



By John Pletz

Chicago's top patent-winning inventions come in all shapes and sizes, from a mathematically engineered tennis racket to a cutting-edge bacon slicer. The companies behind them are century-old stalwarts and relative newbies alike, public and private, big and small—from Cummins Allison, which has 1,000 U.S. employees, to Isco International, which has just 50. To create this ranked list, Crain's enlisted Ocean Tomo, a Chicago merchant bank that specializes in intellectual property, which scoured U.S. Patent and Trademark Office data in search of new ideas. Ocean Tomo uses an algorithm to rate the quality of patents, based on uniqueness and the likelihood that companies will invest to develop, maintain or defend them. Read on to see who is remaking companies and changing the face of their industry.



8. Isco International

Year founded: 1989

Headquarters: Schaumburg

Number of U.S. employees: 50

Patents awarded in 2015: 25

What it does: Develops wireless communications software

Every time he sees someone playing “Pokemon Go” or streaming a video on a mobile phone, Gordon Reichard smiles.

He knows it means demand for his tiny Schaumburg company, Isco International. Never heard of it? The 50-person patent powerhouse makes software that helps wireless-phone carriers handle an avalanche of demand. Isco’s algorithms reduce interference and improve quality of the signal between a phone and cellular tower. That makes for a more efficient network that can handle more traffic.

With 25 patents in 2015, Isco ties for No. 8 on our list of most innovative companies but tops our list of companies that produce the most patents per employee.

“If you’re a carrier, there are three things you can do: add cell sites, buy more spectrum or increase the efficiency of the network,” says Reichard, the company’s CEO. “They put up more sites, but the spectrum is limited. If we can improve the efficiency of the network 5 percent a month, that’s huge.”

Isco got its start in 1989, building filters to reduce interference between devices and cellular towers, reducing the number of dropped calls and improving quality of calls. “We’re really a software company,” Reichard says.

Over time, as networks went all digital and usage skyrocketed with the introduction of web-surfing smartphones, Isco focused on improving signal quality. By bettering the quality of communications between devices and the network, the company’s software cuts down on the amount of internal data checkpoints, essentially making things faster.

“With the rapid growth in data traffic, eliminating interference is the name of the game right now in wireless,” says Jim Estes, former CEO of FDH Velocitel, a wireless-tower engineering and services firm in Northbrook and an adviser to private-equity firm Willis Stein & Partners.

Demand is only going to grow as the Internet of Things takes off. All those “things,” such as self-driving cars, are going to rely heavily on wireless networks to be connected.

It’s one reason that overall traffic is nearly doubling every year and now is measured in exabytes—that’s 1 billion gigabytes, or streaming the entire Netflix catalog 3,177 times.

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MOST PATENTS PER 100 EMPLOYEES

Company	Patents per 100 employees
Isco International	52.1
Flex Lighting	50
Vasco Data Security Systems	23.7
Elevance Renewable Sciences	20.2
Radio Flyer	18.5
Dawn Equipment	15
Geofeedia	11.7
Clover Holdings	7.2
Peerless Industries	6.8
Panduit	4.9
Trading Technologies	4.2
Mattersight	3.7
Fellowes	2.6
Methode Electronics	2.5
University of Chicago/Argonne	2.1
Midtronics	1.9
Videojet Technologies	1.8
Sram	1.7
RTC	1.6
Cummins Allison	1.6
Flexible Steel Lacing	1.5
Wilson Sporting Goods	1.4
Flexera Software	1.3
Nielsen	1.3
Provisur Technologies	1.3
Amsted Rail	1.1
Continental Automotive Systems	1
Motorola Solutions	0.9
Acco Brands	0.8
Cabot Microelectronics	0.8
Gogo	0.8
Northwestern University	0.7
Zebra Technologies	0.6