



©Image from BigStockPhoto.com

Generating Wealth Through Innovation

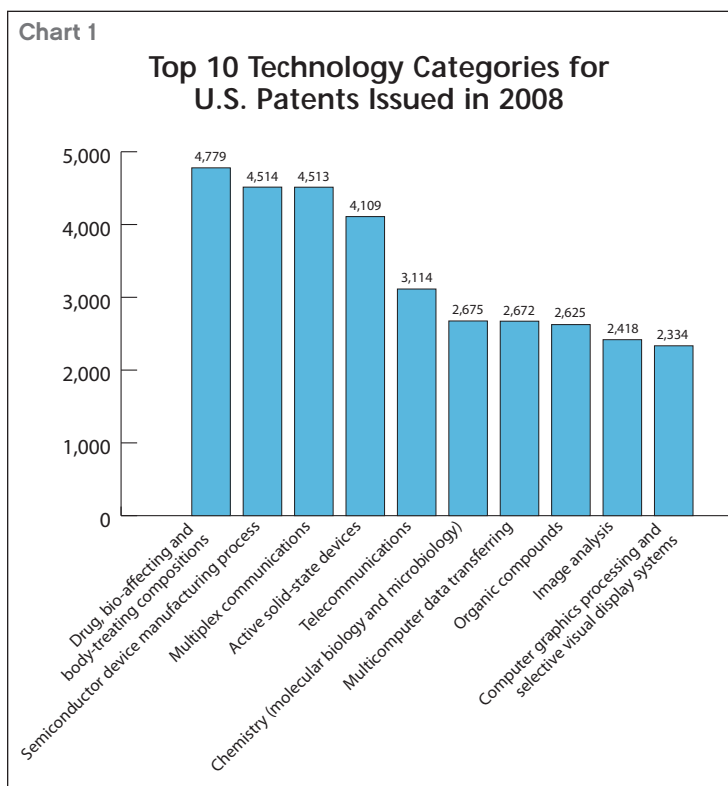
By David E. Rogers and Amy L. Hartzler

Many discussions lately have focused on the demise of manufacturing in the U.S. The country was once a manufacturing powerhouse, but much of its industry has recently moved overseas or south of the border to lower-cost countries, including China, India, and Mexico, to the point where 80 percent of its economy is now service-based. Yet, despite the loss of manufacturing jobs, the U.S. still exhibits the world's largest gross domestic product (GDP) at about \$14 trillion, according to the International Monetary Fund (IMF) and the World

Economic Database. That is three times larger than second-place Japan's GDP and four times larger than either Germany's or China's.

This raises the question of how the U.S. maintains its economic edge. One way is through innovation. Another is through protecting that innovation with legal mechanisms, particularly patents.

The U.S. grants more patents than any other country. According to the U.S. Patent and Trademark Office (USPTO), the total value of intellectual property is estimated at more than \$5 trillion, which itself exceeds



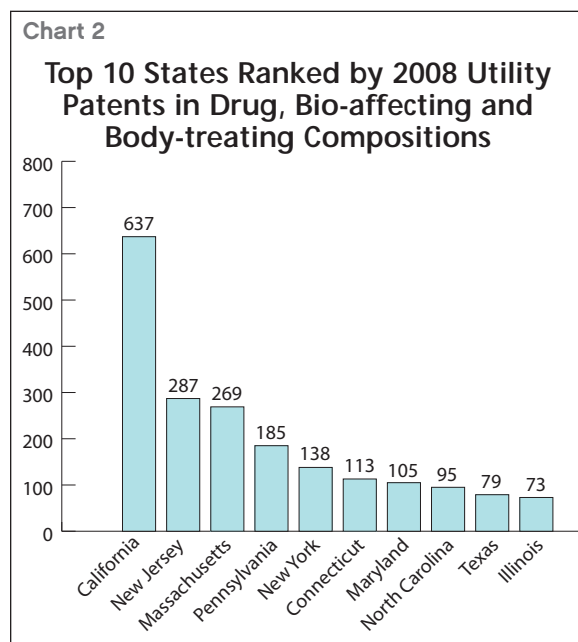
the entire GDP of any other nation. And intellectual property-based businesses and entrepreneurs drive more economic growth in the nation than any other sector does. An estimated 75 percent of the value of publicly traded U.S. companies is now in intangible assets, according to *The Economist*.

Chemical and pharmaceutical companies help lead the way. In 2008, for example, the U.S. issued about 186,000 patents, among which pharmaceuticals and chemicals represented the largest and sixth largest, respectively, of the top 10 technology categories (see Chart 1).

These statistics and others show how in many industries, including the chemical industry, companies are focusing on controlling their innovations through patents. By controlling innovation, they can control the product pipeline, from manufacturing to distribution to sales. And this control of innovation through patents is critically important for businesses that cannot realistically compete—or simply do not wish to compete—in commodity manufacturing.

Research without development

To some extent, patents can help maximize intellectual assets without extensive development work. This can prove important in tough economic times. If a company must cut back on research and development (R&D), it can still use patents to stake a claim in new market segments for exclusive future use.



A product need only be conceived for it to then be patented. It merely needs to be adequately described in the patent so others who read that patent can make and use the product without undue experimentation.

In other words, to obtain a patent, there is no need to develop a product or even a working prototype. And once the patent is obtained, its owner has the option later to develop products—or have them developed by someone else—that fall within the market segment defined by the patent. Other options include licensing or selling the patent.

So-called “patent trolls” are individuals who patent products but never manufacture or commercialize them. They are well-known for obtaining patents merely to generate profits.

Perhaps the most well-known patent troll was Jerome Lemelson, who apparently never manufactured anything. He merely extracted profits from other businesses that provided products or services falling within the scope of his patents, which covered everything from fax machines to industrial robots. In fact, more than \$1 billion has been made by licensing or selling Lemelson’s patents, according to *Forbes* magazine.

Large businesses use similar tactics by creating huge patent portfolios, with a labyrinth of overlapping and complex protections that would be extremely expensive, if not virtually impossible, to challenge. Other companies are then forced to either license such a portfolio or stay out of the market segments covered by it.

Such tactics are simply part of understanding the patent system and using it to generate profits. Chemical companies—large and small—can and should follow similar strategies.

Leaders in the field

DuPont is one example of a chemical company that relies heavily on innovation and patents. In 2008, for example, DuPont filed over 1,900 U.S. applications and was granted 495 patents. It currently has more than 6,000 active U.S. patents. A significant portion of its revenue is generated from new products.

Shell is also patent-centric, with more than 30,000 issued patents in 100 countries. Its patent application filing in 'upstream' technology has risen from approximately 35 percent to a full 50 percent of its applications. This reflects Shell's strategy to move into new and more technically complex chemical-based projects.

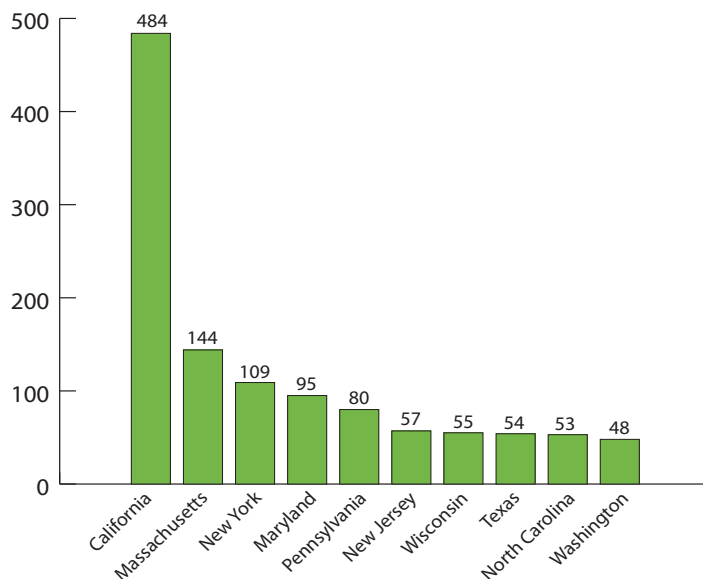
Another example is 3M. Well-known as an innovator, it spent approximately \$1.4 billion on R&D in 2008.

Large chemical companies' executives understand the value of patents. Many of these companies have large, in-house teams of patent attorneys and spend enormous sums to patent products.

In 2008, for example, Merck & Co. and Eli Lilly and Company were among the top 10 patent recipients for drug, bio-affecting and body-treating compositions utility

Chart 3

Top 10 States Ranked by 2008 Utility Patents in Chemistry (Molecular Biology and Microbiology)



Experience is the Best Teacher



For over 100 years, the **AAR Bureau of Explosives** has been dedicated to helping shippers, carriers, container manufacturers, and railroads continually improve hazardous materials transportation safety.

Transportation Technology Center, Inc.'s **Emergency Response Training Center** has spent the last two decades sharing its expertise with the world through full-scale, hands-on instruction and hazmat simulation.

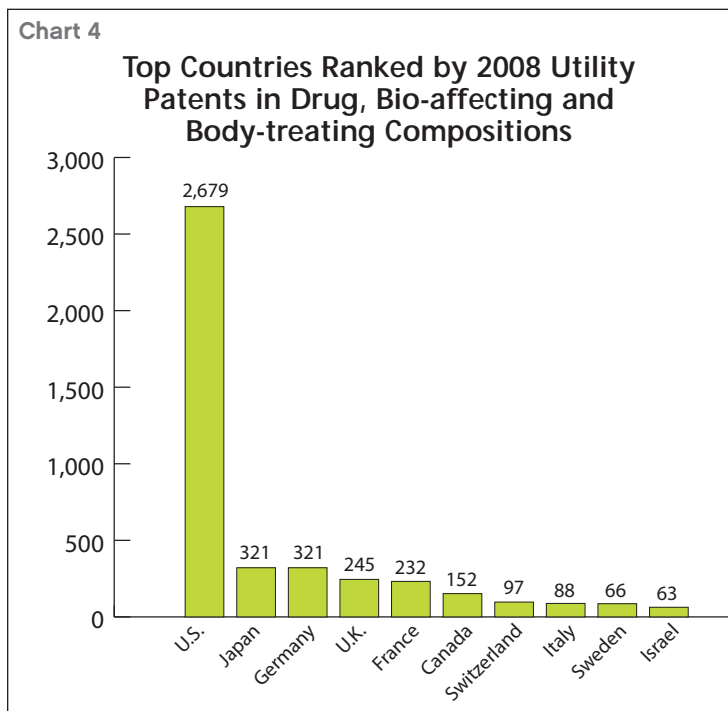
Visit our websites today. Let us teach you what more than a century of experience has taught us.



<http://boe.aar.com>



www.hazmattraining.com



patents in the U.S. And DuPont was among the top 10 patent recipients that year for chemistry, molecular biology and microbiology utility patents.

In addition to large companies, however, individual entrepreneurs are also very active in patenting pharmaceuticals and chemicals. In fact, individually owned patents—*i.e.*, those not assigned to a specific company or university when issued—represented the single largest category of patents issued in 2008 in both the pharmaceutical and chemical categories.

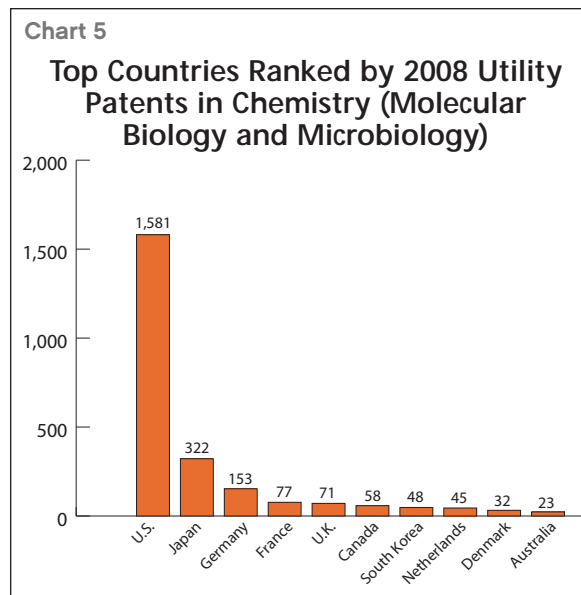
Another way to compare statistics is on a geographic basis. A breakdown of patent activity by state (see Charts 2 and 3 on pages 14 and 15) shows the most populous, California, is far and away the pharmaceutical and chemical patent leader. Other states where large pharmaceutical and chemical companies are based, like New Jersey and Massachusetts, also are awarded a high number of such patents.

Overall, most pharmaceutical and chemical patents are issued to companies, universities and individuals located in the U.S. (see Charts 4 and 5).

The wave of the future

The generation of wealth through innovation requires two ingredients: an inherently valuable innovation; and a strong barrier to entry, which can be provided by sound, patent-based protection.

In today's marketplace, any strategy that is not founded on innovation and consists solely of—for example—getting to



market first and developing brand recognition may be unrealistic and/or less than optimal. This is particularly true for chemical companies, which operate in highly competitive markets. Product information is often easy to obtain, consumers are sophisticated, and competitors are nimble.

It is best to assume that without meaningful measures for protection, competitors can and will quickly copy every valuable aspect of a company's products or services, leaving that company able to compete solely on the basis of price, delivery time, and related services. It may then lose the opportunity or lack the resources to develop stronger brand awareness and market penetration. Not only will profit opportunities be missed, but so too will the ability to attract new investors and buyers to the business.

As such, any company that is not already generating wealth through innovation should move forward with a new plan—or it risks missing out on the significant opportunities related to patent-protected innovations. ●



David E. Rogers is a Partner with the law firm Squire, Sanders & Dempsey LLP and has a degree in chemical engineering. Amy L. Hartzler is President of IsoPatent LLC, which provides publications

to educate businesses and entrepreneurs about patent and innovation strategy and protection. This article is based on their recently published book, Business Success Through Innovation. For more information, visit www.isopatent.com.