers as the ever-constant "workhorse" optical fiber. Many are not aware that SMF-28 fiber has been improved for the customer through countless product generations since its inception in 1986.

Just last year, Corning introduced another series of optical and geometry specification improvements to LEAF, SMF-28 and SMF-28e fibers. The improvements included a 25% improvement in attenuation specifications and a 30% improvement in cladding diameter tolerance, offering additional operating and installation cost savings to customers. At Corning, quality is the project that is never really finished.

Integrity: Getting It Right

"Leadership is about personal integrity, and instinctively knowing and doing 'the right thing'," says Houghton. "It is about having enough modesty to constantly doubt, be open, and listen. It is about performance over time, not charisma. It is about responsibility, not privilege. It is a deep-seated belief in the organization's values and goals, and the ability to live them, articulate them, and push them forward with constancy over time. It is the willingness to change everything except those basic values and goals."

So what makes a company successful, particularly in a challenging market like the telecommunications industry has become? Leadership, certainly. Experience, yes, is critical, and Corning Optical Fiber, which invented the first low-loss optical fiber more than 30 years ago, has that. Quality is a must. But in an industry that has been bombarded of late by scandals and questionable business practices, perhaps the most important thing in an uncertain market is trust.

"Integrity is absolutely critical," says Chaffee," and that is where I believe many clients are attracted to Corning. The company has a reputation for doing what it says it will do. It takes its customers seriously and recognizes that their success is important to its own well being."

Linchuck notes that even during the most turbulent parts of the downturn, even when reductions in force were affecting virtually every company, Corning Optical Fiber never lost sight of the customer's requirements.

"There was no significant change in the level of service we've provided our customers since the downturn," says Linchuck. "We take a lot of pride in our relationships with our customers. We do what we say and say what we do. That's our creed, and I think our customers know that and trust it. It's another competitive advantage for Corning."

In a recent speech to Corning managers, CEO Houghton defined what integrity means to Corning and to our customers. It is both the constancy of employees' actions and beliefs, as well as the constancy of the products and services Corning sells to its customers. It is even innovation -- "the unfailing search for something better or more useful than anything else." And integrity means knowing what's right, doing what's right, and never wavering from it.

"Integrity means holding the line."

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