Water City? First, Milwaukee will need some more patents

By Barry Grossman

Posted: Aug. 8, 2009

"The best way to predict the future is to invent it. Really smart people with reasonable funding can do just about anything that doesn't violate too many of Newton's Laws!"

- **Alan Kay**, acknowledged as one of the inventors of the laptop computer and the architect of the graphical user interface.

If the Milwaukee region wants to define its future, it needs to be more inventive. We have a proud history of invention and innovation on which much of our regional economy is based. We can't afford to slow down.

In 1883, Warren S. Johnson, a professor at the State Normal School in Whitewater, received a patent for the first electric room thermostat. His invention launched the building control industry and was the impetus for a new company. Today, Johnson's company - Johnson Controls, still based in Wisconsin - has 140,000 employees in more than 1,300 locations serving customers in 125 countries.

In 1936, A.O. Smith Corp., a Milwaukee company with a history of innovation starting in 1847, obtained a patent on the glass-lined water heater. This concept quickly became the standard of the industry, making hot water an affordable convenience for homeowners. Today, A.O. Smith, still headquartered in Milwaukee, is one of the world's leading manufacturers of residential and commercial water heating equipment, offering a comprehensive product line featuring the best-known brands in North America and China. A.O. Smith employs approximately 15,350 employees at 35 manufacturing facilities worldwide.

Notice a pattern: innovate, patent, succeed.

While the innovation model does not guarantee success, it has proven effective for companies big and small and with technologies ranging from bridges to biotechnology.

Milwaukee has an established cluster of more than 120 companies involved in the water industry, combined with world-class academic research in water technologies. We are on our way to becoming a world leader in the $425 billion global water industry. But to reach this goal, we need to invent our future.

A study by Foley & Lardner LLP of U.S. water technology patents issued in 2008 found that there are lots of opportunities for growth and business development in water technology, but Wisconsin is not among the top states receiving patents on water technology innovations. Programs initiated and supported by the Milwaukee 7 Water Council, and with the continued support of the governor, the mayor, the Milwaukee Common Council and others should change that in the future.

Building an innovation economy is a complex equation with many variables, including academic and industry research, innovators, patents, entrepreneurs, financiers, government incentives, skilled workers and more. While no one factor is sufficient, patents are key indicators of a successful innovation economy.

The Milwaukee region contains a potent concentration of companies in the business of water. We are unique in that we combine this industry expertise with academic research excellence in water technologies. For example, the Great Lakes WATER Institute, part of the University of Wisconsin-Milwaukee, is the largest academic freshwater research facility on the Great Lakes.

Linkages between industry and universities are fundamental to our innovation system. Marquette University and UWM have had some recent success in this area, but not nearly the level we need to grow our economy. If we do not develop and expand these linkages, important opportunities to generate new products, new jobs and new industries could be lost. If that happens, the regional economy, and its regional water initiatives, will suffer.

How innovative are we, as measured by issued patents in 2008?

In 2008, 49.7% of all U.S. patents were of U.S. origin, based on the residence of the first-named inventor, while 50.3% were of foreign origin. For the first time, more of the patents issued were of foreign origin than of U.S. origin.

Of all U.S.-origin patents issued in 2008, California claimed a 24.1% share (22,202 patents), followed by Texas (6.7%, 6,184 patents), New York (6.4%, 5,905 patents), Washington (4.5%, 4,158 patents), Massachusetts (4.2%, 3,897 patents), Michigan (3.9%, 3,584 patents), and Illinois (3.9%, 3,581 patents).

Where does Wisconsin rank? Based on Patent Office data and relying on the residence of the first-named inventor, Wisconsin received 1,921 patents in 2008, a decrease of 0.4% from 2007. This puts Wisconsin in 15th place among the states.

The top technological areas of these Wisconsin patents included X-ray or gamma ray systems or devices, chemistry, molecular biology and microbiology, internal combustion engines and papermaking. Water technologies were far down the list.

In discussing "water," I include all the infrastructure associated with the water industry - from equipment and services for pumps, valves, measuring equipment to water testing to filtration/desalination to consulting and engineering services.

The demand for water continues to grow because of population growth and industrial expansion. However, the world's fresh water supply is shrinking due to pollution, draining of underground aquifers and climate change.

In the United States, water demand has tripled in the past 30 years, while the population has grown just 50%. Globally, water consumption is doubling every 20 years, more than twice population growth.

China has 21% of the world's population, but only 7% of its water supply.

With increasing demand and decreasing supply, water will be one of the largest economic growth sectors in the world over the next several decades.

Why isn't there more innovation in water technologies? Perhaps it is because utilities, which supply water and provide wastewater treatment, are typically slow to change, and the industry is laden with regulations. This may be why water start-ups attracted only 1% of the total U.S. clean-tech venture funding in 2008, according to Red Herring magazine.

Notwithstanding the barriers to innovation, the need and opportunities are there.

Engineering, Inc., a trade publication, reported recently that worldwide opportunities abound in rebuilding and reinventing the world's water infrastructure, from pipes and water delivery systems to wastewater treatment facilities.

In the James Bond movie "Quantum of Solace," Agent 007 sets out to stop the evil Dominic Greene from controlling Bolivia's water supply. Greene notes:

"This is the world's most precious resource. We need to control as much of it as we can."

If you want to control water technology, you don't need to take on James Bond, you merely need to innovate and get patents.

Perhaps the hero of the next James Bond thriller will be about a patent lawyer.

Barry Grossman is an attorney with the law firm of Foley & Lardner LLP and is on the board of directors of the Milwaukee 7 Water Council.

Find this article at:
http://www.jsonline.com/news/opinion/52692457.html

Check the box to include the list of links referenced in the article.