RETHINKING CLUSTER INITIATIVES

CASE STUDY

MILWAUKEE

WATER TECHNOLOGY

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HIGHLIGHTS

GEOGRAPHY

The water cluster covers eight counties in southeastern Wisconsin, including four comprising the official Milwaukee metro area, with a population of 1.57 million (39th among all U.S. metros), and four neighboring counties that bring the regional population total to 2.15 million.

CLUSTER SIZE AND GROWTH TRAJECTORY

The water cluster is composed of 175 firms, with $10.5 billion in revenues and employing over 20,000 in the region. The global market for water technologies was estimated to be over $600 billion in 2016.

CLUSTER TYPE

The water cluster is technology-based, focused on firms in water technologies involving instruments, equipment, and services.

ORGANIZATIONAL STRUCTURE

The water cluster is led by a staffed, well-resourced, and self-described *industry cluster driver* (The Water Council, a 501(c)(3) entity), with core collaboration and investment from academic institutions (University of Wisconsin-Milwaukee (UWM) and Marquette University), the state (Wisconsin Economic Development Corporation (WEDC)), the city of Milwaukee, and Milwaukee Metropolitan Sewerage District. Early stage support also came from the Greater Milwaukee Committee and M7 (regional economic development organization).

RESOURCES AND KEY ASSETS

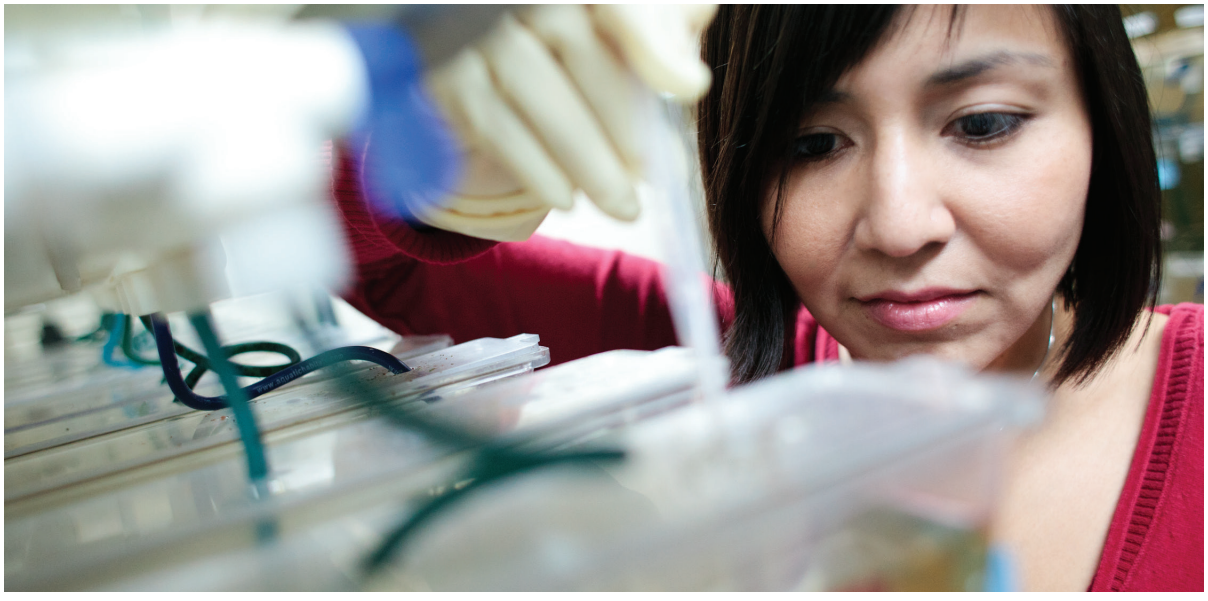
Key resources include a strong mix of firms, a location on the world's largest body of freshwater, The Water Council (11 full-time staff, 188 members, $2.84 million operating budget), and a robust array of associated programs, such as a $50 million School of Freshwater Sciences at UW-Milwaukee, the $22 million Global Water Center (GWC) building, and a city water district funded through an $11.2 million TIF.

BACKGROUND AND HISTORY

Fueled by abundant water (Lake Michigan and its local tributaries), wheat (Wisconsin was the world's biggest exporter in 1860), and a set of savvy businessmen who were part of an influx of German immigrants (27 percent of the city's population in 1880), Milwaukee could stake a legitimate claim to being the "Beer Capital of the World" in the late 1800s. Frederick Miller, Joseph Schlitz, Frederick Pabst, and Valentin Blatz each established what would eventually become four of the nation's largest breweries. By 1890, Milwaukee had also become the world's largest supplier of tanned leather, the processing of which requires a large amount of water. Boosted by large federal government contracts making boots, belts, and leather products for the military, the local industry prospered from the Civil War through World War I.

At the start of the 21st century, however, Milwaukee's brewing and tanning industries were symbols of the region's broad economic decline. Changing market dynamics, major marketing mistakes, and labor-management strife led to the slow demise of the brewing industry in Milwaukee. Today, MillerCoors is the only large brewery remaining in the city. The rise of foreign competition and declining demand for leather due to new synthetic alternatives also eventually led to the demise of Milwaukee's tanning industry by the late 20th century.

Beginning in the mid-2000s, local leaders, convinced they were at a critical point in the region's history and determined to confront this hard reality head-on, began to search for an economic "phoenix" that could rise from the ashes of the region's decline and begin to position Milwaukee for an economic rebirth. Somewhat by accident, one of the surprising potential answers lay right before them: water. Left in the wake of the decimated brewing and tanning industries were an abundance of firms in the region specializing in water technologies. Milwaukee's water cluster came into being based on the realization that by organizing themselves under the theme of water, these firms, and the region itself, could reimagine their roles and partner in the start of a new economic trajectory.



IDENTIFICATION

The identification and confirmation of water technologies as a cluster took place over a three-year period from 2007 to 2010 through a combination of highly deliberate, action-forcing events and a bit of happenstance. The spark that catapulted water from an obscure concept to reality occurred for Rich Meeusen, CEO of Badger Meter, and Paul Jones, CEO of A. O. Smith Corporation, during a joint tour of A. O. Smith's research facility. The men were struck by the fact that while they operate in two different industries (Badger Meter in water meters and A.O. Smith in water heaters and filters) and were not competitors, there were a lot of similarities and potential synergies between the two firms. Would this finding prove true and resonate with other local firms in the region?

Following their own initial internal assessment, Meeusen approached Milwaukee 7 (M7), Milwaukee's newly formed regional economic development organization (EDO), and other organizations with the idea for a water cluster. A founding principle of M7 was the belief that the region should focus its economic development efforts on *driver* industries, those in tradable sectors that exported their products and services outside the region to other U.S. and global markets. By coincidence, and separate from the Meeusen and Jones discovery, M7 had hired a local consultant to undertake a strategic review of Milwaukee's industries and assets. This consultant also raised up this unique cluster of water technology companies. These joint *discoveries* of the water cluster formed the genesis for exploration of a coordinated industry-based economic development program, under the leadership of Meeusen.

In an effort to ratify the discoveries, M7 hired a national site selection consultant to once again evaluate the region and identify its strongest potential industry clusters for business attraction. Upon completion of this second study, M7 invited Meeusen to share his concept at a meeting in which the consultant findings would be presented.

According to Pat O'Brien, CEO of M7, the water concept was initially greeted by the national consultant, and by the local audience to some degree, with a great deal of skepticism: "People laughed. What do you do with water?" Water was not an *industry*. There was no industry designation (NAICS code) for water, and it simply didn't fit traditional guidelines for identifying an industry cluster.

In the audience, however, was Julia Taylor, CEO of the Greater Milwaukee Committee (GMC, a private sector civic group focused on spurring vital economic and cultural projects), and Dean Amhaus, CEO of the Spirit of Milwaukee (a Milwaukee promotion group), who were intrigued by the idea. Taylor took the initiative to introduce Meeusen to Sammis White, a professor at UWM who taught a graduate course in urban planning. Meeusen was invited to present the concept to White's class and sought their help in answering two basic questions: 1) How many water firms are there in southeast Wisconsin and in other regions in the United States and around the world, and 2) are we among the largest? White agreed to lead a class project to fulfill this request. The water cluster team stressed that the project should be very strict on the definition of a water technology company (i.e., those focused on commercializing products and services) and not inflate it to include, for example, large water users, utilities, and lawyers.

The survey confirmed the potential of the cluster. It revealed about 120 local firms with water-related expertise in instruments and equipment (such as fixtures, valves, controls, sensors, meters, and heaters) as well as services

(such as purification, sewage and treatment, pumping, delivery, and conservation).

To determine the level of interest among firms, Meeusen and Jones convened the first annual Water Summit in 2007, which drew over 60 local business and civic leaders. During this event, they realized that while the region's history in tanning and brewing had resulted in many firms operating in disparate industry sectors, they were all fundamentally focused on different aspects of the same theme: water technologies. The group agreed to convene quarterly meetings and, in 2009, adopted a dues-paying membership structure. In short order, Meeusen and Jones began to realize the region was sitting on a hidden gem and came away from these early activities with a vision to position Milwaukee as the "Silicon Valley of water technologies."

At around the same time, the water cluster team, led by Meeusen, approached UWM Chancellor Carlos Santiago with a proposal for a new school focused on water technologies that could be commercialized and would produce the talent needed by the cluster. UWM's Great Lakes Water Institute, which had quietly and somewhat invisibly existed for nearly 40 years, was focused solely on research on the environment of the great lakes; however, deep down there was a huge desire by the university to partner with businesses and generate new sources of revenue. Santiago shared the vision, and UWM submitted a proposal to create the School of Freshwater Sciences, further validating the cluster concept locally.

In 2009, Milwaukee applied to become and was designated as the 14th member of the United Nations Global Compact Cities Programme, with each city selected for its concentration and expertise in a specific topic related to global health and development. This recognition provided early legitimacy and further validation for Milwaukee's water cluster and proved critical in opening doors with peer water technology leaders in Singapore, Israel, Sweden, France, and the Netherlands. Further, it spawned interest in and visits to Milwaukee from around the globe.

Despite this early progress, The Water Council realized that it would need further and more credible research to back up its bold claims that the region was a top global water hub and that water represented a major economic opportunity. A grant from the U.S. Economic Development Administration (EDA) funded a joint report from The Water Council and UWM that was released in November 2010. This paper corroborated Milwaukee's extensive expertise and position in the global water market and confirmed among all audiences not only the notion that water technologies was a legitimate regional cluster, but that it was highly relevant on a global scale.

According to Dean Amhaus, an early champion of the cluster who later became CEO of The Water Council, "If somebody says we are going to go out and create a cluster, it's a red flag. You need to *find* your cluster. Ours was sitting here for over 100 years, but we never looked through the right lens."

PRIORITIZATION

Along with water, three other high potential clusters were identified and prioritized from the two early M7 consulting studies: next generation manufacturing (NGM); energy, power, and controls; and food and beverage. All four industries represented the strongest Milwaukee specializations, the majority of its most

important traded sector companies (i.e., high potential to export), and the greatest potential to set Milwaukee's economy on a new trajectory. The task at hand was to determine which of the four clusters were truly viable and whether the region had the resources and commitment necessary to launch and sustain each of them. According to Pat O'Brien, it didn't worry M7 to have the region pursue new initiatives with all four clusters because they simply didn't know any better at the time.

With the active leadership of business CEOs and academia, the water cluster was prioritized based on compelling factors that were each confirmed through rigorous research and outreach:

- **Unique specialization:** The early surveys confirmed that not only does Milwaukee's water cluster position the region as the top U.S. water hub, but that the region is challenged globally by only three other *nations*: Israel, the Netherlands, and Singapore. While other Milwaukee clusters were larger, water provided the best potential to differentiate the region on a national and global scale. According to Amhaus, "It's not about size, it's about uniqueness. That is critical."

- **Strong base of firms:** Informal early surveys surfaced 50 small, mid-size, and large water technologies firms, but subsequent and more thorough academic research quickly raised that number to 120. More recently, the number totals over 180 in the region and another 30 across Wisconsin. Together the companies employ over 20,000 workers in the region. Among the larger firms are names that are well known within the industry, such as ABB, A. O. Smith, Badger Meter, Evoqua, InSinkErator, Kohler, Pentair, Rexnord, Rockwell Automation, and Veolia.

- **Considerable research and institutional assets:** In addition to a strong set of firms, the region was home to over 100 academic scientists focused on water solutions, UWM's Great Lakes WATER Institute (later the School of Freshwater Sciences), and a large number of public and not-for-profit organizations with missions focused on water and health.

- **Major market opportunity:** In 2010, according to the EDA-funded study, the world's market for water-related equipment and operations was estimated to be $483 billion, rising to over $600 billion by 2016. By comparison, in 2010 the global IT market was $650 billion, the cell phone market was $600 billion, and the pharmaceuticals market was $450 billion. Further, the region's water technologies reached into the everyday lives of people everywhere. Rich Meeusen's most memorable public speaking point regarding the subject is that seven of the 10 primary water technologies present in a typical men's restroom (i.e., urinal, flush valve, meter, drain, faucet, sink, heater) in the U.S. come from Milwaukee. These facts confirmed the immense opportunity for Milwaukee to export water solutions to markets throughout the United States and the world.

- **Solving a global problem:** The water cluster could quickly position Milwaukee as a top hub for solutions to the global water challenge.

Water is a basic human necessity and a vital input for industry and economic growth. However, its access is threatened by major problems that require immense expertise to solve. Some of the entrenched U.S. and global problems identified in the water cluster's early studies include: aging and inadequate infrastructure, unsustainable levels of water consumption, more specialized water uses, surface and groundwater contamination, storm water flooding, an insufficient supply of water in high-growth cities, and an increasing need for a range of technical answers to specific problems (such as desalinization). This dynamic represents major business and collaboration opportunities for Milwaukee firms and researchers.

- **Dedicated local champions:** From the beginning, the water cluster had passionate, dedicated, private sector champions in Rich Meeusen, Paul Jones, and Dean Amhaus. Their belief in the potential of the water cluster and unending level of enthusiasm in making the case for water played a major role in elevating the cluster as a top economic development priority with business, government, academic, and nonprofit leaders.

- **Business, university, and utility identification with the cluster:** Ultimately, the water cluster became a priority because a sizable subset of local businesses, universities, and utilities believed that this new way of thinking about their businesses and organizations, both individually and collectively, would benefit them and the regional economy.

OTHER MILWAUKEE CLUSTERS

In addition to the water cluster, two other cluster initiatives were prioritized and formed: M-WERC (Mid-West Energy Research Consortium) in 2009 to lead the energy, power, and controls cluster (282 firms employing 25,500 workers) and FaB Wisconsin (originally FaB Milwaukee) in 2012 to lead the food and beverage cluster (253 firms employing 15,000 workers, involved in both food and related equipment manufacturing). M-WERC was conceived and formed by a group of three universities, four companies, and the U.S. Department of Energy with a mission to perform collaborative and transformative energy-related seed research between its members. FaB Wisconsin was formed by businesses in the sector to focus primarily on the increasing need for talent. A cluster initiative for next generation manufacturing was explored, but failed early on.

TOO BIG TO SUCCEED? NEXT GENERATION MANUFACTURING

The cluster initiative that seemed to have the most promise in Milwaukee, the Next Generation Manufacturing Council, did not survive. It was a big strategy, representing about 60 percent of the region's employment in tradable sectors and apparently offering the greatest potential upside of the four identified local clusters. However, according to Pat O'Brien, it was too big. It was more of an umbrella over many clusters and simply did not have enough focus. It failed because the firms themselves did not see the benefit and never really engaged. While it remains an important industry segment in the region, without basic buy-in the cluster initiative never gained any traction, and M7 pulled the plug on it within the first year.

Where early leaders saw great opportunity in water, they also identified a set of key gaps that were holding the cluster back from achieving its full potential. They believed that a highly intentional, coordinated, and focused effort to address the following core problems would unleash big dividends for the region and its firms. The identified problems were:

- **Lack of branding and awareness:** The most obvious issue early on was that even though the water cluster had a deep bench of world-class assets, these each existed in scattered silos and industry sectors and had not been coalesced, neither mentally nor physically, into a highly functioning and visible ecosystem under the common theme of water. While an increasing number of local firms and organizations bought into the concept, it represented an entirely new way of identifying their individual and collective existence. As Harvard professor Rosabeth Moss Kantor stated in a *Forbes* article on the cluster, "The Milwaukee example was particularly striking because it wasn't high tech. It was in a different arena. It required a lot of imagination. It meant reframing people who are making pipes and valves to being in the water business." Thus, internal branding within the local market would be critical to early and ongoing success.

  Further, national and international awareness of Milwaukee's position as a global water hub was also limited. The region was not on the radar screen of firms, researchers, and potential customers across the world as a hub of water innovation. To fill this gap between the region's strong water technologies base and those working around the globe to solve water-related health and environmental problems, Milwaukee would need to justify and amplify its position as a water center. Together, these internal and external dynamics represented not simply a sales and promotion opportunity, but a true marketing and branding issue (i.e., ensuring the actual experience on the ground in Milwaukee matches the bold claim) that would require significant investment, commitment, and creativity to resolve.

- **Lack of networking among local firms:** Businesses involved in water technologies in Milwaukee lacked awareness of and connection to each other's research, capabilities, and projects, limiting vital potential synergies, joint research, collaboration, and innovation.

- **Lack of connection between universities and firms:** The lack of a true interface between academic institutions and firms, particularly around joint research, curtailed creation of a culture of innovation and limited the number of area startups. The market also lacked a sustained pipeline of graduates with relevant skills to meet growing demand among water technologies firms.

In response, Milwaukee crafted four bold intervention concepts designed to directly address these problems and give the initiative a high level of early credibility: 1) creation of **The Water Council** to serve as the visible lead to continuously drive the cluster towards it stated vision; 2) establishment of the nation's first **School of Freshwater Sciences (SFS)** at UWM; 3) development of a **Global Water Center (GWC)** facility to serve as a highly visible headquarters for The Water Council and a space for firms, researchers, and interested parties to engage with one another; and 4) selection of a neighboring tract of land for development of a larger **water district** in the city.

The SFS and GWC represented two critical elements in branding the water cluster, as a

primary directive was to bring business and academic researchers together to foster tech transfer, develop talent, and collaborate on innovative solutions to water challenges. From the Harvard Business School case on the cluster, "Meeusen, Jones, and Amhaus had seen other water innovation centers in Tel Aviv and Singapore, but believed they could do it better by co-locating university research labs, mixing start-ups with established companies, and creating innovative programs encouraging veteran or retiring engineers to develop ideas alongside younger talent."

ORGANIZATIONAL STRUCTURE

While a variety of local organizations are vital to the water cluster's success (see implementation section below), the early founders believed that someone in the region needed to wake up every day with a laser-like focus on the water cluster and ensure a robust, collaborative, and highly functioning ecosystem. It could not be another group's second priority. So, in 2009, The Water Council officially incorporated as a 501(c)(3), corporate-led, industry cluster driver with primary members being water technology companies, academic institutions, and government.

The difference between The Water Council and a traditional industry association is that it has public sector investors and a true economic development mission, not just membership services. It was established to serve as the lead organization in driving towards the region's water vision, coordinating with existing water assets and organizations, managing its own programs and initiatives around research and networking, and strengthening and championing the region's case as the global water hub locally and in targeted settings throughout the world. While its fundamental mission has remained consistent, the wording in the 2017 annual report is "to achieve economic growth through improving World Water Health; develop solutions to address world water challenges; grow sales, exports and jobs; attract business and talent to the region; and reposition Milwaukee."

Since Dean Amhaus, President and CEO, was hired as the first employee in 2010, The Water Council has grown to include 11 full-time staff, 185 members, and a 22-person board representing leading business, government, academic, and nonprofit actors. Its 2017 operating budget was $2.84 million, with revenue coming from grants, contracts and contributions ($1.4 million); membership ($665,000); subleasing of space at GWC ($526,000); the annual Water Summit ($202,000); and other ($44,000).

Over the past eight years, The Water Council has not only continued to expand its programs and partnerships, but it has arguably achieved its core directive to position Milwaukee as a widely recognized global water hub and as the top hub in the United States. At the core of this effort was the belief that the region could successfully brand itself around water technologies and that success requires focus and real, ongoing work. According to Meeusen, "This was not done with catchy slogans or brochures, it was in doing concrete things. When we first started talking about water, people would ask where is Milwaukee. That question is never asked anymore by those in the water industry. It doesn't matter what the average person on the street thinks. It matters what people around the world in water technologies think. Our brand is being spread by our own firms who willingly serve as brand ambassadors." Amhaus adds, "At the end of the day, you must be able to live your brand."

From 2013 to 2015, delegations from 47 countries visited the GWC, representing the beginning of an increasing flow of visiting delegations from around the world. In its first few years, The Water Council was the winner of the IBM Smarter Cities Challenge, the U.S. Water Prize from the U.S. Water Alliance, the Growing Blue Award from Global Water Intelligence, the Bronze Excellence in Economic Development award from the International Economic Development Council, and was the recipient of important grants from the U.S. Department of Commerce, JPMorgan Chase, U.S. Small Business Administration, and Wells Fargo.

These visitors and awards poured into Milwaukee due to the true and tangible experience the water cluster offered. This collective experience became reality because the region moved aggressively forward on each of its major strategies with successful implementation, including:

UW-MILWAUKEE SCHOOL OF FRESHWATER SCIENCES

In 2010, under the leadership of new president Michael Lovell, UWM announced a major expansion to create the nation's first School of Freshwater Sciences (SFS). Its centerpiece, the $53 million, 92,000-square-foot Starboard Building located in Milwaukee's Harbor District, opened in 2014 as one of the world's leading water-focused research facilities. It features biosecure and quarantine labs, flexible learning commons, a pathogen testing facility, water view conference rooms, and the first DNA sequencing lab in the U.S. dedicated to water and environmental issues. The SFS offers graduate programs (Ph.D. and M.S.) in Freshwater Sciences, including a professional science track designed to prepare students for careers in business, government, and nonprofits. The SFS also sponsors internships and occupies space on the seventh floor of the GWC to connect academic research and business and support commercialization of new water technologies. UWM and Marquette University also co-lead the Water Equipment and Policy Center (WEP) at the GWC, funded through a $2.75 million grant from the National Science Foundation's Industry/University Cooperative Research Center program.

GLOBAL WATER CENTER

The Global Water Center (GWC), opened in 2013 in the city's water district, is a $22 million, 98,000-square-foot, seven-story renovated warehouse building that serves as the visible center of the water cluster. According to Meeusen, "A center is important. If you go

to Paris, they can tell you the city is a great center of art. But when they show you the Louvre you can finally believe them. The Global Water Center is a physical manifestation of our industry concentration." Within its first year, the GWC was nearing capacity with over 30 tenant organizations. In 2018, the facility's 45 tenants include major corporations, such as Badger Meter, A.O. Smith, and Rexnord; universities, including UWM's School of Freshwater Science and College of Engineering and Applied Sciences, a cohort of water related researchers from Marquette University, and UW-Whitewater's Institute for Water Business; the BREW accelerator; 16 water-related business startups; and a number of water-related not-for-profit, economic development, and government organizations.

The building, a private for-profit venture, was financed through a variety of vehicles including EB5 funding, new market tax credits, historic tax credits, bank financing, and owner investment. The Water Council was a very young nonprofit organization with no credit history, so it would not have been able to obtain financing or take advantage of tax credits or TIFs. It leases one floor of the building, part of which it uses for its own offices. The remaining space is subleased and that revenue allows The Water Council to operate rent-free. Through support from the Wisconsin Economic Development Corporation, The Water Council also leases approximately an additional 8,000 square feet that it subleases to the BREW participants and for the Oasis Co-working Community. The owners of the building make an annual contribution of $50,000 to The Water Council in exchange for assistance in marketing the GWC. The Water Council is exploring the option of purchasing the building once the tax credits expire.

REED STREET YARDS - GLOBAL WATER TECHNOLOGY PARK

In 2010, a 17-acre brownfield site just south of downtown Milwaukee was chosen as the site for a Global Water Technology Park. Known as the Reed Street Yards, the park is located in the industrial, but re-emerging, Walker's Point neighborhood, which borders Milwaukee's thriving Third Ward district. The master developer for the project is General Capital Group, which agreed to dedicate 70 percent of leased space to water-related tenants to maintain the intended purpose of the park.

To keep with the commitment that the water technology cluster must "live" the brand, The Water Council suggested that rather than implement standard infrastructure, the site should be a demonstration of innovative water and storm water management approaches. These types of improvements doubled the cost of infrastructure construction, but the mayor

and the City Common Council gave their strong support for moving forward and approved the site's designation as a Tax Increment District (TID) in 2011. The $6.2 million investment was designated to assist in funding public infrastructure and a riverwalk; environmental remediation, storm water and site work; and a business improvement district. In 2014, an amendment to the TID was approved to provide additional funding for site infrastructure and to create a $5 million fund to attract new businesses to the development. In 2015, Rexnord announced that it would move the global headquarters of its recently acquired subsidiary, Zurn (a maker of plumbing fixtures), from Erie, Pa. to the water district, representing the first major relocation success of the cluster initiative.

THE WATER COUNCIL PROGRAMS

The Water Council has implemented a comprehensive array of vital programs to support the cluster, each of which is a major initiative in its own right. In addition to important and ongoing marketing, communications, and research functions, other specific interventions include:

- the Water Leaders Summit, an annual convening in Milwaukee of local, national and global thought leaders and practitioners shaping the future of water innovation;
- the BREW (Business. Research. Entrepreneurship. In Wisconsin.) accelerator and BREW corporate, a startup competition to solve specific challenges of large firms;
- the Global Water Port, an online research and collaboration tool;
- the Alliance for Water Stewardship, the official North American partner for this international organization;
- the Energy Water Nexus, a partnership with M-WERC focused on the interdependency between water and energy;
- The Pilot Program, to develop and validate new products;
- research and commercialization, which includes a scouting and matching service for water innovations;
- Small Business Channel, a national network to link small water businesses to resources;
- Talent Campaign, which provides industry a voice in water education and increases student awareness of the water technology industry;
- and Oasis Co-working Community, a landing pad for water companies entering North America and U.S. firms looking to launch and grow.

STATE AND LOCAL GOVERNMENT

While Milwaukee business and academic entities were responsible for catalyzing, championing, and resourcing the early stages of the cluster, it is arguable that the fuel and navigation assistance required to ramp up quickly came from the state of Wisconsin through the WEDC and from the city of Milwaukee and the mayor's office. WEDC, led by Vice President of Business Development Lee Swindall, believed that staking a claim to these types of clusters, and committing to each through sizable and sustained investment, was vitally important to repositioning the state's economy for growth. The city, with the full support of Mayor Tom Barrett and Rocky Marcoux, Commissioner for the Department of City Development, also strongly supported the effort and was pivotal in removing barriers, running interference to make the GWC and the water technology park happen, and providing millions of dollars in funding for infrastructure and economic development support.

CONCLUSION: THE MAKING OF THE MILWAUKEE WATER CLUSTER

According to its champions, the water cluster works because area firms in the cluster are complementary and not in competition with each other, and it was industry-driven from the start. "It is first and foremost a private initiative," said Mayor Tom Barrett in a 2013 Forbes article. "If it had started at the public end, we would be hustling to get private sector involvement."

Further, local leaders stress that water technologies encompasses all the factors necessary for a robust cluster: a strong economic history in the region, a focus on solving a critical and ongoing world problem, passionate and highly engaged leadership from existing firms in the industry itself, a large base of firms that strongly identify with the cluster from startups to multinationals, significant investment and buy-in from state and local government and universities, a physical *center* through the GWC, and the presence of a sustained and well-resourced organization in The Water Council to drive the cluster forward every day.

The approach Milwaukee took to the water cluster has led to exactly the kinds of outcomes envisioned from the start. New innovations and products are being developed; startups are being launched; large firms are mentoring and investing in promising young firms; interns and graduates are being placed in local companies; cluster members are growing, collaborating, and becoming more competitive; new firms and talent have moved in; growth is occurring around the water district; and Milwaukee has positioned itself as an undisputed global water hub.

Still, the cluster had to confront and overcome traditional economic development norms, practices, and challenges. "One thing we battled with our board", said Amhaus, "is the whole notion of basing our success on jobs. It's not just about the number of jobs. We don't have enough people to fill what we have now." Meeusen agreed, "we fought the numbers game for the first few years. Everybody wanted to know what date we were going to create certain jobs. We are not going to play that game. Economic development plays a numbers game. We really fight that whole concept. We want a healthy cluster where good research is being done. If you build it they will come."

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