



IBM's Smarter Cities Challenge

Milwaukee

Summary report

The City of Milwaukee is one of 24 cities chosen in 2011 to receive an IBM Smarter Cities™ Challenge grant as part of IBM's citizenship efforts to build a Smarter Planet™. Through this initiative, select teams have worked with cities throughout the world to analyze urban concerns ranging from public safety, budgeting and resource allocation, and the environment and make recommendations.

During three weeks in June 2011, a team of five IBMers worked with the City of Milwaukee to deliver recommendations around the theme of *Smarter Cities Feed Themselves*.

Challenge: cities feeding themselves

Milwaukee is strongly rooted in its history and cultural background. Its entrepreneurial spirit and work ethic are closely connected to the City's origins in manufacturing and the food and beverage industries. The underlying spirit of community and cooperation is a foundation for the City's economic and social life. However, like many cities worldwide, Milwaukee is challenged by the current economic downturn that has affected local industry, jobs, and all parts of the City.

With its location on Lake Michigan, the City also has a strong bond with water. With its recent induction into the United Nations Global Compact Cities Programme and as home to the Milwaukee Water Council, the City is establishing itself as a "water hub", with access to freshwater academic research and a critical mass of premier water companies in the area.

Aquaponics is a system of agriculture integrating the simultaneous cultivation of plants and aquatic animals such as fish in a symbiotic environment. It represents the critical connection between fresh water and food production, and for Milwaukee, an opportunity to revitalize the City and take advantage of its core strengths. The City is home to acknowledged leaders in aquaponics, and more broadly, urban agriculture with strong ties to the community; these leaders, the Water Council, the Great Lakes Water Institute and the City have worked together to encourage and support start-up efforts in aquaponics.

Feeding a city is about more than just food, however. It is also about feeding people through job creation, neighborhood revitalization and public safety, providing outreach to the community, providing education about healthy eating, eliminating stretches of urban food deserts, providing vocational training to children, stimulating innovation and technology, and supporting higher education and research.

Highlights:

- Urban agriculture and aquaponics can improve economic conditions and foster community spirit in Milwaukee.
 - Recommendations include the establishment of an Urban Agriculture and Aquaponics Council based on the successful model of Milwaukee's existing Water Council.
 - A new Aquaponics Innovation Center should also be established to evaluate new technologies, incubate new businesses and stimulate citizen engagement.
 - Milwaukee's Office of Environmental Sustainability should also be expanded to serve as the industry advocate for urban agriculture and aquaponics for all City endeavors.
 - Milwaukee has the potential to become a global leader in water stewardship, ultimately improving the way the planet feeds itself.
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Urban agriculture, and more specifically, aquaponics, has the potential to address all of these social components.

Overall themes

During the engagement, the IBM team met with leaders of the City, community, local businesses, and higher education. It found that the business and technology of aquaponics inspires passionate involvement by a range of participants from business, academia, the community, and volunteers from schools in the surrounding neighborhoods. Three underlying and dominant themes emerged during the study period: industry development, community transformation, and Milwaukee identity. These themes also represent the strengths of the City, and they were interwoven throughout team discussions about aquaponics.

Industry Development builds on the City's historical and entrepreneurial drive to innovate and develop a home-grown industry that defines Milwaukee. It makes use of available resources like land, workforce, skills, knowledge and infrastructure to support the City's growth and economic development. Milwaukee's dynamic and charismatic leadership, a committed City, and business and community organizations all work collaboratively toward positive *Community Transformation*.

Milwaukee has a unique *Identity* sourced in its name (Native American for "gathering place near the water") and former slogan (Milwaukee Feeds and Supplies the World) that acknowledges its past. More importantly, it drives the City's vision to move forward. Its character is built on environmental sustainability, thought leadership with centers in academic research and business, and the symbiotic relationship it encourages through partnership and collaboration.

Top-priority recommendations

To become a Smarter City, a city needs to identify the critical issues that improve the quality of life for its residents by:

1. Creating sustained economic growth and job creation;
2. Limiting and/or addressing key inhibitors to that growth;
3. Identifying cost-effective, easily implemented solutions;
4. Obtaining broad community support.

In the view of the IBM team, urban agriculture and aquaponics have the potential to address these issues and make Milwaukee more economically viable while engaging the community's support. With clear measurable goals and objectives, these recommendations are attainable and affordable. In the report, specific steps are identified to foster the growth of aquaponics in Milwaukee:

- Establish an Urban Agriculture and Aquaponics Council, based on the successful model of the Milwaukee Water Council to advance the science and business success of the

industry through the collaboration and sharing of knowledge, innovation, and technology by for-profit, nonprofit and public sector stakeholders

- Establish an Aquaponics Innovation Center to:
 - Build upon technology transfer and skills development by area universities and K-12 education
 - Evaluate new aquaponics technologies
 - Support aquaponics business development and maturity by analyzing and documenting best practices and economic impact using research methodologies and business metrics
 - Act as a virtual and physical incubator for new companies
 - Investigate operational impacts on aquaponics system sustainability
 - Perform public outreach to tell the story of the aquaponics industry
- Develop a market analysis of aquaponics production, supply chain expansion and market opportunity to guide industry expansion
- Expand the City's Office of Environmental Sustainability to serve as the industry advocate for urban agriculture and aquaponics for all City endeavors.

Conclusion

The City of Milwaukee has the base investment and attributes needed to become a smarter city that feeds itself. Building upon the maturing models of aquaponics, Milwaukee has the potential to influence the world food supply. Aquaponics, being a freshwater closed-loop system of fish and greens production, requires no significant water demands beyond initial start-up. With encouragement and through careful pursuit of its aims, Milwaukee can lead the way as a smarter city and water steward to help the world feed itself.

For more information

To learn more, send an email to ccca@us.ibm.com or visit smartercitieschallenge.org

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