

## COMMUNICATIONS

**SECTOR OVERVIEW** The telecom industry has always been powered by large corporations, which traditionally spend billions on products and services. But a new study by research firm AMI-Partners suggests that it will be small and medium-size business that will lift the telecom industry out of its prolonged slump. The study found that SMBs worldwide will spend about \$340 billion on telecom products and services. That's an increase of 13 percent over 2003. Moreover, the study predicts compound growth of 7.2 percent annually over the next five years. That means startups stand a good chance of succeeding if they tailor their products not just to large corporations but to smaller businesses as well.

### CHIRAL PHOTONICS

Optical Fibers  
Clifton, New Jersey  
[www.chiralphotonics.com](http://www.chiralphotonics.com)

ICC RATING (scale 1–10)	
INNOVATION	8
CAPITALIZATION	4
MARKET OPPTY	7

**C**hiral Photonics is developing fiber lasers that it says are three times more efficient – and about one-fifth the cost – of the semiconductor lasers now widely used to power fiber-optic telecommunications networks.

The key to Chiral Photonics' approach is its discovery that, by twisting fiber-optic strands into helical shapes, it can create fibers that precisely filter, polarize and scatter light. In conventional optical fibers, light is transmitted directly from one end to the other through a round core.

But depending on how tightly they're twisted, Chiral's fibers interact with the light, trapping and scattering photons differently to produce light of different wavelengths. They can also transmit light signals of various wavelengths over the same strand of optical fiber. Such fibers could provide a boost to

wavelength-division multiplexing, a technology now being implemented to increase the bandwidth of fiber-optic networks.

Chiral's manufacturing process, though complex, can be described in fairly simple terms. A strand of optical fiber is heated in a tiny filament oven and twisted as it is pulled. The result is fibers that look something like corkscrew pasta.

Potential customers, which include large telecommunications equipment makers, are currently evaluating the technology. But Chiral is not alone in its efforts to radically improve the power of optical fibers. Lucent Technologies' Bell Labs had developed its own highly tunable optical fibers using microfluids. Meanwhile, IPG Photonics and Southampton Photonics are already in the market with specialized fibers. Chiral Photonics believes its approach provides cost and performance advantages not found in other products.

Chiral Photonics was founded in 1999 by Dan Neugroschl and Jonathan Singer. They formed the company to commercialize research conducted by Azriel Genack, a professor at City University of New York, and Victor Kopp. Genack and Kopp now serve as Chiral Photonics' CTO and director of R&D, respectively. Prior to starting the company, Neugroschl and Singer were partners at Schick Technologies.

**ANALYSIS:** Chiral Photonics received a \$2 million grant last year from the National Institute of Standards and Technology. It has raised another \$3 million from VC firm Telemark Group, angel investors and from the National Science Foundation. The company is currently in search of \$2 million more to commercialize and market its technology. Backers of the company, like Winslow Sargeant of the National Science Foundation, believe there's a host of markets in which Chiral Photonics' fibers could find applications and, ultimately, a \$1 billion market opportunity. ●

## SOFTWARE

**SECTOR OVERVIEW** Enterprise software applications have automated practically every business function within the organization. First came finance and manufacturing, followed by human resources and the supply chain. Next came sales, marketing, even procurement. And now that the low-hanging fruit is in the jar, a new generation of enterprise software companies is targeting niche areas within corporations once considered immune to automation. IE-Engine, profiled below, helps companies save money by automating their employee benefits programs.

### IE-ENGINE

Healthcare-Selection Software  
Waltham, Massachusetts  
[www.ie-engine.com](http://www.ie-engine.com)

ICC RATING (scale 1–10)	
INNOVATION	5
CAPITALIZATION	9
MARKET OPPTY	8

**S**hopping for health insurance is hard enough if you're an individual. It's orders of magnitude more complex if you're a corporation with thousands of employees in dozens of locations.

IE-Engine claims its enterprise software makes the job of buying health insurance easier and cheaper for human-

resource departments.

IE-Engine has developed an internet-based procurement engine that enables corporations to obtain competing bids from healthcare providers. The concept is not entirely new but this is the first time it has been applied to health insurance.

Typically, buying healthcare is an expensive, time-consuming process. A team of HR specialists spends days or weeks combing through contracts and analyzing bids from scores of different providers. IE-Engine's Human Resources Cost Management system, offered on a hosted basis, lets companies squeeze the most value from benefits providers.

IE-Engine officials claim their system is 50 percent more efficient than traditional healthcare-sourcing methods and that customers so far have realized savings of up to 20 percent. The software features a "procurement manager" that automates requests for information from over 400 vendors. Another key innovation includes a scoring tool based on proprietary algorithms that allows customers to compare bids in realtime.

Here's how it works. Company X first uses the IE-Engine software to complete an online questionnaire describing its