

**DRAFT**

**MILWAUKEE 7  
FRAMEWORK FOR ECONOMIC GROWTH**

**A Metropolitan Business Plan  
to Advance Economic Opportunities in the  
Seven Counties of Southeast Wisconsin**

Discussion Draft Prepared by



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## Overview

The Milwaukee region boasts a rich and dynamic economic legacy. Facilitated by plentiful water and rail access, the region first rose to prominence as a center for trade and movement of natural resources, including the outputs of its abundant agricultural hinterland. These capabilities enabled its rise to become a powerhouse of the early 20<sup>th</sup> century industrial economy – the “machine shop of the world” – by processing raw materials and producing finished goods from beer, leather and bricks to engines, electrical equipment and other heavy machinery. The esteemed firms created during this era were aggressive innovators, at the cutting edge of product and process for their time, including Allen Bradley, AO Smith, Harley-Davidson, Johnson Controls, Snap-On and SC Johnson, among others. They were also nimble and strategic, mitigating risks and taking advantage of new opportunities as economic conditions changed – breweries retooled during Prohibition to make soda, candy and other food products, and machine shops adapted their production processes to deliver war materiel. During this era of prosperity, the region established itself as a desirable place to live and do business by offering businesses skilled workers and access to raw materials, and offering residents – many of them immigrants – a solid education, high quality of life and good governance.

In the past few decades, as the global economy has experienced – and continues to undergo – a fundamental shift toward more knowledge-intensive products, services and processes, the Milwaukee region, like many others in the “Rust Belt,” has experienced significant challenges. Business models, supply chains and connections among firms and institutions are shifting dramatically, causing firms and entire industries to reexamine their strategic positioning and seek out new markets, partners and ways of doing business to be competitive in the next economy. New centers of gravity are beginning to form, but emerging opportunities are still being defined, and the constellation of stakeholders and resources necessary to realize them is not yet fully aligned.

The Milwaukee region is at an economic crossroads. Its performance has lagged the nation and other metropolitan areas on many measures, and intra-regional competition has hampered the region’s ability to undertake collaborative efforts to catalyze growth. At this critical juncture, the region needs to understand the range of potential trajectories it might follow, craft a clear vision for what it wants to be in the next economy and devise a deliberate, strategic set of activities and enterprises that will contribute to the achievement of a prosperous, inclusive next-economy future. Absent this sort of proactive intervention and management through the current economic transformation, the Milwaukee region’s economic future is uncertain.

Confronting this economic transformation, the region has begun to forge this new path in accordance with the drivers and dynamics of the new economy:

- Firms are investing in new markets, products, supply chains and collaborative partnerships to enable them to innovate and compete on a global scale. Mature firms and industries are striving to find ways to retain or regain their competitive edge in an era in which continuous

innovation and smaller, more nimble and more highly networked firms are increasingly the norm.

- The labor market is seeking a new equilibrium, as employers restructure and seek new skills and working relationships; workers across the economy struggle to update their qualifications to keep pace with the changing demand for higher-order and more occupation-specific skills across all industries; and providers strive to become more connected and responsive to the rapidly changing market. New, high-growth occupations provide plentiful opportunities for productive up-skilling and redeployment of the region's human capital.
- Workers have begun to seek out denser, mixed-use, walkable communities in which to live, and some firms are starting to recognize the benefits of co-locating in mixed-use environments that reduce the costs of interaction; catalyze cross-fertilization; and facilitate the innovative activities crucial for new-economy success.
- Previously tenuous connections within the innovation and entrepreneurship ecosystem are both broadening and deepening to facilitate identification and growth of next-economy opportunities that build on the region's industrial and institutional assets – particularly in water, food, energy, advanced business services and sophisticated machinery.
- Public, private and civic stakeholders are creating new partnerships – connecting the “old guard” and emerging leadership – and collaborating in industry groups, entrepreneurship projects, redevelopment of key land assets and much more, including in this comprehensive economic growth planning effort. They are creating the institutional capacity to act in more deliberate and strategic ways to meet the challenges and seize the opportunities offered by the new economy.

The many legacies – industry mix, workforce, built environment and institutions – of the Milwaukee region's rich industrial history provide the foundations to forge and traverse a path toward a prosperous, inclusive and competitive place in the next economy. The region needs to deliberately capitalize on and connect the opportunities arising from its competitive assets, by aligning its industries, technologies, human capital, innovation ecosystem, built environment and governance to transform itself into a place:

- To which researchers, entrepreneurs and skilled workers at the leading edge of technologies and emerging products in the water, power and food industries gravitate;
- Throughout which tailored, industry-driven training and education drive firm-worker matching and high productivity in the region's high-growth industry clusters;
- Where the region's universities – including UW-Milwaukee, Marquette, MSOE and the Medical College – partner with firms in the region's most promising clusters to pursue cutting-edge technologies and products, and where entrepreneurial risk-taking is celebrated;
- That is home to a set of mixed-use core cities – including Milwaukee, Waukesha, Kenosha, Racine, West Bend, Port Washington and Delavan – that could have strong physical and virtual connections to a variety of residential, business and cultural/entertainment nodes throughout the region. These might include the Milwaukee County Research Park/UWM

Technology Park/Froedtert & Medical College complex, the mixed-use Pabst Farms development, I-94 corridor business centers in Pleasant Prairie and Sturtevant, as well as recreational and cultural assets throughout the region.

- In which inter-jurisdictional and cross-sector partnerships that not only enable, but catalyze, inclusive, region-wide growth are standard operating procedure.

The Milwaukee region has already begun to make this transition toward a vibrant, new-economy environment – including establishment of multiple active cluster organizations, palpable energy in the innovation ecosystem, revitalization of the Menomonee Valley and Fifth Ward, the Machinery Row/RootWorks integrated development along the river in downtown Racine, as well as other revitalization in the core cities. Now is the time to leverage existing activities and energy and align the region’s efforts through a comprehensive, mutually reinforcing set of strategies and implementing enterprises. Coordinated execution of a set of nine cross-cutting strategies will achieve synergies and magnify growth across all parts of the Milwaukee region’s economy:

1. Become a leading innovator, producer and exporter of products and services related to **energy, power and controls**
2. Become a global hub for innovation and start-up activity in **water technology**
3. Leverage the region’s geographic, supply chain and human capital advantages to grow the **food and beverage** cluster
4. Enhance the **export capacity and capability** of the region’s firms, focusing on small- and medium-sized enterprises
5. Align **workforce development** with growth opportunities in targeted, high-potential industry clusters
6. Foster a dynamic, richly networked **innovation and entrepreneurship ecosystem**, building on existing nascent, but fragmented activities
7. Catalyze **“economic place-making”** in the region’s core cities and strategic locations throughout the region
8. Modernize **regional infrastructure** to enhance efficiency, cost-effectiveness and connectivity
9. Enhance **institutional cooperation and collaboration** for economic growth

### **Scope of the Plan**

This is plan for *economic growth*, and consequently focuses on those aspects of the region that have the most direct impact on improving economic output (gross regional product or GRP), employment and wages. Of course, a number of fundamental preconditions are vital to the success of this economic growth plan, including strong schools, safe streets and stable public-sector finances. The region’s cities and counties, as well as the state, must strive to provide a high-quality preK-20 public education system, a safe and livable environment and a stable fiscal environment.

The plan does not diminish the need for comprehensive planning with regard to poverty, education, housing, public health, safety, transportation, the environment, community development and overall quality of life. These issues, while critical elements of an environment that enables regional economic growth, are beyond the scope of the plan – except to the extent that they have *direct impacts* on growth – and are being addressed by other organizations and initiatives throughout the region.

\* \* \* \* \*

To identify its place on the path to transformation and articulate this set of integrated growth strategies tailored to its assets and challenges in light of the changing global economic environment, Milwaukee 7 engaged a broad array of regional stakeholders in the process of Metropolitan Business Planning (MBP):<sup>1</sup> a proactive, fact-based, action-oriented approach to targeting, aligning and leveraging regional assets for inclusive growth in the next economy.

Metropolitan Business Planning establishes a new approach to regional economic development, geared toward redeploying and aligning assets to establish a region’s most competitive position in the new economy:

***To compete effectively in the increasingly global and knowledge-based economy, successful regions identify their unique assets and enhance their productivity.*** The global economy is undergoing a dramatic transformation that favors metropolitan regions, where assets concentrate and their dynamic interactions enable greater efficiency and productivity. A region that identifies its path to participate successfully in that transformation – intentionally building on its unique assets – will forge ahead.

***Metropolitan Business Planning addresses this need*** by adapting the discipline of private-sector business planning to the task of catalyzing regional economic growth. It provides a framework through which regional business, civic and government stakeholders can objectively analyze the assets, challenges and competitive position of their region, identify mutually reinforcing strategies that build from and create synergies between shifting traditional and

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1 See Mark Muro and Robert Weissbourd, “Metropolitan Business Plans: A New Approach to Economic Growth” (Brookings Institution, 2011). Chapter II of this Plan also provides further background and framing.

emerging economic activities, and launch transformative enterprises to implement the strategies, changing the region's economic trajectory.

To achieve these results, the MBP approach differs from traditional economic development planning in several fundamental respects:

- It is **fact-based and market-disciplined**. Rigorous market analysis leads to strategies tailored to the specific assets and opportunities in the region. The plan reflects extensive and vigorous economic analysis about how the region is positioned on the path toward the next economy, and what actions will move it further along that path – not based on opinion, conventional wisdom or consensus, but on empirical analysis that will lead to the right answers for the region.
- It is **inclusive, collaborative and transparent**. A diverse set of informed cross-sector stakeholders come together to create and implement the plan.

Over the past 18 months, approximately 150 stakeholders from across the seven-county Milwaukee region were engaged in brainstorming, analysis, vetting of strategic alternatives and identification of promising initiatives to grow the regional economy. M7 convened five cross-sector working groups – each of which met three times throughout plan development – to provide expert advice and insight into specific aspects of the economy. Numerous other local experts were engaged one-on-one to supplement quantitative analyses and other market research.

### **Connecting Cities, Suburbs and Neighborhoods**

The economic growth prospects of neighborhoods, core cities and their suburbs are closely intertwined because they are parts of the same economy: they share labor, housing and land markets; business-to-business relationships and supply chains; infrastructure and commuting patterns; cultural, recreational, retail and other amenities; and anchor institutions, including hospitals and universities. Evidence also suggests that, overall, regions that exhibit the least inequity do best, because they more effectively deploy their economic assets and do not bear the costs of concentrated poverty.

As a result, this is a plan for *inclusive growth*, in two senses:

- (1) It includes all *places* in the region; and
- (2) It includes the entire *population* of the region, as it seeks to align equity and growth objectives.

While a significant milestone, the process to date and this document are just the first iteration. Like any business plan, the document will always be a work-in-process: the point is not the document, but the strategic enterprises it helps launch. This first draft Plan represents only the foundational work for what will become a continuous process of stakeholder engagement, analysis, strategy revision, initiative design and execution, measurement of results, adjustment



and adaptation to new economic conditions. Through this iterative process of developing the Plan and building institutional capacity to execute it, the MBP aspires to:

- Produce **a shared roadmap** for the region, aligning existing and new initiatives around a common vision. By bringing coherence to fragmented programming across multiple dimensions of the economy, it creates a shared understanding and strategic direction.
- Create **a new institutional infrastructure for economic growth**, comprising a network of stakeholders committed to acting collaboratively to transform the economy.
- Represent an **ongoing enterprise**, geared toward action. More than a strategic plan, the MBP creates an integrated set of growth strategies and begins to identify a portfolio of potential new initiatives to build upon and leverage existing efforts.

In short, as it is continually refined and engages further stakeholders, the MBP creates a “north star” for the region, around which strategies and initiatives align for implementation.

#### *Document Outline*

- *Chapter I* summarizes the economic foundation of the plan. Examining the drivers of new-economy growth reveals the changing dynamics and increasing importance of metropolitan regions, the need for a new form of economic growth planning and the market levers which drive inclusive prosperity in metropolitan regions in the 21<sup>st</sup> century.
- *Chapter II* provides a top-line assessment of the performance of Milwaukee region’s economy.
- *Chapters III through VII* lay out a fact-based assessment of the region’s performance with respect to each of the five market levers (described in Chapter I) that drive inclusive economic growth in the new economy.
- *Chapter VIII* outlines a collection of nine cross-cutting, mutually reinforcing strategies that will shape the region’s economic trajectory toward alignment with the characteristics of the new economy.
- *Chapter IX* articulates a set of steps to integrate the plan into the day-to-day work of regional economic development stakeholders and develop concrete, actionable initiatives that begin to implement the plan’s strategies.

## I. Economic Framework

The global economy is currently undergoing a fundamental transformation.<sup>2</sup> Recent disruptive changes do not reflect downturns in a business cycle that will soon return to “normal,”<sup>3</sup> but rather a knowledge- and technology-based restructuring that is changing the dynamics of productivity and economic growth and increasing the importance of metropolitan regions in fostering and generating that growth. Succeeding in this “next economy” requires a new approach to regional economic growth planning, focused on where particular regions are in the process of transformation with respect to five market levers (described below) that drive productivity and lead to inclusive prosperity in metropolitan regions.

### A. Characteristics of the New Global Economy

*The Next Economy is Knowledge-based, Innovation-Driven, Dynamic and Global*

Economic growth increasingly relies on knowledge embedded in people and advanced technologies.<sup>4</sup> Knowledge-based service sectors (e.g., Scientific and Technical Services; Finance, Professional and Business Services) now make up nearly 75 percent of economic output in developed economies.<sup>5</sup> Knowledge-based products and processes are proliferating across all industries, and entirely new sectors are emerging.<sup>6</sup>

This shift to an economy based on knowledge and advanced technology in turn engenders more continuous innovation in products, processes, business models and markets. Firms and industries emerge, develop and redefine themselves based on changing market conditions at a much faster pace than in the past.<sup>7</sup>

2 With respect to the economics which inform the Metropolitan Business Plan, both the discussion of the global economy, here, and of the market levers, later in this chapter, are very high-level summaries which excerpt and draw heavily from much more extensive reviews of the relevant research and practice. See Mark Muro and Robert Weissbourd, “Metropolitan Business Plans: A New Approach to Economic Growth” (Brookings Institution, 2011); Gretchen Kosarko and Robert Weissbourd, “Economic Impacts of GO TO 2040” (Chicago Community Trust, 2011); Gretchen Kosarko, Robert Weissbourd, Harold Wolman, Andrea Sarzynski, Alice Levy and Diana Hincapie, “Implementing Regionalism: Connecting Emerging Theory and Practice to Inform Economic Development” (Surdna Foundation, November 2011); “A Plan for Economic Growth and Jobs” (World Business Chicago, 2012); and “Partnering for Prosperity: An Economic Growth Action Agenda for Cook County” (Cook County, 2013).

3 Rather, in economic terms, this is Schumpeter’s “creative destruction” applied to regional economies – it is highly disruptive, but necessary, and leads to redeployment of assets into more productive activities. But it also means that a region cannot return to business as usual, and that the conventional wisdom about what drives economic growth no longer applies.

4 These changes are often collectively referred to as the “knowledge economy,” which encompasses the increasing importance of information and knowledge resources (a) as inputs to production, (b) in the production and market process and (c) as products and services in their own right. See discussion in Robert Weissbourd and Christopher Berry, “The Changing Dynamics of Urban America” (Chicago: CEOs for Cities, 2004), 254-287; Matthew Drennan, *The Information Economy and American Cities* (Baltimore: Johns Hopkins University Press, 2002); and J. Houghton and P. Sheehan, *A Primer on the Knowledge Economy* (Melbourne City, Australia: Center for Strategic Economic Studies, Victoria University, 2000).

5 McKinsey Global Institute, analysis of Global Insight and *Economist* data. US GNP quintupled in 50 years, while its physical weight barely increased. “Greenspan Weighs Evidence and Finds a Lighter Economy,” *Wall Street Journal*, <<http://anasazi.umsl.edu/FIN455/NonLinear/GreenspanWeighs.htm>>.

6 See, “Big Data: The Next Frontier for Innovation, Competition, and Productivity,” McKinsey Global Institute, 2011.

7 Consider, for example, that the companies that made up the S&P index in the 1920s would remain on the list for an average of 65 years; by the late 1990s, the average firm spent only 10 years on the S&P 500. Manyika, Lund, and Auguste, “From the

As a result, the economy is more dynamic. Flexible production and fluid institutional networks enable increased customization of products and services, and rapid redeployment of assets into new products and markets. The global nature of the marketplace – in terms of both demand and supply – further fuels the pace of economic transformation, as firms and institutional structures rapidly adapt to remain competitive.

### *Metropolitan Regions Drive the Global Economy*

The next economy's premium on dynamic interactions among knowledge assets particularly favors metropolitan regions. Worldwide, economic assets are concentrated in metropolitan areas where their geographic proximity reduces transaction costs and increases innovation-producing interactions.<sup>8</sup> This makes metropolitan economies disproportionately productive,<sup>9</sup> and, as a result, metropolitan regions are now the primary geographic scale for driving global economic competition.<sup>10</sup>

Each region has its own unique combination of assets, market dynamics, institutional actors and business culture that shapes its economic performance. These interactions create a “whole greater than the sum of the parts” – each of the key dimensions (for example, industry concentrations, workforce characteristics, infrastructure) succeeds or fails in the context of the whole. Strategies to affect the performance of the whole must be highly tailored to the characteristics of the individual region and mutually reinforcing. There are no “one-size-fits-all” solutions for promoting economic growth.<sup>11</sup>

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Ashes: The Most Dynamic Economies Rely on Creative Destruction to Grow” *Newsweek* (August 16, 2010). In addition, the places that dynamically redeploy their assets, as measured by business churn (generally, the combination of firm births and deaths as a percentage of the total number of firms), are more productive. See, e.g., Lucia Foster, John C. Haltiwanger, and C. J. Krizan, “Aggregate Productivity Growth: Lessons from Microeconomic Evidence,” *New Developments in Productivity Analysis*, (NBER Books, 2001): 303-72; and Yeonwoo Lee and Donald Hicks, “Schumpeterian Churn Dynamics and Regional Productivity Performance,” *International Business and Economics Research Journal* (Littleton, CO: Western Academic Press 2.1, 2003): 83-98.

8 From an economist's point of view, the reason for the very existence of cities, and their surrounding economic regions, is to reduce the transportation costs of goods, people and ideas. See Edward L. Glaeser, “Are Cities Dying?” *Journal of Economic Perspectives* 12 (Spring 1998): 140. Skilled people and firms located in metropolitan areas have higher productivity and outputs than their peers located outside them. See Christopher Wheeler, “Cities and the Growth of Wages Among Young Workers: Evidence from the NLSY” (Working Paper 2005-055A, Federal Reserve Bank of St. Louis, 2005).

9 See Alan Berube, “MetroNation: How U.S. Metropolitan Areas Fuel American Prosperity” (Brookings Institution, 2007); and Clark, Feldman, and Gertler, eds., *The Oxford Handbook of Economic Geography* (OUP, 2000).

10 In the context of the global economy, regions are large enough to compete in international markets and small enough to provide the agglomeration benefits that flow from geographic proximity of human capital, firms and related institutions. See, Manuel Pastor Jr. et al., *Regions That Work: How Cities and Suburbs Can Grow Together* (University of Minnesota Press, 2000); Pierre-Paul Proulx, “Cities, Regions, and Economic Integration in North America,” in *North American Linkages: Opportunities and Challenges for Canada*, ed. Richard Harris (University of Calgary Press, 2003); and Peter Calthorpe and William Fulton, *The Regional City* (Washington, D.C.: Island Press, 2001).

11 Deliberate, tailored strategies are particularly important in the knowledge economy because the growth trajectories of regional economies are diverging. In the past, underperforming regions tended to “catch up” with their higher-performing peers over time. In the new global economy, this dynamic has changed. Concentrated knowledge assets drive a self-reinforcing growth cycle, and as a result, high-performing regions tend to pull further ahead of their competitors. Small changes in direction can make a big difference. New growth theory, in particular, holds that concentrations of knowledge factors – such as high human capital, information technologies and information sector firms – build upon themselves. This process results in increasing rather than diminishing returns, so that the places that get ahead tend to keep getting further ahead. See generally Joseph Cortright, “New Growth Theory, Technology and Learning: A Practitioner's Guide,” *Reviews of Economic Development Literature and Practice* 4 (2001), especially 10-12; and Weissbourd and Berry 2004.

*Inclusiveness is Good for Business.*

All areas of a region – its neighborhoods and its populations – are inextricably linked. Regions that develop and deploy more of their human, real estate and business assets do better in the long run because they waste fewer assets and reduce the costs of poverty. In the long term, economic growth – across all five market levers – must be inclusive to be sustainable.<sup>12</sup>

**B. A New Approach to Economic Growth**

The transformative nature of the next economy has major implications for the practice of regional economic development (see Figure 1). Fundamentally, traditional strategies are no longer enough to move the needle on growth. Regions must take a new approach, moving away from consumption-driven growth (e.g., retail, housing), and from deal-by-deal, opportunistic firm attraction based primarily on low costs.<sup>13</sup>

Instead, the focus must shift to the creation of production-driven economies that compete by adding value, building on specialized assets and unique strengths and opportunities. To do this, regions must concentrate on increasing the *productivity* of their people and assets. Successful regions develop and implement comprehensive, integrated and inclusive strategies across the five market levers (discussed below) that determine productivity.

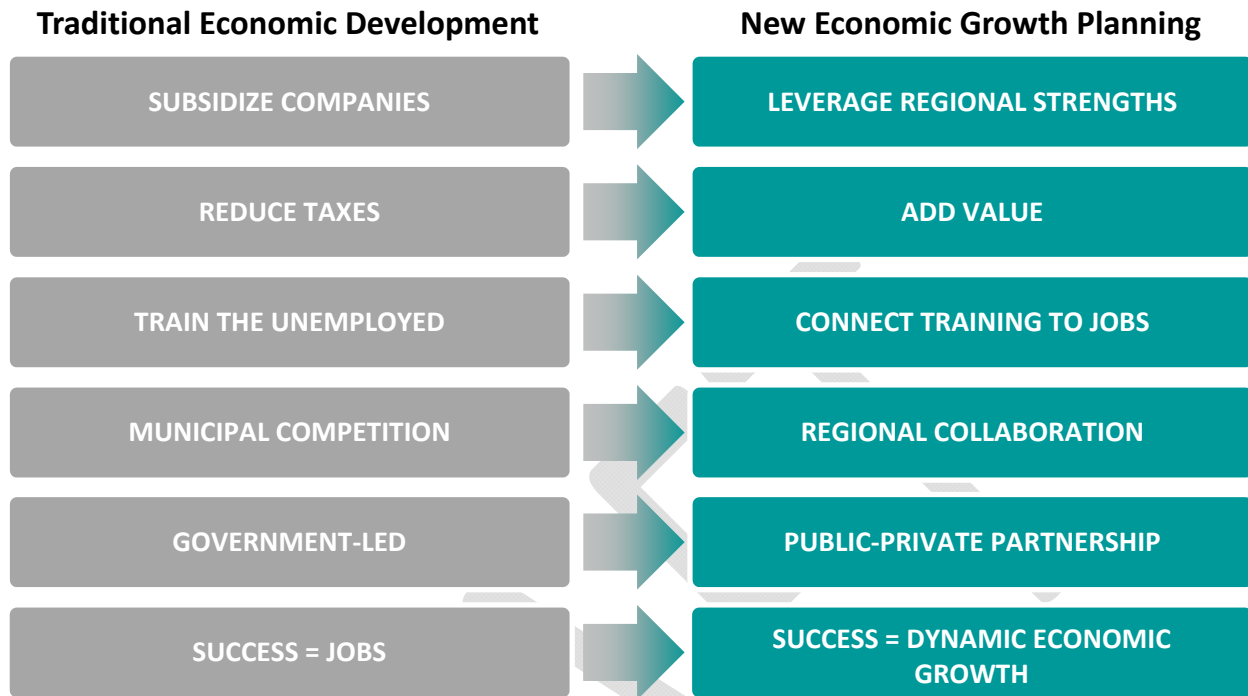
This new approach requires creating new institutional capacity that works across the public, private and civic sectors and across jurisdictional boundaries. These cross-sector institutions must engage in “truth-telling” and discard the conventional wisdom when it no longer fits market realities; deeply understand the unique economic assets and dynamics of a region; and deliberately create coordinated initiatives to shape those dynamics and foster the rich, transparent and dynamic networks that drive innovation and growth. Over the long term, they must continually monitor and adjust their action plans based on objective metrics of market performance and impact.

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12 See discussion in Weissbourd and Berry, 2004: 50-51, 56, 60; For additional empirical evidence of the relationship between inequality and economic growth, see, e.g., Gregory Acs, "Examining Income Inequality in America's Largest Metros," *MetroTrends*, (Washington, D.C.: The Urban Institute, 2012); Andrew G. Berg and Jonathan D. Ostry, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?," (Washington, D.C.: International Monetary Fund, 2011); Thorvaldur Gylfason and Gylfi Zoega, "Education, Social Equality and Economic Growth: A View of the Landscape," (*CESifo Economic Studies* 49, 4, 2003): 557 – 579. See also, e.g., Heather Boushey and Adam S. Hersh, "The American Middle Class, Income Inequality, and the Strength of Our Economy," (Center for American Progress, May 2012).

13 Individual firm attraction instead plays an important role as a *tactic* employed to implement strategies tailored to the assets and characteristics of the region – e.g., targeting particular types of firms to fill out a strong local cluster. In these circumstances, the case that is made to attract the targeted firm is also different – less focused on direct financial incentives (cost reduction) and more on adding value through infrastructure, human capital and other programs that improve the region for the entire industry and make the attracted firms “stickier” (less likely to leave for the next, lower-cost location).

Figure 1: Changing Nature of Economic Development Practice



In short, regions must deliberately make transformative investments tailored to move them forward on their unique path to prosperity in the next-economy environment.

### C. Five Market Levers to Enhance Productivity

Metropolitan economies grow, by definition, by increasing the total value of goods and services produced by local firms. Firm creation and growth, as well as businesses' movement into and out of the region, are functions of regional characteristics that determine the efficiency and productivity of various types of firms and markets. In the new global economy, five market levers account for the efficiency and productivity of regional economies.<sup>14</sup> These provide the framework for understanding a region's economic assets, challenges and opportunities and are the organizing structure for the market analysis that is the foundation of the Metropolitan Business Plan. The levers are briefly summarized here and further described in their respective chapters later in this plan.

- **Enhance industry clusters and concentrations.** Firms are more productive when interacting in "clusters" of related firms, business functions and institutions.
- **Develop and deploy human capital aligned with jobs.** The knowledge economy places a premium on higher levels of human capital and on labor markets that enable more continuous, targeted and efficient training, retraining and deployment of workers whose skills align with changing job requirements.

<sup>14</sup> See note 2 for sources providing detailed literature review, derivation and explanation of these market levers.

- **Foster innovation and entrepreneurship.** Deliberate and continuous innovation is the core driver of increasing economic productivity.
- **Improve infrastructure and the efficiency of the built environment.** The economic benefits of concentrating assets in regions – such as reduced transportation costs for goods, people and ideas, shared labor pools and the spillover of knowledge between firms and individuals – arise most robustly from dense, mixed-use and well-connected concentrations of businesses, suppliers, workers and consumers.
- **Create effective public and civic institutions.** Government shapes and enables market activity; provides critical public goods that enhance firms’ productivity and efficiency; and, along with civic, private-sector and cross-sector institutions, creates the networks and environment that support dynamic and flexible economies.

These five market levers interact to define the characteristics, opportunities and performance of a regional economy. Market analysis of their status and dynamics in the Milwaukee region is the critical first step toward creating a Metropolitan Business Plan.

## II. Overall Economic Performance<sup>15</sup>

### **Regional Geography**

The Milwaukee 7 region is comprised of Milwaukee, Waukesha, Ozaukee, Washington, Racine, Kenosha and Walworth Counties. Throughout the plan, facts are cited for the entire seven-county region whenever possible. When the availability of data limits the ability to describe the seven-county region as a whole, facts are cited for smaller geographic areas. The plan adopts the following conventions to distinguish the geography being referenced for any given piece of data:

- “Milwaukee region” or “M7 region” = full, seven-county region as described above
- “Milwaukee metro” or “Milwaukee MSA” = four-county Milwaukee-Waukesha-West Allis MSA, comprised of Milwaukee, Waukesha, Ozaukee and Washington Counties

Where data reflects other geographies – e.g., City of Milwaukee or the region’s central cities of Milwaukee, Waukesha, Racine and Kenosha – the appropriate geography is explicitly noted.

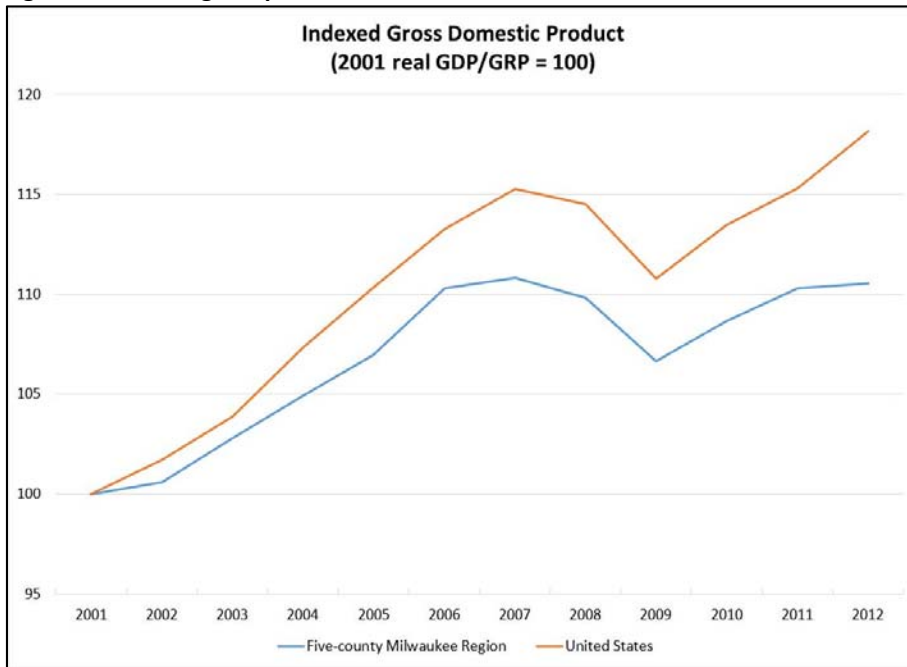
The Milwaukee regional economy is large and diverse. The region’s approximately 950,000 workers – employed in 52,000 firms – generated \$83 billion of real gross regional product (GRP) in 2011.<sup>16</sup> The four-county MSA is the 36<sup>th</sup> largest in the US, and if it were a country, its size would rank it just behind Morocco and Slovakia.<sup>17</sup> At the same time, regional employment experienced a more dramatic decline and a more modest post-recession rebound than the US as a whole, and currently (2012) stands at nearly 6% below 2000 levels. GRP similarly has grown more slowly than the nation (2001-2012), at a compound annual rate of 0.9% vs. the US rate of 1.5%. See Figures 2 and 3, below.

<sup>15</sup> Throughout this section, figures for GRP come from the Bureau of Economic Analysis for the five-county Milwaukee and Racine MSAs only (exclude Walworth and Kenosha Counties, due to geographic definition issues); figures for employment and wages come from the Bureau of Labor Statistics Quarterly Census of Employment and Wages for either the 5-county or 7-county region, as indicated; productivity figures are for the 5-county region (limited by geographic availability of GRP data); and poverty figures are from the US Census Small Area Income and Poverty Estimates (SAIPE) data for the 7-county region.

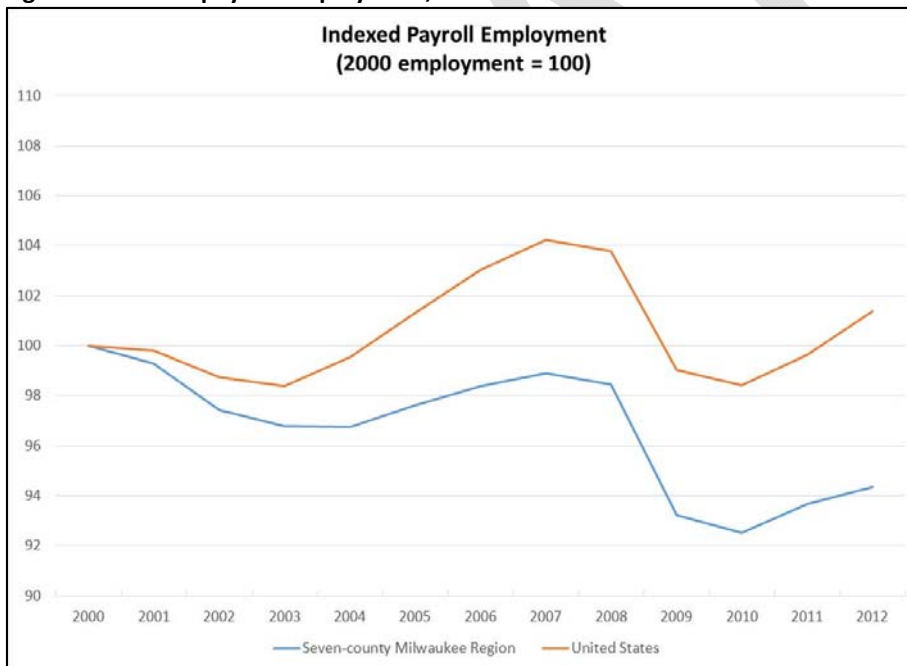
<sup>16</sup> Worker and firm counts are for the 7-county region and exclude the self-employed. GRP is for the 5-county region in real 2005 dollars.

<sup>17</sup> “U.S. Metro Economies: Outlook – Gross Metropolitan Product, and Critical Role of Transportation Infrastructure,” prepared by HIS Global Insight for the US Conference of Mayors and the Council on Metro Economies and the New American City, July 2012.

**Figure 2: Indexed gross product, 2001-2012**



**Figure 3: Indexed payroll employment, 2000-2012**



Modest GRP growth – despite employment losses – has been possible because of an 18% rise in regional productivity since 2001. While productivity growth has outpaced the US, the region remains nearly 4% less productive than the US (2011). Despite rising productivity, wages have remained stagnant in the region (+0.1% compound annual growth since 2000), and the gap between the average regional wage and the average US wage has widened to more than 6%.



The 7-county unemployment rate has historically tracked the national rate, though it has come down slightly more quickly since the recession (to 7.6% in 2012 vs. 8.1% for the US).<sup>18</sup> The 7-county region's poverty rate has risen by more than half since 2000, but declined slightly in 2011 to a level of 15.0%, slightly below the US rate of 15.9%.

Looking toward the future, the Milwaukee region's economy is at a critical inflection point. Its performance is uneven as firms, workers and a range of public and private institutions are working to adapt to the new-economy environment. Deliberate, collaborative action to leverage strategic assets and address key challenges is needed to put the region on a path to inclusive new-economy prosperity.

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<sup>18</sup> Bureau of Labor Statistics, Local Area Unemployment Statistics

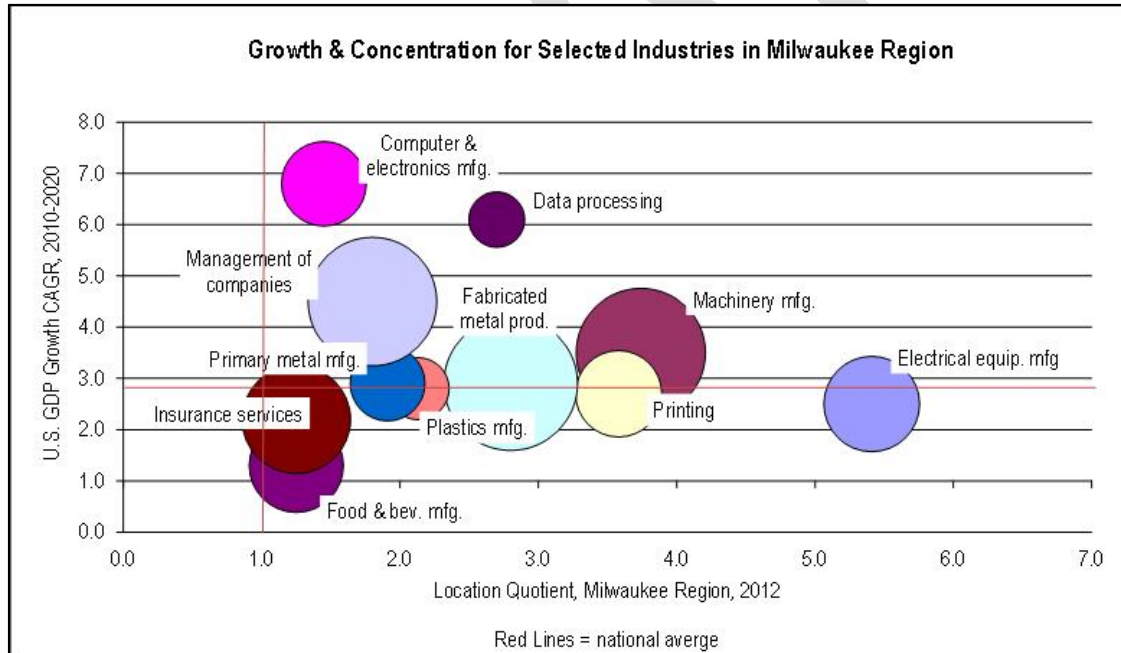
### III. Clusters and Concentrations<sup>19</sup>

Firms become more productive by geographically “clustering” with related firms and institutions. This concentration of economic activity reduces transaction costs, enables sharing of specialized labor pools and other inputs and facilitates innovation through knowledge and technology exchange.

A region’s most promising clusters have a strong local presence (i.e., they are more concentrated than in other regions), are growing locally and nationally, exhibit a degree of competitive advantage (e.g., highly productive or have the potential to be) and include unique institutional and other assets that make the cluster and region competitive.

A diverse array of sectors and industries exhibit a strong presence in the M7 region, as measured by their location quotients (LQs) (see Figure 4).<sup>20</sup>

**Figure 4: Milwaukee region industry concentrations**



Source: Analysis of EMSI and BLS data, 2002 and 2010. Bubble size denotes industry employment size in region.

<sup>19</sup> The terms “sector,” “industry” and “cluster” are used repeatedly throughout this report and should not be considered interchangeable. Sectors and industries refer to groupings of firms broadly in the same business, which can be defined based on NAICS or SIC codes. Industries are narrower groupings within sectors – e.g., the manufacturing *sector* includes the food manufacturing *industry*, structural metal fabrication *industry* and so on. Clusters are described briefly in Chapter I and again below as groupings – of firms, functions, occupations, and related institutions – whose co-location, interdependence and economic relationships enhance the productivity of member firms.

<sup>20</sup> Figure 4 displays those 3-digit NAICS industries that exhibit an LQ (calculated using employment figures) of at least 1.0 in the M7 region. An LQ measures the proportion a given industry comprises in the regional economy, divided by the proportion that same industry comprises in the national economy. An LQ > 1 indicates that an industry or sector is more concentrated in the region than it is nationally.

Many of the most concentrated regional industries are in the manufacturing sector, which comprises a meaningful share of the M7 economy and remains a critical component to the region's prosperity. The five counties in the Milwaukee and Racine Metropolitan Statistical Areas (MSAs)<sup>21</sup> generate \$17.6 billion in manufacturing gross regional product (GRP) and \$10.1 billion in merchandise exports.<sup>22</sup> Manufacturing in the region represents 149,300 jobs or 15.8% of the regional workforce, ranking it second highest of the 50 largest US metros.<sup>23</sup> Manufacturing not only provides a large number of jobs, but a large number of well-paying jobs: average manufacturing wages are 31% higher than the regional average for all workers.<sup>24</sup>

In the new economy, firms – manufacturing and otherwise – can no longer rely primarily on being low-cost, high-volume producers of standardized goods. To succeed, clusters of firms and related institutions develop informal, flexible and nimble economic networks that enable them to compete on customization, product quality, new process and technology development and other high-value-added factors. Across all clusters, shifts toward continuous technology-based innovation, higher levels of human capital and increased focus on exports are especially important to competitiveness in the new economy. The Milwaukee region has struggled to adapt to this changing environment, particular in manufacturing, losing more than 60,000 manufacturing jobs since 2000 (a 29% decline vs. a 32% decline nationally), while GRP has barely kept pace with inflation.<sup>25</sup>

In the midst of this transformation toward advanced manufacturing, three “asset” clusters – large, concentrated and with growth potential – are anticipated to offer the greatest opportunity for driving the Milwaukee region's growth in the new economy. Two non-manufacturing clusters have also been identified as “assets,” while three additional clusters also warrant attention and further exploration. These include both “emerging” clusters that have a relatively small but growing regional presence, and exhibit future growth potential; and “legacy” clusters that have a large regional presence, but are stagnant or declining and need to seek opportunities for redeploying their resources. The dynamics and opportunities in each of these eight clusters are described below.<sup>26</sup>

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<sup>21</sup> This geography excludes Walworth and Kenosha Counties, for which GRP data is not available from the Bureau of Economic Analysis (BEA).

<sup>22</sup> BEA, 2011; US Department of Commerce, International Trade Administration, 2011

<sup>23</sup> BLS Quarterly Census of Wages and Employment data, 2012

<sup>24</sup> BLS Quarterly Census of Wages and Employment, 2012

<sup>25</sup> Note that gross regional product numbers are for the five counties that comprise the Milwaukee-Waukesha-West Allis and Racine MSAs. BLS Quarterly Census of Wages and Employment, 2000 and 2012; Bureau of Economic Analysis.

<sup>26</sup> Unless otherwise noted, data in the balance of this chapter is from EMSI for GRP (2011) and employment (2012).

**MARKET FACTS***ASSET CLUSTERS***Advanced Manufacturing: Energy, Power and Controls**

The energy, power and controls cluster is large, highly concentrated and export-intensive. With a longstanding presence in the region, the cluster has adapted and changed shape as the region's industrial base has shifted, and has remained an important foundation of the broad-based manufacturing environment. The cluster is comprised of three industry segments (see Figure 5), which in aggregate exhibit an LQ of nearly 3.75. The regional cluster includes more than 200 establishments and nearly 19,000 employees. Exports in the combined Milwaukee-Racine metro areas totaled more than \$4.8 billion in the electronic and electrical equipment sectors (of which this cluster is a subpart).<sup>27</sup>

The region has a very strong base of workers to participate in what is projected to be a growing cluster in the coming decade (see Figure 5).<sup>28</sup> All ten of the most common occupations in the electrical equipment segment exhibit above-average concentrations in the region. The same is true for nine of the ten most common occupations in instruments and controls, and for eight of the ten largest occupations in the other electrical equipment segment.<sup>29</sup> Many of the most common occupations in the cluster require some post-secondary training or education, but less than a bachelor's degree, making them well-aligned with the region's large middle-skill labor force (see Chapter IV, "Human Capital").

**Figure 5: Energy, Power and Controls – concentration and projected growth by cluster segment**

<b>Cluster segment</b>	<b>Location Quotient (2012)</b>	<b>Projected annual GRP growth (2010-2020)</b>
Electrical equipment	9.3	2.2%
Instruments & controls	2.6	3.0%
Other electrical equipment	1.6	3.3%

Source: EMSI, 2012; BLS, 2010 & 2020

Three primary trends are anticipated to create future growth opportunities in the energy, power and controls cluster:

- *The resurgence in US manufacturing* will likely lead to greater demand for industrial automation and controls equipment and systems in domestic facilities. US manufacturing GDP has grown 16.4% in real terms since 2009, substantially higher than the overall GDP growth rate of 6.7% over the same period. At the same time, manufacturing jobs grew at

<sup>27</sup> U.S. Department of Commerce, International Trade Administration, 2011

<sup>28</sup> Note that projected growth in these segments is attributed to enhanced productivity – employment in the instruments and controls sector is expected to decline by 1.1% annually, electrical equipment by 1.5% per year and other electrical equipment by 0.5% annually.

<sup>29</sup> Occupations with above-average regional concentrations represent 47% of electrical equipment employees nationally, 39% of instruments and controls employees and 41% of other electrical equipment employees. BLS and EMSI, 2012

only a 0.6% pace, suggesting that capital and equipment inputs have and likely will continue to represent a larger proportionate share of manufacturing inputs (vs. labor).<sup>30</sup>

- *Expanding investments in electrical power infrastructure* averaged \$63.9 billion per year between 2001 and 2010. Investments necessary to upgrade and expand such infrastructure over the 2011 to 2020 period are expected to further increase by \$11.1 billion per year.<sup>31</sup>
- *The building energy efficiency industry* will represent a growing global market, with expanding export opportunities. The market is projected to grow more than 50% over the 2011 to 2017 period, increasing expenditures to nearly \$104 billion annually worldwide.<sup>32</sup>

The Milwaukee region is well positioned to capture these opportunities and grow its energy, power and controls cluster given its array of global leaders in critical segments of the cluster, including Rockwell Automation and Eaton (industrial and automation controls); Cooper Power and Waukesha Electric (power infrastructure); and Johnson Controls (building efficiency). As importantly, a collaborative network of companies and academic institutions has formed the Mid-West Energy Research Consortium (M-WERC, a recent expansion of the Wisconsin Energy Research Consortium), and one-on-one university-industry partnerships such as the University of Wisconsin-Milwaukee/Johnson Controls Partnership in Energy Research (see Appendix A1 for details) are similarly creating more capacity and innovation in the cluster.

### **Advanced Manufacturing: Food and Beverage**

The Milwaukee region's food and beverage cluster is large, concentrated and growing in export activity. The core of the cluster – food manufacturers, processors and artisans – is comprised of more than 300 firms, employs approximately 14,000 people and has an LQ of nearly 1.2, one of the strongest concentrations among major US markets. The region is also home to nearly 6,800 workers in industry segments that support the core, including food products machinery manufacturing (LQ of 3.1) and food and beverage distribution (LQ of just under 1.0).<sup>33</sup>

The regional workforce is concentrated in occupations needed to support the food and beverage cluster – a number of which provide entry-level employment and opportunities for upward mobility – exhibiting occupational LQs greater than 1.0 for at least eight of the ten largest occupations represented in the food and beverage sectors nationally.<sup>34</sup> The state of Wisconsin's food manufacturers exported \$1.7 billion in 2012, an increase of 156% since 2005.<sup>35</sup>

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<sup>30</sup> M7 analysis of US Bureau of Economic Analysis data

<sup>31</sup> "Failure to Act: The Economic Impact of Current Investment Trends in Electricity Infrastructure," American Society of Civil Engineers, 2011

<sup>32</sup> "Global Market for Energy Efficient Buildings to Surpass \$100 Billion by 2017," Navigant Research, November 2011, citing "Energy Efficient Buildings: Global Outlook " by Pike Research (<http://www.navigantresearch.com/newsroom/global-market-for-energy-efficient-buildings-to-surpass-100-billion-by-2017>)

<sup>33</sup> See Food and Beverage Milwaukee (FaB Milwaukee) for further detail regarding the definition of the components of the cluster.

<sup>34</sup> These ten occupations represent 44% of national food and beverage employment (BLS and EMSI, 2012). Note that region-level data is not available for all 10 occupations.

<sup>35</sup> US Department of Commerce, International Trade Administration, 2012. Note that comparable regional export numbers are unavailable

The Milwaukee region exhibits supply-chain advantages in growing a competitive food and beverage cluster, given its natural symbiosis with the vast quantities of crop-based, dairy and animal products generated throughout Wisconsin.<sup>36</sup> These agricultural outputs continue to support the region's strengths in beer, bratwurst and cheese making, which have subsequently driven a regional strength in ingredient manufacturing (ranging from seasonings to enzymes), with particular concentration in the NAICS category of "Other food manufacturing," (LQ of 2.9).<sup>37</sup>

Nationally, food & beverage manufacturing growth is projected to grow over the 2010 to 2020 period in both employment and output. The Milwaukee region's food and beverage manufacturing assets align well with expanding domestic and international markets:

- *Demand for functional foods* (i.e., those with added nutritional value, such as yogurt with active cultures, gluten-free products, etc.) is anticipated to grow by 6.8% per year through 2018 to become a \$149 billion global market, driven by rising income levels, changing lifestyles, increasing health awareness and a rapidly aging world population.<sup>38</sup> The Milwaukee region's strength and history in ingredients manufacturing includes many firms that produce for the functional foods segment of the market (e.g., lactic acid bacteria, enzyme production and others that support the making of fermented meat, cheese, yogurt production and baking).<sup>39</sup>
- *Demand for organic food* – estimated to be a \$31.5 billion market in the US and \$63 billion globally as of 2011<sup>40</sup> – is anticipated to grow domestically at a compound annual rate of 12.2% between 2010 and 2014.<sup>41</sup> Wisconsin is home to more organic farms than any US state other than California, an advantageous position for food and beverage processors in the Milwaukee region.<sup>42</sup> For example, British Columbia-based Nature's Path – an organic cereal maker – located their first US production operation in Waukesha County, citing the location's proximity to suppliers and markets involved in manufacturing organic and functional foods.<sup>43</sup>
- *Demand for locally grown food*, sold either directly to consumers or through intermediaries such as grocers and restaurants, generated \$4.8 billion in sales in 2008 and is projected to

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<sup>36</sup> The state ranks highly in several core inputs to food and beverage production: #1 in cheese, oats, snap beans and cranberries; #2 in milk and carrots; and #3 in potatoes, peas and sweet corn. "WI Agricultural Statistics," USDA, 2010, p3 ([http://www.nass.usda.gov/Statistics\\_by\\_State/Wisconsin/Publications/Annual\\_Statistical\\_Bulletin/AnnBull\\_2010\\_final\\_web.pdf](http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Annual_Statistical_Bulletin/AnnBull_2010_final_web.pdf)).

<sup>37</sup> EMSI, 2012

<sup>38</sup> *Nutraceuticals World*, December 5, 2012, citing "Functional Foods and Drinks," Global Industry Analysis (GIA), November 2012 ([http://www.nutraceuticalsworld.com/issues/2012-12/view\\_industry-news/functional-foods-drinks-see-strong-growth/](http://www.nutraceuticalsworld.com/issues/2012-12/view_industry-news/functional-foods-drinks-see-strong-growth/)).

<sup>39</sup> For example, Milwaukee-based Lakefront Brewery produces a gluten-free beer, the first of its kind in the nation.

<sup>40</sup> Helga Willer, Julia Lernoud and Robert Home, "The World of Organic Agriculture 2013: Summary," FiBL and IFOAM (<http://www.organic-world.net/fileadmin/documents/yearbook/2013/web-fibl-ifoam-2013-25-34.pdf>).

<sup>41</sup> "US Organic Food Industry Expected to Grow Over 12% by 2014," Sustainable Communities Online (<http://www.sustainable.org/economy/agriculture-a-food-systems/1295-us-organic-food-industry-expected-to-grow-over-12-by-2014>), citing "US Organic Food Market Analysis," RNCOS, September 2011.

<sup>42</sup> "WI Agricultural Statistics," USDA, 2010, p64.

<sup>43</sup> *Site Selection Magazine*, July 2009.

see robust market growth in the future.<sup>44</sup> The Milwaukee region has been recognized as a leader in urban agriculture – which may provide emerging opportunities for entrepreneurs to minimally process and package these raw agricultural products – and is home to one of the local food movement’s leading authorities, urban farmer and MacArthur “Genius Award” winner, Will Allen, who is also the founder of Growing Power Inc.

This cluster also has the advantage of a formal cluster organization: the Food and Beverage Milwaukee (FaB) network, composed of more than 50 firms working together to enhance cluster growth by focusing on the areas of talent, innovation and business development.<sup>45</sup> Initiatives underway or being planned by FaB include a pilot career awareness program at a public high school, tailored technical college curricula, a career resource center, industry directory and a small business accelerator program.

### **Advanced Manufacturing: Water Technology**

The Milwaukee region’s location provides it with a unique competitive advantage: it is adjacent to Lake Michigan and uniquely spans both the Great Lakes (the greatest source of fresh water on the planet) and Mississippi watersheds (the two largest watersheds in the US). The Milwaukee region is also home to world-class research institutions and a high concentration of water-related companies, making it a world hub of water technology, research and policy.

The water technology industry represents a \$483 billion dollar market worldwide,<sup>46</sup> covering a spectrum of industries from water and sewage filtration to water pumps, valves and meters. Between 130 and 150 water technology-related companies are located in the Milwaukee region, including five of the 11 largest water firms in the world.<sup>47</sup> Similar to other industries in the “green” space, the water technology industry includes a broad spectrum of products and services, many of which are difficult to pinpoint within standard industrial classification systems (e.g., NAICS). Those that are easily identifiable and strong within the Milwaukee region include pumps (LQ of 3.3), meters (5.2), boilers (5.6) and valves (LQ of 1.6), which in aggregate employ 3,600 workers. These represent only a subset of the region’s water technology-related businesses, some of which have their origins in the region’s iconic brewing industry, which required expertise in water movement, assessment and treatment.

The water technology industry is a large and growing market, both domestically and internationally. The US market for water and wastewater services and products is estimated at \$139 billion in 2012, up 3.8% from the prior year,<sup>48</sup> while the global market is nearly \$500 billion.<sup>49</sup> Resource scarcity plays a significant role in the industry’s anticipated future growth.

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<sup>44</sup> Sarah A. Low and Stephen Vogel, “Direct and Intermediated Marketing of Local Foods in the United States,” USDA Economic Research Service, Economic Research Report Number 128, November 2011.

<sup>45</sup> Email communication with Shelley Jurewicz, Executive Director, FaB Milwaukee. FaB enrolled 51 Employer Members within three weeks of converting to a membership fee model in September 2013, with a goal of enrolling 200 members by June 2014.

<sup>46</sup> Joann Muller, “The Capital of Water,” *Forbes*, March 27, 2013.

<sup>47</sup> Milwaukee Water Council estimates there are 150 water-related companies in the region. “Milwaukee Water Technology Company Expanding,” *Milwaukee Journal Sentinel*, December 17, 2010.

<sup>48</sup> “2013 Water Market Review,” TechKNOWLEDGEy Strategic Group, 2013

<sup>49</sup> Joann Muller, “The Capital of Water,” *Forbes*, March 27, 2013.

Population growth and agricultural irrigation west of the Mississippi River have placed strains on US deep aquifer reserves and surface water supply sources. Globally, population growth and insufficient or non-existent water and wastewater infrastructure in developing countries have placed water availability and water quality issues at the forefront of international development.

In order to meet domestic water needs, the EPA estimates the need to invest \$384 billion in drinking water infrastructure and nearly \$300 billion in wastewater and stormwater infrastructure over the next 20 years.<sup>50</sup> Internationally, future infrastructure needs in both categories will be many times higher.

The Milwaukee region's access to the Great Lakes – 21% of the world's surface fresh water – provides several economic advantages in light of these national and global trends. The region has a competitive advantage for attracting and growing water-related industries, which benefit from close proximity to this plentiful resource.<sup>51</sup> In addition, the region's freshwater research resources, based at UWM's School of Freshwater Sciences, provide a strategic advantage in pursuing and realizing future opportunities for water technology innovation.

The 100+ members of the Milwaukee Water Council continue to build on this competitive advantage to establish the region as a global hub for water-related research and development, company formation and human capital development. The Council has several initiatives underway, including the Global Water Center, focused on water research and business acceleration; the Global Freshwater Seed Accelerator; the Industry/University Cooperative Research Center, which brings together two universities in partnership with six regional firms; and creation of a water-relevant curriculum for five campuses in the University of Wisconsin system.

### **Headquarters and Business Services**

This cluster is comprised of business headquarters and the service providers that enable their productivity and efficiency. Primary components of this cluster in the Milwaukee region include:

- **Headquarters:** The region is home to seven *Fortune* 500 companies, four of which are among the largest 150 companies on the list, ranking the region among the top ten US regions on a per capita basis.<sup>52</sup> This segment of the cluster employs 26,000 workers (1.8 LQ) and generates \$3.5 billion in GRP annually. The region's number and concentration of headquarters are anticipated to grow in the coming decade (EMSI projects a 2020 LQ of 2.0).

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<sup>50</sup> "Clean Watershed Needs Survey: Report to Congress," US EPA, 2008 and "Drinking Water Infrastructure Needs Survey and Assessment: Fifth Report to Congress," US EPA, April 2013 (data is for 2011 through 2030)

<sup>51</sup> Though not directly part of the water cluster, the region also has a competitive advantage for water-intensive industries such as metals and food/beverage manufacturing, which in turn enhance the demand conditions for water industry products and services in the region.

<sup>52</sup> *Fortune*, May, 2013



- IT – data processing and information systems: The IT segment of the cluster is highly specialized in data processing and information systems, services provided to a wide range of industries in the region, but particularly focused on firms involved in finance and insurance services (described below). This segment employs 5,000 workers with a location quotient of 2.7, and is projected to add 550 workers through 2020 (exceeding the national rate of employment growth – 11% vs. 7%).<sup>53</sup>

Two other segments of IT – software publishing and computer systems design – may also offer future growth opportunities. While currently small and not very concentrated in the region, they are projected to grow in the coming decade, adding an aggregate of 1,500 jobs by 2020.<sup>54</sup>

- Business-to-Business (B2B): The region’s headquarters cluster also includes a broad range of other services that support the operations of headquarters, ranging from commercial real estate brokerage to messenger services to food service/catering to security and janitorial services. These firms provide a necessary foundation for the overall health of the headquarters cluster, while also offering opportunities for entry-level employment and advancement, as well as entrepreneurship. This component of the cluster – not previously analyzed in detail in the Milwaukee region, but increasingly the focus of attention in numerous other metros – warrants attention and exploration going forward.

### **Finance and Insurance**

The finance and insurance cluster generates \$8.9 billion in GRP for the M7 Region. It employs 45,600 workers and is relatively concentrated in the region, with an LQ of slightly more than 1.1. Sub-segments that demonstrate particularly high location quotients and potential for future growth include securities brokerage, investment advice, trust, fiduciary and custody activities and life insurance carriers (see Figure 6).

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<sup>53</sup> EMSI, 2012 and 2020

<sup>54</sup> EMSI, 2012 and 2020

**Figure 6: Finance and Insurance – concentration and projected growth by cluster segment**

Cluster segment	Location Quotient (2012)	Projected annual GRP growth (2010-2020)
Securities & financial investment activities	1.13	4.5%
Insurance carriers	1.49	2.2%

Source: EMSI, 2012; BLS, 2010 & 2020

While the regional cluster includes some local-serving segments (e.g., banking, insurance agents), the growth of which tends to be limited by population growth, there is significant growth potential in the traded segments of the cluster as well – e.g., insurance carriers, money management and trust activities, securities.<sup>55</sup> Above-average growth is expected nationally in the finance and insurance sector through 2020, as activity expands to service both the baby boomers entering retirement and younger generations as their earnings increase throughout their professional lifecycles. Technological developments in the finance sector will become increasingly important, as demand continues to grow for online and mobile points of access. The Milwaukee region is well-positioned with regard to these trends, given its mix of prominent finance and insurance companies, as well as financial IT companies.

A number of important cluster occupations are also concentrated in the region, further reinforcing which cluster functions are locally prominent: financial managers (1.1 LQ), credit analysts (1.4) and financial analysts (1.2).

### *EMERGING CLUSTERS*

#### **Bioscience**

The Milwaukee region is home to a diverse and growing bioscience cluster. Medical devices and equipment manufacturing employs over 7,500 workers and exhibits a location quotient of 2.6. Basic organic chemicals (2.8 LQ), biological products (1.9 LQ) and dental and medical labs (1.8 and 1.2 LQs, respectively) currently employ only small numbers of workers, but are relatively concentrated in the region. Several segments with low LQs, such as medicinal and botanical manufacturing and pharmaceutical preparation manufacturing, have added jobs in recent years and posted increasing LQs.

The bioscience cluster weathered the Great Recession well. Over the 2001 to 2012 period, bioscience companies in the region added 755 jobs, a 6% increase, vs. the 5% job loss reported for the region overall. Much of the growth was generated in the medical device and equipment segment, which together added 544 jobs (+8%).

Two macro trends are likely to generate continued growth opportunities in the bioscience cluster:

<sup>55</sup> Large and growing firms include Northwestern Mutual, West Bend Mutual, Assurant Health, Robert W. Baird, U.S. Bank Mutual Fund Services, UMB Mutual Fund Services, Wells Fargo Advantage Funds and Artisan Mutual Funds.

- Aging of the population, both domestically and internationally, is increasing demand for medical/bioscience products and services; and
- Growth in emerging markets such as China, India and Brazil is further increasing demand for health care products and services.

Complicating the cluster's future outlook, federal health care reform creates a measure of uncertainty for the biosciences field. While reform is anticipated to result in insurance coverage for 32 million additional people in the US (increasing demand), cost containment measures are likely to mitigate future growth in per-person spending.

Growing research funding and other resources at local academic institutions may provide some of the support necessary to grow the emerging biosciences cluster. While the Medical College of Wisconsin ranked only 102nd among universities in the US for R&D funding in 2009 (\$176 million), it posted the 10<sup>th</sup>-highest growth rate among large academic institutions over the 2002 to 2009 period.<sup>56</sup> In addition, the University of Wisconsin-Milwaukee has established a School of Public Health, and Concordia University Wisconsin has opened a Pharmacy School, both of which provide promising avenues for expanding regional research activity and commercialization in the bioscience field.

#### LEGACY CLUSTERS

##### Printing

Printing is large and very concentrated in the Milwaukee region, employing 12,000 workers and exhibiting an LQ of 3.6, while primary printing occupations exhibit an LQ of 2.45. The cluster has shed jobs in recent years due in large part to the growth of digital media. While the US printing industry represented a \$31.7 billion industry in 2011, future growth prospects are very limited. Annual output growth in the printing industry (2.7%) is forecast to trail output growth across all industries (2.9%), and employment levels are expected to decline at an average of 0.7% annually.<sup>57</sup>

The cluster's limited growth prospects nationally and globally – due primarily to shifting demand toward digital media, e-commerce and e-books – consequently hamper its potential as a growth opportunity for the Milwaukee region, unless avenues can be identified for redeploying the cluster's existing assets toward next-economy opportunities. The region may have the potential to capture an increasing share of the rapidly consolidating printing market, given the cluster's regional concentration and levels of local expertise, supportive industry institutions and access to the state's paper industry.<sup>58</sup>

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<sup>56</sup> MMAC analysis of 2009 National Science Foundation data

<sup>57</sup> Bureau of Labor Statistics

<sup>58</sup> The seven states bordering on the Great Lakes represent 34% of national product in printing, and Wisconsin has the highest LQ (on an output basis) among the 50 states (Bureau of Economic Analysis, 2011). The nation's two largest printing companies – Quad/Graphics and R.R. Donnelly – are headquartered either in or bordering on the Milwaukee region (Sussex and Chicago, respectively). Two primary institutions in the region can support the cluster: Great Lakes Graphics Association, an active trade

## **Tourism**

Visitors to the Milwaukee region spent an estimated \$3.3 billion in 2012, with a total economic impact of \$5.7 billion dollars.<sup>59</sup> Regional employment in the cluster is significant, but not concentrated: arts, entertainment and recreation employ 16,400 (1.0 LQ), while accommodation and food services employ 86,300 (0.9 LQ). Both segments of the cluster are forecast to grow nationally in the coming years, but more slowly than overall economic growth (2.6% and 2.5%, respectively, vs. 2.9% overall). While the Milwaukee region in aggregate lacks a concentration in tourism-related activity, it is an important component of economic growth for specific sub-geographies, so merits consideration in the region's overall economic growth plan.

The tourism amenities throughout the region are very diverse. For example, Milwaukee County's convention and sports facilities, festivals and events make it the center of the state's tourism economy, accounting for 50% of the region's tourism spending.<sup>60</sup> Downtown Milwaukee in particular serves as a state and regional destination for performing arts and cultural attractions, while the outlying counties are home to many recreational and resort amenities (e.g., Lake Geneva).

## **ASSESSMENT**

The Milwaukee region is home to a diverse array of clusters that show potential for fueling future economic growth, including through exports. Three in particular – water; power, controls and automation; and food and beverage – are mutually reinforcing and well on the path to transforming their products, processes, markets and networks in ways that align with the characteristics of the next economy. Member firms and institutions in these clusters are highly organized, beginning to engage in cross-sector partnerships around workforce development and investing in collaborative R&D and other innovation-catalyzing activities. Opportunity exists to build on the current momentum in these clusters to further deepen industry-university partnerships; produce, attract and retain talent critical to future growth; and enhance their competitive position through applied R&D and commercialization of new technologies.

The region's other high-growth-potential clusters – headquarters and business services; finance and insurance; and bioscience – exhibit locally strong assets and have the potential to capitalize on next-economy trends. However, they have not formally organized to identify their collective cluster needs, pool resources and collaborate to pursue what is needed to enable their continued growth. Finally, leveraging – and redeploying where necessary – the resources of the region's legacy clusters (particularly printing) will be critical to facilitating their future contributions to regional growth.

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association; and Quadracci Printing Education and Technology Center, a training and technology center housed at Waukesha County Technical College. The Wisconsin paper industry is the nation's largest.

<sup>59</sup> Wisconsin Department of Tourism

<sup>60</sup> [M7 team: cite source and year – comment via email from Paul Upchurch, 10/18]

Making the transition to the next economy is imperative for all of the region's clusters – asset, emerging and legacy alike. Their continued evolution and success depends upon development of more formal ties among firms and institutional partners where little currently exists, enhancement of networks where already present and commitment to delivering tailored infrastructure, human capital, financial capital and other resources to meet each cluster's changing needs.

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## IV. Human Capital

The next economy places a premium on higher levels of human capital aligned with and deployed into rich job pools. The economic transformation also disrupts labor markets, creating challenges to efficiently producing and matching supply and demand for talent across industries and occupations, and leading to the need for more continuous, targeted training at all skill levels. These changes, particularly disruptions to the labor market, create particular challenges to facilitating *inclusive* growth through labor market participation and upward mobility.

### MARKET FACTS

#### a. High levels of human capital and rich job pools

In the new economy, increased emphasis on knowledge and the application of technology is driving additional demand for higher human capital across all industries and occupational categories. In addition, the global nature of the labor market has intensified competition for top talent, and compelled regions to focus on creating rich job pools that attract and retain the most highly skilled workers.

#### *Education/Skill Levels*

The Milwaukee region is home to 1.33 million working-age residents (16 to 64 years old). This segment of the population has grown 7.3% since 2000, significantly lagging the national pace of 12.8%. The oldest working-age cohort (age 45-64) has experienced the greatest growth in the 2000-2012 timeframe, increasing 31.5%. In contrast, mid-career workers (age 35 to 44) have shown the greatest decline over the same period, falling -20%.<sup>61,62</sup>

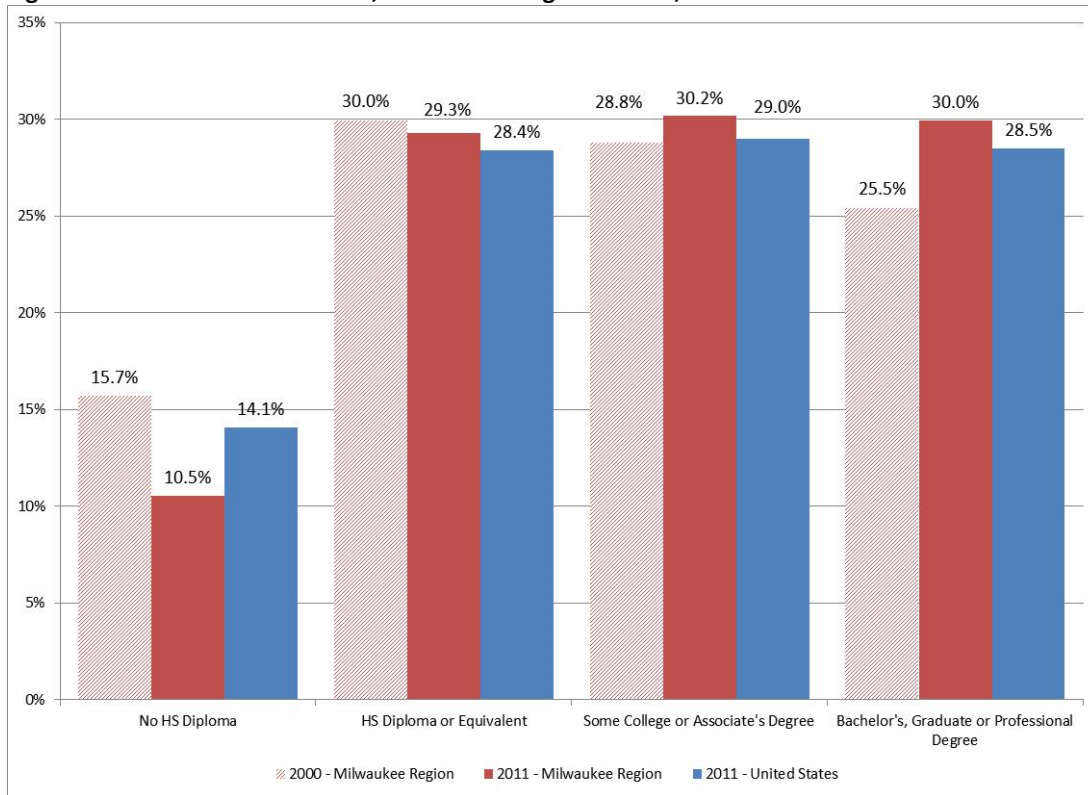
The working-age population in the region is generally more educated than the national average (see Figure 7). The share of adults with at least a bachelor's degree has grown over the past decade and exceeds the national proportion. Adults with "middle skills" (more than high school, but less than a bachelor's degree) also make up a larger share of the population regionally than they do nationally. At the lower end of the skills spectrum, the region is home to a smaller-than-national share of adults with a high school diploma or less.<sup>63</sup>

<sup>61</sup> US Census Bureau, 2000 Population Census and 2012 Census Population Estimates Program

<sup>62</sup> [M7 team: Decline in this age group was raised as counter-intuitive at the October meetings – may warrant further research/analysis by SEWRPC or another partner to clarify its meaning/significance?]

<sup>63</sup> US Census Bureau, 2000 Population Census and 2011 American Community Survey

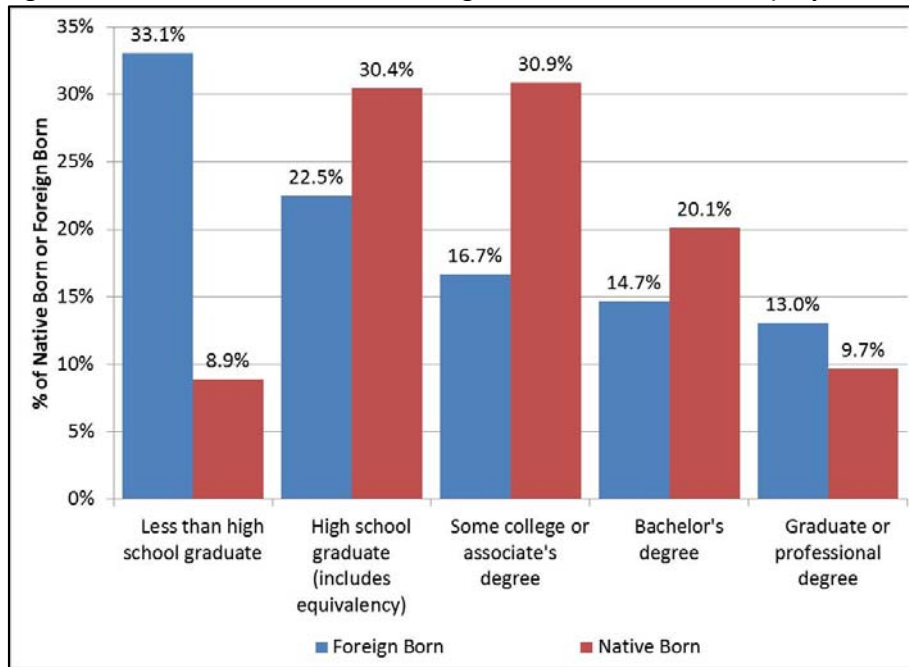
Figure 7: Educational Attainment, Milwaukee Region and US, 2000 & 2011



Educational attainment varies across different segments of the region’s working-age population, posing challenges for particular cohorts in the increasingly knowledge-intensive economic environment. For example, a growing share of the region’s young workers are college-educated – an important factor for driving new-economy growth – but that share is growing more slowly than in the nation as a whole (3.3% growth locally vs. 4.0% nationally).<sup>64</sup> Equally significant, the Milwaukee region’s foreign-born population is not well positioned to take advantage of new-economy opportunities (see Figure 8). While foreign-born adults are one third more likely than their native-born counterparts to hold an advanced degree, they are also more than 3.5 times as likely to hold less than a high school diploma.<sup>65</sup>

<sup>64</sup> US Census Bureau, 2000 Population Census and 2011 American Community Survey

<sup>65</sup> US Census Bureau, American Community Survey 3-year estimates

**Figure 8: Educational Attainment of Foreign- and Native-Born Adults (25 years and over), Milwaukee Region**

### Production

The performance of the region's 90 K-12 public school districts varies widely in its ability to produce students ready to enter the workforce or pursue post-secondary education. The region's core-city systems in particular experience high dropout rates and struggle to graduate "college and career ready" students. For students who complete high school (or the equivalent), the region's nine community and technical colleges provide career-oriented post-secondary training. In aggregate these schools enrolled 46,000 students in the fall of 2011 and generated 4,300 associate's degrees and 4,900 post-secondary certificates in the 2010/2011 academic year, accounting for approximately one third of all degrees and certificates conferred in the Milwaukee region.<sup>66</sup>

For those seeking more advanced education, the region is home to 17 accredited colleges and universities offering bachelor's and graduate degrees, with a total enrollment of 88,567 students. Collectively, they issue approximately 17,200 post-secondary degrees each year.<sup>67</sup> The region confers fewer degrees than the national average in high-demand science, technology, engineering and mathematics (STEM) fields: 25.1% of bachelor's degrees as well as advanced degrees, compared to 25.7% and 28.4% nationwide.<sup>68</sup>

Approximately 120 organizations provide workforce development programs and services in the

<sup>66</sup> National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 2011 enrollment data and 2010/2011 completions data

<sup>67</sup> National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 2011 enrollment data and 2010/2011 completions data

<sup>68</sup> National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 2010/2011 completions data. Note that the state of Wisconsin ranked in the top third of states producing bachelor's degrees in STEM fields during the 2008-9 academic year (27.1%). However, that percentage has declined from 28.8% in 1998-99.



Milwaukee region, ranging from case management to work readiness training to job search and placement services (further detail provided in Appendix A2).<sup>69</sup> Three local Workforce Development Boards (WDBs)<sup>70</sup> – among 11 such entities federally designated across Wisconsin – play a prominent role in coordinating, delivering and funding workforce programs in the region, primarily enabled by federal Workforce Investment Act (WIA) funds. Approximately 90% of Wisconsin’s workforce training money is derived from federal sources, which face appropriations challenges and often place numerous restrictions on when, how and where funds can be used.<sup>71</sup>

#### *Attraction/retention*

The Milwaukee region has experienced a long-term trend of net out-migration. The seven-county region saw a net out-migration of more than 186,000 residents between 1970 and 1990, as the economy struggled with the decline in manufacturing. A small net in-migration followed in the 1990s (+3,915), but was subsequently offset by a larger net out-migration in the last decade (-20,436).<sup>72</sup>

#### **b. Firm/worker matching & labor market efficiency**

In a dynamic and rapidly innovating economy, workers change jobs more often, and job and skill requirements are changing more quickly and becoming more specialized. Targeted attention must be paid to particular segments of the labor market and job pool as skill mismatches and labor market disruption occur frequently, driving up transaction costs, particularly during the early transition from the older economy to the new economy.

New labor market mechanisms are often needed to enable efficient movement of workers among occupations, firms and industries. Workers need to know what emerging skills are required for particular jobs, be able to do targeted upgrading to meet those requirements and be able to document their skills through recognized certifications. Employers need to be able to identify and assess candidates with the most relevant skills and experience efficiently. Those changes in job markets require training and education systems to function at a new level of market focus and agility, modifying their programs to maintain alignment with market demand.

The vast majority of jobs in the metro Milwaukee economy require post-secondary education or training, and this requirement is expected to become more widespread in the future. A 2009 survey revealed that more than 89% of full-time job openings and 83% of part-time openings in the region required related work experience, a license or other training and education beyond a

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<sup>69</sup> “The Milwaukee Workforce Development Landscape Report,” UWM Center for Workforce Development, 2006 [www.workforceenterprise.org/news/Milwaukee%20Landscape%20Report.pdf](http://www.workforceenterprise.org/news/Milwaukee%20Landscape%20Report.pdf)

<sup>70</sup> The Milwaukee Area Workforce Investment Board (Milwaukee County), WOW Workforce Development Board (Waukesha, Ozaukee and Washington Counties) and Southeast Wisconsin Workforce Development Board (Kenosha, Racine and Walworth Counties).

<sup>71</sup> “The Road Ahead: Restoring Wisconsin’s Workforce Development,” prepared by Tim Sullivan for Wis. Gov. Scott Walker, 2012

<sup>72</sup> “The Population of Southeastern Wisconsin,” Southeastern Wisconsin Regional Planning Commission, April, 2013.

high school diploma.<sup>73</sup> Global and national trends across industries suggest that these proportions will continue to rise in the future.

The Milwaukee region's workforce does not possess the levels of human capital necessary to meet this demand (see "Education/Skill Levels" above) for skilled workers. Further, several occupational groups that are critical to the region's promising clusters are projected to experience shortages of qualified workers on a statewide basis over the next decade, if current supply trends continue (i.e., absent adjustment to changing demand conditions). The number of in-state graduates in relevant fields is projected fall slightly between 2012 and 2021, in-migration is projected to be modest, and many workers are expected to retire, resulting in projections of insufficient labor pool growth to meet industry needs.<sup>74</sup> Specific examples include:

- **Systems & Network Software Development** (relevant clusters include software and systems design; power, automation and controls; advanced business services): Through 2021, Wisconsin's demand for these professionals is projected to rise by nearly 43%, yet supply is projected to drop by 18%, widening the gap between the supply and demand to a chasm of 11,675 in 2021— an alarming 15-fold increase.<sup>75</sup>
- **Mechanical Engineering** (relevant clusters include power, automation and controls; water): Demand for this set of occupations is projected to rise 43% over the next decade. The cohort of engineers already in the profession is aging, and therefore expected to decline 44% over the next decade – the largest percentage drop in projected supply among any of the targeted skills categories. Within the decade, Wisconsin could potentially have fewer than half the mechanical engineers it needs, and the state's colleges and universities have not historically graduated engineers at a pace sufficient to fill the gap.<sup>76</sup>
- **Metal Manufacturing** (relevant clusters include power, automation and controls; water): Many local manufacturers, including in metals, are currently interested in hiring skilled workers: more than 750 positions are open in welding and machining in the Milwaukee area.<sup>77</sup> Demand for skilled tradesmen is expected to grow by nearly 50%, while the supply is projected to decrease by about 12% over the same period, as baby boomers continue to retire. By 2021, Wisconsin may have less than half the metal manufacturing professionals

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<sup>73</sup> Job Openings Survey for Southeastern Wisconsin, Regional Workforce Alliance, May 2009 ([www4.uwm.edu/eti/2009/RegionalJobOpenings.pdf](http://www4.uwm.edu/eti/2009/RegionalJobOpenings.pdf)); survey of more than 3,800 regional employers (7,374 job openings).

<sup>74</sup> Be Bold 2 Study, produced by Competitive Wisconsin, Inc. and ManpowerGroup, 2012

<sup>75</sup> Demand is projected to rise to 25,813 workers, while supply is projected to fall to 14,138. Ibid

<sup>76</sup> Ibid

<sup>77</sup> *Pathways to Employment Study*, Public Policy Forum, 2012

required by industry employers. As of 2012, supply lags demand by more than 2,000 workers, a shortage projected to grow to more than 13,000 workers by 2021.<sup>78, 79, 80</sup>

### c. Inclusion and Opportunity

With rapidly changing demographics, and given that inclusiveness is a driver of sustainable, long-term prosperity in the next economy, regions need to ensure that workers of all skill levels, socioeconomic groups and communities have opportunities to participate in and progress in the labor market. An inclusive economy exhibits numerous “on-ramps” for entering the workforce, accessible jobs and career ladders and opportunities for continuous skill development and career change.

Between 1967 and 2011, the Milwaukee region lost approximately 48% of the manufacturing jobs that once provided a reliable on-ramp to the middle class for many workers.<sup>81</sup> These jobs have not been fully replaced by similar-skilled, well-paying jobs in other industries, leading to a bifurcation of the region’s income distribution, as the middle class has shrunk from 37% of households in 1970 to 24% in 2007, while the shares of lower-income households (32% to 38%) and more affluent households (31% to 38%) increased.<sup>82</sup>

This disruptive transformation in the manufacturing sector and the challenges of adapting to the knowledge economy more broadly, have not uniformly affected all parts of the region. While economic inequality exists across the Milwaukee region, it is particularly evident in the central cities – most starkly in Milwaukee – where skill and income levels are lower and unemployment is higher (see figures 9 and 10).<sup>83</sup> It is estimated that only 22.5% of City of Milwaukee residents have a bachelor’s or advanced degree (compared to 30% region-wide), while 49.2% have a high school diploma or less (compared to 39.9% region-wide). The City of Milwaukee’s median income is also 35% below the regional figure: \$33,122 in 2011, compared to \$51,279 region-wide.<sup>84</sup>

Inner-city residents, particularly African-American males, have been plagued by exceedingly high rates of unemployment for many years, a trend that worsened in the recent recession.

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<sup>78</sup> *Be Bold 2 Study*, produced by Competitive Wisconsin, Inc. and ManpowerGroup, 2012

<sup>79</sup> Note that a handful of programs are in place that aim to meet future skills demand in particular industry/occupational niches. E.g., training technicians/mechanics to meet public-sector demand for converting fleet vehicles to natural gas; training multiple cohorts of digital medical records technicians to meet the imminent need in healthcare; and retraining workers affected by the Trade Adjustment Act to work in growing IT fields, including cybersecurity.

<sup>80</sup> M7 team: It was mentioned that some publicly available Manpower reports are available that assess short-term training needs and opportunities, but have been unable to track them down online. If they’re specific to the region (vs. describing national needs), relevant findings for the M7 region could be incorporated into a paragraph here.]

<sup>81</sup> 1967 census of manufactures, Volume 3, Part 2; US Census 2011 MSA Business Patterns (NAICS). Note that conversion from the Standard Industrial Classification (SIC) to North American Industrial Classification System (NAICS) in 2001 results in a slight over-estimation of the job loss figure, but still reasonably reflects the order of magnitude of the change.

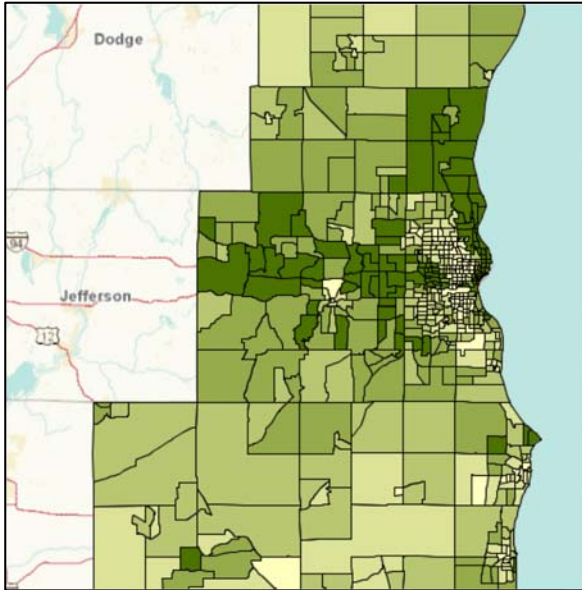
<sup>82</sup> “Middle-class” households are defined as those earning 80-125% of median income. Analysis by Southeastern Wisconsin Regional Planning Commission.

<sup>83</sup> American Community Survey, 5-year estimates (2007-2011)

<sup>84</sup> U.S. Census Bureau, 2011 American Community Survey

Only 44.7% of the metro area’s working-age African American males (aged 16 to 64) were employed in 2010, a substantial decline from the already-low 52.9% in 2008.<sup>85</sup> Poverty rates in the City of Milwaukee far exceed those of the region overall, at 29.4% compared to 15.0% for the 7-county region in 2011.<sup>86</sup> Employment in these high-poverty areas lags the rest of the seven-county region (e.g., by 7 percentage points from 1998-2009),<sup>87</sup> and these areas have poor access to primary job centers (see the “Infrastructure and Built Environment” chapter for additional detail).

**Figure 9: Percent bachelor's degree or higher (2007-2011 average)**

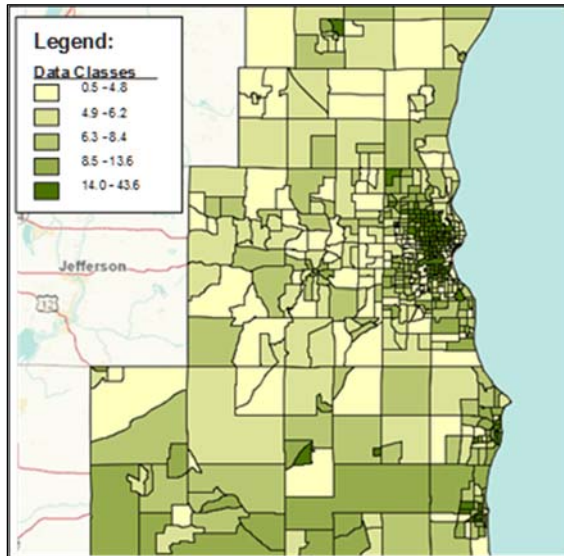


<sup>85</sup> “Race and Male Employment in the Wake of the Great Recession,” University of Wisconsin-Milwaukee Center for Economic Development, 2012

<sup>86</sup> US Census Bureau, American Community Survey and SAIPE data, 2011

<sup>87</sup> Wisconsin Department of Workforce Development, Local Area Unemployment Statistics

Figure 10: Percent Unemployed (2007-2011 average)



## **ASSESSMENT**

Reflecting the transition toward the new economy, occupational profiles are shifting and demand for highly skilled workers is rising in the Milwaukee region. The region's workforce has become more educated, but is also stagnating in size due to aging incumbent workers and net-outmigration. While workers overall are more skilled than in the past as well as in comparison to workers in other large metro areas, the restructuring of the region's economy is creating a mismatch – friction as the labor market adjusts to the new environment – that challenges both workers and employers:

- Many sectors and clusters – including, but not limited to manufacturing – are experiencing or anticipate growing demand for workers as their incumbent workforce ages and/or they expand to take advantage of new business opportunities
- Jobs across all sectors and clusters are becoming more knowledge-intensive, calling for higher-level and increasingly specific skills
- Skills required for specific in-demand occupations are in short supply among the region's workforce; shortages exist in certain middle-skill occupations and high-skill STEM fields that are critical to growth in promising clusters
- While workers region-wide face challenges in upgrading and certifying their skills, core city residents have been particularly hard-hit by the economic restructuring; these workers will require more intensive interventions but also represent a significant untapped growth opportunity<sup>88</sup>

<sup>88</sup> Note that because this is an economic growth plan, its human capital strategies focus on those workers that are at the margins of the labor force and could participate with modest upskilling/retraining, rather than those that are the most difficult to employ (which are targeted by other, more broad-based social service programs). See also the sidebar in the Overview chapter, regarding the scope of this plan.

- As a result of the above, many employers struggle to locate qualified workers to fill available positions, let alone expand their operations
- Numerous programs among the region’s education and training resources show promise, but efforts are not keeping pace with employers’ needs due to inadequate levels of federal funding, insufficient industry alignment, unclear and overlapping goals and fragmentation of efforts<sup>89</sup> (see Appendix A2 for detail)
- The need exists to more effectively and systematically align the region’s education and training system with the needs of employers by identifying and aggregating demand for particular skill sets and enabling creation of appropriately targeted training

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<sup>89</sup> It should be noted that coordination among major workforce development players and programs has improved in recent years through efforts such as the creation of the Coordinating Council of the Milwaukee Area Workforce Investment Board (MAWIB), establishment of the Milwaukee Area Workforce Funding Alliance, cross-fertilization of leadership committees at MAWIB and the Milwaukee Area Technical Colleges (MATC) and a number of sector-specific initiatives. “Pathways to Employment: Exploring the Activities and Resources of Milwaukee’s Workforce Development System,” Public Policy Forum, December 2012.

## V. Innovation and Entrepreneurship

The information intensity, technological advances and other characteristics of the knowledge economy enable more rapid and continuous innovation, while at the same time the pace of change and heightened global competition require it.<sup>90</sup> To attain and maintain a competitive edge, firms need to prioritize pursuit of innovation, making idea generation, development and testing (i.e., applied R&D) integral to their business models. Educational and training providers need to produce graduates that are not only at the cutting edge in their respective disciplines, but also experienced in the process of innovation and entrepreneurship. The regional ecosystem must also evolve to reflect the new economy's dynamism by providing the multi-disciplinary networks that facilitate knowledge exchange and collaborative problem solving.

The term "innovation" is defined here very broadly, encompassing new ideas, technologies, products, production processes, markets and business models. This definition also spans all stages of the often-iterative innovation spectrum from basic research through concept testing, to business creation and firm growth and development (i.e. entrepreneurship).<sup>91</sup>

Innovation occurs and new products and services are introduced to the marketplace primarily through three overlapping mechanisms:

- (1) Academic R&D and accompanying tech transfer and commercialization;
- (2) Cluster- and firm-based commercializable innovation; and
- (3) Creation and scale-up of new and existing firms.

Levels of innovation along each of these routes depend on two primary factors:

- An innovative culture that embraces risk-taking and is open, flexible and adaptive; and
- A strong ecosystem with cross-sector and multi-disciplinary networks that connect ideas, entrepreneurs, investors and support services.

<sup>90</sup> Innovation is ultimately the source of all long-term economic growth (although in the shorter term, growth can also occur through increasing economic inputs or importing someone else's innovations). See Paul M. Romer, "Two Strategies for Economic Development: Using Ideas and Producing Ideas" (Proceedings of the World Bank Annual Conference on Development Economics, 1992). See, generally, Paul M. Romer, "Endogenous Technological Change" (*Journal of Political Economy* 98.5.2, 1990): S71-S101; Gene L. Grossman and Elhanan Helpman, *Innovation and Growth in the Global Economy* (Cambridge, MA: MIT Press, 1991); and Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy, 2d ed.* (New York: Harper & Bros., 1947; rpt. New York: Harper & Row, 2010). For a review of empirical studies confirming the relationship between innovation and regional economic growth, see Jeremy Howells, "Innovation and Regional Economic Development: A Matter of Perspective?" (*Research Policy* 34.8, 2005): 1222-1223.

<sup>91</sup> While a linear model of the innovation process offers conceptual clarity, there is evidence that it is more iterative and open in practice. For example, multiple new product and/or process ideas might be generated during the invention stage, leading to separate innovation paths for each; unsuccessful proof-of-concept testing may send innovators back to the idea-generation stage; or market introduction might bring to light a shortcoming of the technology that returns innovators back to the applied R&D stage for additional development. See, for example, *Between Invention and Innovation: An Analysis of Funding for Early-Stage Technology Development* (Gaithersburg, MD: Economic Assessment Office, Advanced Technology Program, National Institute of Standards and Technology, November 2002); and Philip Cook and Olga Memedovic, *Strategies for Regional Innovation Systems: Learning Transfer and Applications* (Vienna: United Nations Industrial Development Organization, 2003).

Finally, a region's innovation and entrepreneurship environment and performance are shaped by the degree of grounding that relevant activities have in the region's economic and industrial base. These include strong connections between academic R&D and local industry, industry-focused technical assistance and funding resources, and connections between growing entrepreneurial businesses and the region's largest corporations.

## **MARKET FACTS**

### **a. Academic R&D and accompanying tech transfer and commercialization**

The Milwaukee region is home to numerous academic institutions that act as a resource for priming the local innovation pipeline. The region's colleges and universities received nearly \$308 million in R&D funding in 2011: 21% of the statewide total and a 60% increase since 2004 (compared to +45% nationally). Ninety-nine percent of the regional total is attributable to four academic institutions – the Medical College of Wisconsin (\$215.4 million), University of Wisconsin-Milwaukee (\$65.6), Marquette University (\$19.9) and the Milwaukee School of Engineering (\$4.5) – among which water, energy and healthcare research are particular areas of focus, in alignment with some of the region's most promising clusters (see Chapter III).<sup>92</sup>

To create economic value, applied R&D and must be introduced into the marketplace – commercialized – through existing firms or the creation of new firms. Translation of research into viable technologies, products and services that meet market needs is a complex and iterative process and therefore challenging to measure. However, a set of admittedly imperfect proxy metrics can be examined to gain a sense of the region's commercialization activity. In aggregate, these metrics suggest that the Milwaukee region may not be fully capitalizing on the research taking place at local firms and institutions.<sup>93</sup>

- Technology transfer activities at the region's universities and research centers varies, but is generally relatively modest, including:
  - University of Wisconsin-Milwaukee – 28 license/option agreements and four new companies in the past five fiscal years;<sup>94</sup>
  - Medical College of Wisconsin (MCW) – three new companies in 2012;<sup>95</sup> and

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<sup>92</sup> Nearby UW Madison provides another potential source of early-stage innovation inputs, ranking 4th in the US for academic and research spending at approximately \$1.1 billion per year. Johns Hopkins University, University of Michigan-Ann Arbor and University of Washington-Seattle are ranked 1<sup>st</sup> through 3<sup>rd</sup> in the nation, respectively. National Science Foundation Higher Education Research & Development survey.

<sup>93</sup> Based on a combined assessment of SBIR/STTR grants, venture capital and IPOs, metro Milwaukee ranks 49th among the 50 largest US metros in an innovation commercialization index. Joshua Rosenbloom, "The Geography of Innovation Commercialization in the United States during the 1990's," *Economic Development Quarterly*, February 2007.

<sup>94</sup> UWM Research Foundation Research Commercialization Metrics for fiscal years 2009 through partial 2013 (year-to-date as of 11/2/12).

<sup>95</sup> "Driving Innovation and Economic Development in Milwaukee," memo from Joseph O. Hill, Managing Director, Office of Technology Development, Medical College of Wisconsin.



- Marquette University – seven license/option agreements and two new companies since 2009.<sup>96</sup>

Efforts are underway to systemize and otherwise enhance technology transfer and commercialization of research at the region’s academic institutions. The Medical College of Wisconsin, UW-Milwaukee, BloodCenter of Wisconsin and Marquette University have been working together for several years to share best practices, collaborate on staff educational programs and offer investors a “sneak preview” of university-based innovations through First Look Forums. Additional collaborative efforts have emerged and are being explored.<sup>97</sup>

## **b. Cluster and firm-based commercializable innovation**

STEM<sup>98</sup> workers – critical to applied R&D and commercialization activities – represent a healthy share of the Milwaukee region’s workforce, accounting for 51.7 of every 1,000 jobs (40<sup>th</sup> among the largest 100 US metros), compared to the national average of 52.8.<sup>99</sup> However, the region does not perform as well on other metrics of commercialization activity, including:

- The region averaged 776 patents annually (0.9 per 1,000 workers) between 2007 and 2011, ranking the four-county MSA 28<sup>th</sup> among US metros on absolute patenting, but 64<sup>th</sup> relative to the size of its workforce.<sup>100</sup>
- Between 2000 and 2010, 149 phase-one or phase-two Federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards<sup>101</sup> were made in the region, totaling more than \$48 million. The value of these awards in the Milwaukee region has been increasing in recent years, with over two thirds of 2000-2010 award dollars received since 2006.<sup>102</sup> By comparison, the Madison metro area was awarded 603 grants, with a total value of \$194 million.<sup>103</sup>

Milwaukee is home to several significant clusters with the potential to drive regional growth in the new economy (see Chapter IV, Clusters and Concentrations). Among these high-potential

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<sup>96</sup> Email communication from Sherri Kirsch, Contract Administrator, Office of Research and Sponsored Programs at Marquette University, September 13, 2013. In addition, BloodCenter of Wisconsin has entered into 47 licensing agreements since its inception (BloodCenter of Wisconsin Technology Transfer Office, Metrics and Statistics 2012).

<sup>97</sup> E.g., creation of faculty educational materials (including video summaries on key technology transfer topics), broader/consolidated industry outreach efforts, etc.

<sup>98</sup> Science, technology, engineering and mathematics

<sup>99</sup> Brookings Institution analysis of Moody’s Analytics data and BLS Occupational Employment Statistics, 2009

<sup>100</sup> Note that these figures are fall smaller than researchers’ total number of discovery disclosures, a large share of which do not lead to patenting activity. They also do not account for the wide variance in value among patents – i.e., not all patents are equally valuable from a commercial perspective. Figures include utility, design and plant patents (for definitions of patent types, see <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/patdesc.htm>). “Patenting Prosperity: Invention and Economic Performance in the United States and its Metropolitan Areas,” Brookings Institution, February 2013.

<sup>101</sup> Awards are aimed at catalyzing high-tech R&D with potential for commercial application, including technology transfer from research institutions under the STTR program.

<sup>102</sup> “Technology Transfer in Southeast Wisconsin: Maximizing Local Economic Impacts,” Public Policy Forum, October 2011.

<sup>103</sup> Analysis of SBA TECH-Net database of SBIR/STTR awards (<http://www.sbir.gov/past-awards>)

clusters, many innovation-related initiatives are underway or under development,<sup>104</sup> and increasing numbers of emerging entrepreneurs are associated – formally or informally – with one of these clusters. These nascent entrepreneurs are often connected to one or more large established firms which provide critical talent, technology and supply chain factors that help new enterprises succeed. Anecdotally, the region’s medical technologies and mutual fund industries are two prominent examples of this phenomenon.

Examples of cluster-based innovation efforts in the region include the Milwaukee Water Council’s Global Freshwater Seed Accelerator and Global Water Center, as well as FaB Milwaukee’s food and beverage manufacturing accelerator program (in partnership with BizStarts). See Appendices A1 and A3 for further details.

### **c. Entrepreneurship: From start-up to scale-up**

Job growth, increased wealth and a growing tax base are just a few of the regional benefits where there exists a strong record of both start-ups and scale-ups. On the continuum from start-up to scale-up, the region has seen a recent increase in overall activity. While start-ups as a rule have a high rate of failure, they are critical to the region’s growth – some start-ups will be successful. As important (and described below), even those that aren’t successful need to be recognized differently. Having acted on their entrepreneurial dreams and engaging in the ecosystem, these “failures” are integral to the region’s long-term entrepreneurial success.

Further along the continuum are scale-ups. These are not defined by age – they can be recent start-ups or they could be companies that have been around for decades. They also are industry agnostic. While start-up activity often congregates in STEM-related endeavors, scale-ups can just as likely fall into industrial and other categories. The two keys to defining scale-ups are (1) they have a track record of sales, with revenues between approximately \$500,000 and \$5,000,000, and (2) they are led by entrepreneurs who are ambitious and growth-oriented.

On average, the Milwaukee MSA experienced the “birth” of nearly 8,500 start-up and spin-off businesses annually between 2008 and 2012, nearly all of which were initially quite small.<sup>105</sup> Anecdotal information suggests that the number of “gazelle” businesses – small, rapid-growth firms – in the region is increasing, including particularly in clean tech, consumer products, consumer web and healthcare technologies.<sup>106</sup>

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<sup>104</sup> As evidence of innovation activities’ link to high-potential regional clusters, the MSA’s most prolific patenting categories include power systems, nuclear and x-ray imaging technology, computer software and surgery and medical instruments. “Patenting Prosperity: Invention and Economic Performance in the United States and its Metropolitan Areas,” Brookings Institution, February 2013.

<sup>105</sup> An average of 54% were created with two to nine employees, while 40% consisted of a sole entrepreneur at the time of their creation. Figures include “new startups” (establishments with a new DUNS number that have no prior affiliation with any existing business) and “expansion startups” (establishments with their own DUNS number that were spun off by existing businesses). Note that calculations exclude data for 2010 due to irregularities. Youreconomy.org, based on the National Establishment Time Series (NETS), supplemented by data from the Institute for Exceptional Growth Companies.

<sup>106</sup> Emergence of 53 new innovative, scalable companies launched through BizStarts Milwaukee since Sept. 30, 2008

Rapid turnover of businesses in a region, regardless of those firms' size, suggests a high level of entrepreneurial activity and economic dynamism and is correlated with output growth, per capita income growth and productivity. The ratio of establishment births to deaths has varied significantly over the past five years, typically falling under 1.0, indicating that more firms tend to close than are created in any given year.<sup>107</sup>

Access to stage-specific financing is a critical input to fostering robust entrepreneurial activity, and is not plentiful in the Milwaukee region. The region is home to a very small number of early-stage funders – including two venture funds, one Round A fund and two angel investor groups – and anecdotal information suggests that the corporate and philanthropic sectors make only nominal investments in growing companies.<sup>108</sup> Angel investments in Wisconsin – as reflected in the distribution of state angel investment tax credits<sup>109</sup> – are more heavily focused on Madison than the Milwaukee region. Since the program's creation in 2005, 70% of all tax credits have been allocated to investments in Dane County firms, while only 19% have been allocated to firms in the seven-county Milwaukee region.<sup>110</sup> Local venture funds engage in little, if any, in-state investment:<sup>111</sup> across Wisconsin, the venture capital investment rate of \$38 per capita between 2009 and 2011 is well below the \$118 median for peer states.<sup>112, 113</sup>

Organizations such as BizStarts, Bucketworks and Gener8tor (among others) provide a range of support services to the region's nascent entrepreneurs including mentorship, networking, business planning assistance and physical spaces for co-working and concept testing. Entrepreneurship support entities like these have grown in number in recent years, broadening

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<sup>107</sup> All figures in this paragraph are from [Youreconomy.org](http://Youreconomy.org). Figures *exclude* relocations of establishments into or out of the region. That is, births = new startups + expansion startups; and deaths = closings. Note that closings data is highly variable from year to year. E.g., closings range from a low of 2,696 in 2008 to a high of 20,421 in 2009. Births are much more stable, ranging from 7,392 in 2009 to 9,614 in 2008 (calculations exclude 2010 data due to irregularities).

<sup>108</sup> [M7 team: This final clause statement re: corporate/philanthropy was made by two contributors, but we have no hard facts to support it – does it seem right, is it possible to find supporting info?]

<sup>109</sup> The state certifies Qualified New Business Ventures (QNBVs), which are early-stage businesses developing innovative products, processes or services that meet location, employment and other eligibility criteria. Investments in QNBVs made by angel investors and angel investment networks are eligible to receive an Angel Investment Tax Credit equal to 25% of the amount of the equity investment through the Early Stage Business Investment Program (Wisconsin Economic Development Corporation; for details, see <http://inwisconsin.com/entrepreneurs-and-innovators/programs/qualified-new-business-venture/>).

<sup>110</sup> Analysis of angel investments in QNBVs and related Angel Investment Tax Credits from "Angel Investment Tax Credit -- Eliminate Maximum Credit Limit," Paper #281, Joint Committee on Finance, May 30, 2013 (LFB 2013-15 Budget Summary: Page 172, #6).

<sup>111</sup> Source: regional stakeholder input. Note that qualified venture capital funds investing in QNBVs are eligible to receive an Early Stage Seed Investment Tax Credit equal to 25% of the amount of the equity investment (Wisconsin Economic Development Corporation; for details, see <http://inwisconsin.com/entrepreneurs-and-innovators/programs/qualified-new-business-venture/>).

<sup>112</sup> MMAC analysis of PricewaterhouseCoopers MoneyTree data for 2009-2011 for 21 comparable states – Wisconsin, neighboring states and other states with metros comparable to the metro Milwaukee MSA.

<sup>113</sup> [Many entrepreneurial companies are beyond "proof of concept" and measure success and growth by sales. For example, companies that have \$2M in sales and are on their way to \$20M in sales are often overlooked when the conversation is focused on venture funding. Nonetheless, they represent a meaningful part of the region's entrepreneurial activity. What is the heart of the story re: these companies – is there sufficient funding or not and why (can we cite facts/stats – and sources?); What else can we say about resources available to firms to help them scale up and grow? Not even sure if funding is the issue or more about how to expand- markets, company growth plan, and financing.]

the array of stage-specific resources available and strengthening connections among key actors and institutions. Scale Up Milwaukee aims to create and align these and other resources to support companies poised for growth across all stages of business growth and development (see section on Ecosystem below).

#### **d. Culture**

The type of business environment that attracts and supports new-economy innovators and would-be entrepreneurs contrasts sharply with the more risk-averse, structured environment that fostered success in the industrial era. Innovative people and firms seek dynamic settings that offer open and accessible networks and encourage flexibility and risk-taking.

In the context of this changing set of relationships and structures necessary to support economic growth, the Milwaukee region's business culture is in a state of transition. It reflects the legacy of its recent industrial past, but has begun to evolve toward being more open, adaptable and welcoming to a diversity of people and ideas.

The region's culture bears the imprint of the metro's industrial past in several ways. First, the region is home to a number of long-established industries, which have tended to become less innovative as their products and markets have matured. In addition, the foundation of the region's business culture was shaped during the industrial era, a time during which large firms and networks of "insiders" dominated and set the tone for the business environment. In combination, these factors created a relatively closed, risk-averse culture. At the same time, the presence of a long-standing set of economic leaders and well-established networks has to some extent simplified the question for emerging entrepreneurs of where and how to connect to business leaders and other decision-makers.

As the region's economy has begun shifting toward more dynamic, new-economy industries, markets and technologies – including through reorientation of mature industries to maintain their competitive edge – in recent years, the business climate has begun to evolve, becoming more open to "outsiders," new ideas and risk-taking. A new, younger generation of innovators and entrepreneurs is effecting change in the way the region perceives itself and its opportunities, as they engage with more established regional stakeholders and become leaders in their own right, creating a "new guard" for the innovation ecosystem.<sup>114</sup> The region's inventive civic and non-profit sectors are helping seed a culture of innovation and experimentation, and members of the regional innovation ecosystem have raised the profile of innovation and entrepreneurship as drivers of economic growth. This increased attention and emphasis have begun to shift norms in the business culture in positive ways. A great example of this is the coalescence and rise of the region's water technology hub, outlined in the Clusters section.

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<sup>114</sup> As an example of this shifting dynamic, established business leaders are hosting "Foundry" events that bring together early stage entrepreneurs with investors and seasoned business leaders to pursue potential opportunities for collaboration and investment.

### e. Ecosystem

A region’s innovation and entrepreneurship ecosystem is the formal and informal institutional infrastructure that connects economic actors and activities, enabling the dynamic flow of ideas, their conversion into partnerships and deals and generally the rich synergies from concentrated, networked activity that lead to innovation. In addition to the entrepreneurs and firms themselves, the ecosystem encompasses the individuals and organizations – public-, private- and civic-sector – that fund research, advise and mentor nascent entrepreneurs, finance new ventures and provide other resources and connections along the continuum of innovation and entrepreneurship activities. In the Milwaukee region, a growing number of organizations play a role in the ecosystem, providing resources that range from funding to mentorship to collaborative co-working space and accelerator programs (see “Entrepreneurship,” above, and Appendix A3 for more detail).

Scale Up Milwaukee is a new initiative and platform that is focused on fostering the region’s entrepreneurial ecosystem. While it is bringing some new resources to the region, its strength lies in aligning existing assets to foster a culture of risk-taking, innovation and entrepreneurship.

Scale Up Milwaukee, led by the Greater Milwaukee Committee, is a unique public-private-civic partnership. National partners include American Express OPEN and Babson College. In addition to the GMC, active partners include Wisconsin Economic Development Corp., Wisconsin Housing and Economic Development Authority, UW-Milwaukee and Milwaukee Economic Development Corp. By focusing on six domains that reinforce one another, Scale Up Milwaukee is addressing many ecosystem issues head-on (see Figure 11).

**Figure 11: Six domains of Scale Up Milwaukee**



## Summary of scale-up activities

(FORTHCOMING)

## **ASSESSMENT**

Milwaukee's innovation and entrepreneurship environment is in transition, as the region shifts from a more traditional industrial focus toward the more knowledge-intensive new economy. Some of the region's historically cutting-edge industries have matured and become less innovative over time. While the region's performance near or below average on many indicators of innovation and entrepreneurship raises cause for concern, change is underway and a great deal of new activity has emerged in recent years and continues to gain momentum. These metrics fall short of reflecting the full scope and scale of existing activity due to their age (often several years old) and their inability to capture what is a highly complex and dynamic set of activities.

Available metrics indicate that the region's academic R&D investment lags that of other large metros, and what research does take place is commercialized at relatively low levels. Opportunities exist to increase connections across the public, private and academic sectors to enable greater commercialization – including, but not limited to opportunities in research fields closely related to the region's most promising industry clusters. The Milwaukee region is uniquely positioned within the state to systematically leverage its combination of university and business assets to drive innovation and commercialization.

The region is also not creating new firms at a robust rate, and firm deaths often exceed births in a given year. However, an emerging ecosystem of incubators, technical assistance providers, mentorship and capital resources is taking shape and seeding a new, more vibrant entrepreneurial climate. Efforts to date are relatively small-scale and often disconnected from one another both geographically and with regard to efficiently identifying and filling gaps in the system – issues of which stakeholders are well aware and on which they continue to take deliberate action. Opportunities exist to continue enhancing connections among ecosystem actors, tailoring financing and other resources to specific types and stages of innovation and scaling up successful models.

The Milwaukee region is home to a strong foundation of organizations and initiatives to catalyze innovation across all industries and within existing clusters. The Water Council, FaB Milwaukee and M-WERC all include innovation-enabling initiatives as part of their activities, and further efforts under development. Industry-university consortia – e.g., the UWM Research Foundation Catalyst Grant program with Rockwell and GE; UWM strategic partnership with JCI in advanced battery technologies; the Wisconsin Center for Commercialization Resources (WCCR); the Direct Supply Tech Center at MSOE; and the Blood Center/Medical College – are gaining traction in specific, promising fields and for specific companies. The

region could reap benefits from learning from these models and adapting them to catalyze innovation in other high-potential regional clusters (e.g., IT, financial and business services, etc.).

The region's broad – and growing – set of innovation and entrepreneurship activities, resources and organizations lacks the connectivity necessary to create a high-functioning ecosystem. Stakeholders can mitigate this fragmentation and its negative impacts on growth potential through innovation by developing a common mechanism for communication and coordination of efforts among the various pieces of the nascent ecosystem.

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## VI. Infrastructure and the Built Environment

The shift toward a more dynamic, knowledge-intensive economy favors a new urban growth form, as the demand for rapid exchange of goods and ideas, face-to-face interactions, physical density of economic assets and co-location of employment and residential activities lead to new demand for urban density and new types of “economic place-making.”

A region’s economy will be more “spatially efficient,” and its firms and people more productive, if firms, workers, consumers and relevant institutions are located near one another or are well connected. Dense, mixed-use communities with excellent transportation and virtual connections foster rich networks and economic interactions, reducing transaction costs for employers, workers and consumers to move goods, people and ideas.

Achieving these outcomes entails:

- Aligning land use and economic regulation, incentives and activities to foster a compact, well-connected pattern of development
- Reducing segregation and isolation of geographic areas or populations, including effectively connecting job and housing locations
- Investing in next-generation data, energy, transportation and other infrastructure to support inclusive economic growth

### **MARKET FACTS**

#### **a. Compact Well-Connected Urban Form**

Like many regions across the country, the Milwaukee region sprawled during the industrial era, and this trend has continued, though more slowly in the last decade. While relatively compact compared to some other large metros, the region grew more than 12% in urbanized dense land area between 2000 and 2010, while gaining urbanized population at less than half that pace (5.5%).<sup>115</sup>

Within the region, both the employment and residential distribution have become more dispersed (see Figures 12 and 13). While just over 24% of jobs in the Milwaukee MSA are located within three miles of the central business district (CBD) – up 1.5 percentage points since 2000 – even greater gains have been seen in outlying areas. The share of jobs located 10-35

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<sup>115</sup> Note that households grew at 9.9% over the same period (indicating growth in small households). Urbanized area and population trends from US Census Bureau, 2000 and 2010 for the seven-county Milwaukee region. The four-county MSA ranks as the 15<sup>th</sup> densest among the 100 largest MSAs, per “Patterns of Metropolitan & Micropolitan Population Change: 2000 to 2010,” US Census Bureau, September 2012.



miles from the CBD rose by 2.3 percentage points over the same time period, to nearly 38%.<sup>116, 117</sup>

**Figure 12: Change in employment by census tract for 2000-2010**

**(FORTHCOMING)**

Population growth has shown similar patterns, increasing somewhat in the Milwaukee CBD, but more significantly in the region's outlying suburban counties. Though still a small proportion of the overall regional population, Milwaukee's downtown increased its population by 25.5% to about 21,400. In comparison, the entire City of Milwaukee posted a small population decline (-0.4% or -2,141 people) while the Milwaukee region as a whole posted a 4.7% population increase (+88,805 people) over the same time period.<sup>118 119</sup>

**Figure 13: Change in population by census tract for 2000-2010**

**(FORTHCOMING)**

The core of the Milwaukee region generally ranks high in comparison to other large urban areas on measures of urban mobility. The MSA maintains the 4<sup>th</sup>-lowest commute time among the nation's 50 largest MSAs. The majority of the seven-county region's workers commute by car, as only 3.4% commute via public transit (below the 5% national average).<sup>120</sup>

However, several factors threaten the relative ease of mobility in the region. Though vehicle miles traveled (VMT) per household has remained relatively stable in recent years,<sup>121</sup> congestion has continued to rise.<sup>122</sup> The regional freeway system is at or near capacity, so that

<sup>116</sup> Jobs between 3 and 10 miles from the CBD fell from 42.0% to 38.1% during the same period. "Job Sprawl Stalls: The Great Recession and Metropolitan Employment Location," Brookings Institution, April, 2013

<sup>117</sup> [M7 team: Following this paragraph, obtain & insert Figure 12 (change in employment by census tract for 2000-2010) – Need to ask SEWRPC or other organization to make map shaded (by Census tract or some other relatively small geography) to show employment growth across the M7 region between 2000 and 2010. Ken Yunker's notes indicate that SEWRPC can provide.]

<sup>118</sup> US Census Bureau

<sup>119</sup> [M7 team: [Following this paragraph, obtain & insert Figure 12 (change in population by census tract for 2000-2010) – Need to ask SEWRPC or other organization to make map shaded (by Census tract or some other relatively small geography) to show population growth across the M7 region between 2000 and 2010. Ken Yunker's notes indicate that SEWRPC can provide.]

<sup>120</sup> US Census Bureau, American Community Survey, 2011

<sup>121</sup> VMT per household rose from 48.9 in 1991 to 53.6 in 2005, a 0.7% compound annual rate of growth over 14 years. A more significant rise in VMT occurred in the 1960s, 1970s and 1980s as freeway construction and automobile ownership surged, and housing and employment decentralized, while carpooling declined. VMT per household rose from 27.2 in 1963 to 36.1 in 1972, more than 3% compound annual growth over nine years. "Review, Update, and Reaffirmation of the Year 2035 Regional Transportation Plan," SEWRPC Memorandum Report No. 187, 2010; and "A Regional Transportation Plan for Southeastern Wisconsin: 2035," SEWRPC Planning Report No. 49, 2006.

<sup>122</sup> Congestion affected 46 freeway miles daily in 1991, rising to 68 miles in 2005. The number of miles of "extremely congested freeways" (stop-and-go traffic averaging 20 to 30 mph for at least 2 hours each day) rose from 11 to 29 over the same time

even modest increases in volume result in worsening congestion, costing commuters and trucks an estimated \$599 million in 2011.<sup>123</sup> In addition, the system is more than 40 years old and reaching the end of its service life.<sup>124</sup>

Recent years have seen several developments that have begun to reshape the urban environment. Examples include the mixed-use Century City redevelopment project, UW-Milwaukee’s Innovation Campus and the Milwaukee County Research Park (see Appendix A4 for details).<sup>125</sup>

**b. Jobs-Housing Mismatch**

Strong connections and ease of access between workers and jobs boost worker and firm productivity, and reduce the costs of worker turnover, placing a premium on proximity of jobs and housing (the changing urban form discussed above), but also on good connections when the two are not proximate. The geographic patterns of growth for both employment and population in the Milwaukee region have contributed to a jobs-housing mismatch. Milwaukee County, where approximately half of the region’s available workforce resides, saw a loss of -10,500 jobs between 2002 and 2007, while the other six counties in the region gained +25,300 jobs.<sup>126</sup> Nearly half (44%, see Figure 14) of workers in the Milwaukee region are employed outside of their county of residence, a share which varies widely, from nearly two-thirds (65%) of residents in Ozaukee and Washington Counties to only 28% in Milwaukee County.

**Figure 14: Worker Flows by County, Milwaukee Region, 2010**

County	Employed in County, Live Outside County	Workers Living in County		
		Total	Employed Outside County	Employed in County
Kenosha	23,348	75,159	61%	39%
Milwaukee	187,905	411,725	28%	72%
Ozaukee	21,966	43,605	65%	35%
Racine	29,456	92,111	55%	45%
Walworth	16,893	43,627	55%	45%
Washington	24,730	67,185	63%	37%
Waukesha	128,644	196,780	51%	49%
<b>Total Region</b>	<b>432,942</b>	<b>930,192</b>	<b>44%</b>	<b>56%</b>

Source: US Census Bureau, Longitudinal Employer-Household Dynamics (LEHD) data

period. “Review, Update, and Reaffirmation of the Year 2035 Regional Transportation Plan,” SEWRPC Memorandum Report No. 187, 2010.

<sup>123</sup> “Urban Mobility Report,” Texas A&M Transportation Institute, December 2012.

<sup>124</sup> Several highway and interchange upgrades have been implemented or are scheduled, including the Marquette interchange; the North-South I-94 corridor; and the Zoo interchange (see Appendix A4 for more detail).

<sup>125</sup> Aerotropolis Milwaukee also aims to create one or more zones of concentrated, specialized economic activities in the area immediately surrounding General Mitchell International Airport. See also “Next-Generation Infrastructure” section below, and Appendix A4, for more detail.

<sup>126</sup> Bureau of Labor Statistics, QCEW data, 2002-2011

Several factors exacerbate the region-wide jobs-housing mismatch:

- The availability of low- and moderate-income housing varies throughout the region, resulting in an under-supply of housing in certain communities relative to what is affordable to workers employed at jobs in those communities. This problem is most acute in the region's suburban areas.<sup>127</sup>
- Evidence suggests that mismatch exists by skill level as well as by geography. For example, the proportion of jobs in Milwaukee County that are held by workers with bachelor's degrees noticeably exceeds the share of County residents who hold bachelor's degrees.<sup>128</sup>
- The lack of a coordinated regional transit system further aggravates the effects of the region's jobs-housing mismatch. Service levels and funding have been in decline over the past decade, and the region's seven transit systems lack both service cohesion and a dedicated local source of funding. Among 22 peer transit systems in the US, Milwaukee County Transit is one of only four without a dedicated funding source.<sup>129</sup>

In Milwaukee County alone an estimated 55,000 jobs are not accessible by public transit (up from 40,000 in 2001, due to service reductions), making them unreachable by the 16% of Milwaukee County households who do not have access to an automobile.<sup>130</sup> Only slightly more than half of the working-age population living in the MSA's principal cities (Milwaukee, Waukesha and West Allis) can reach a typical job in 90 minutes or less via transit, and this is true for only one third of the suburban MSA population.<sup>131</sup> When figures are extended to the rest of the Milwaukee region, the size of the challenge is multiplied due to limited transit coverage outside of the core cities and lack of coordination across jurisdictional borders (i.e., commuting from one county to another).

The jobs-housing mismatch is particularly acute for low-income, low-skill and minority populations who are geographically disconnected from many dispersed employment – as well as education, training and other economic – opportunities. The region's minority and impoverished populations are highly concentrated in the City of Milwaukee, by some metrics ranking the MSA as the most segregated large metro in the US (See figures 15 and 16).<sup>132</sup> The MSA's African-American population has among the nation's highest rates of unemployment and concentrated poverty.<sup>133</sup>

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<sup>127</sup> See, e.g., "Job/Housing Balance," Chapter VIII of "Regional Housing Plan: 2035," Southeastern Wisconsin Regional Planning Commission, adopted March 2013.

<sup>128</sup> M7 analysis of US Census Bureau, LEHD data, 2010

<sup>129</sup> "Milwaukee County Transit System Development Plan," SEWRPC Community Assistance Planning Report No. 279, 2010

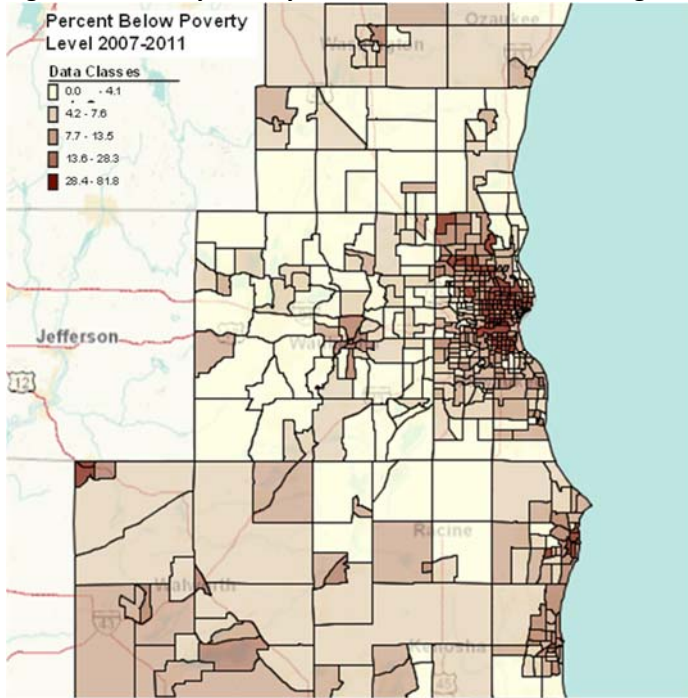
<sup>130</sup> Thirty-five percent of Milwaukee County Transit System passengers also do not own personal vehicles. "Milwaukee County Transit System Development Plan," SEWRPC Community Assistance Planning Report No. 279, 2010; 2000 US Census; 2011 American Community Survey; and 2001 MCTS transit passenger survey by SEWRPC and MCTS as documented in the Milwaukee County Transit Plan.

<sup>131</sup> Figures are 54.5% in principal cities vs. 33.1% in suburban portions of the MSA. "Where the Jobs Are: Employer Access to Labor by Transit," Brookings Institution, July 2012

<sup>132</sup> Black-white dissimilarity index from William F. Frey analysis of 1990, 2000 and 2010 Censuses for the largest US MSAs (population of 500,000 or more). The MSA also ranks 9<sup>th</sup> highest (among the largest 100 US metros) in concentrated poverty, the percent of the impoverished population living in extreme poverty Census tracts.

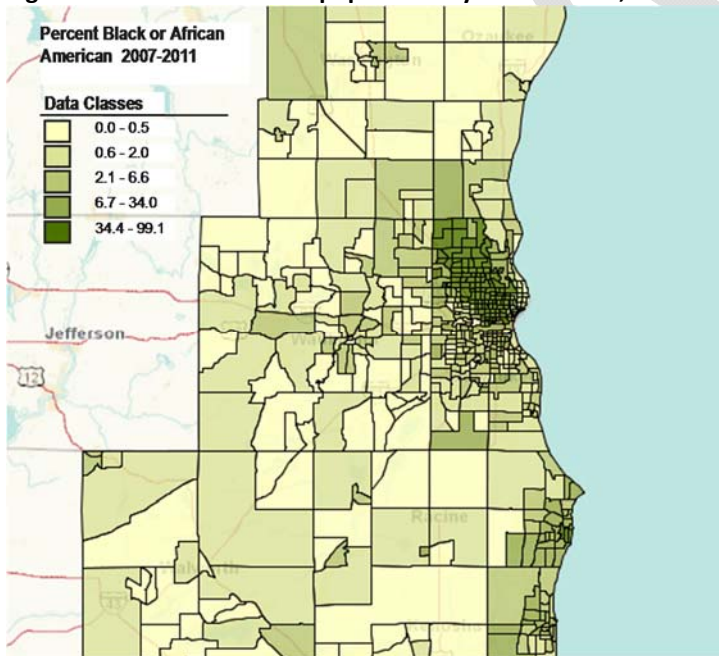
<sup>133</sup> US Census Bureau, American Community Survey 2009-2011 and "The Re-Emergence of Concentrated Poverty," Brookings Institution, November 2011

**Figure 15: Poverty Rate by Census Tract, Milwaukee 7 Region**



Source: American community Survey, 2007-2011 average

**Figure 16: African American population by Census Tract, Milwaukee 7 Region**



Source: American community Survey, 2007-2011 average

### c. Next-Generation Infrastructure

The new economy demands investments in transformative infrastructure that increase the productivity and efficiency of businesses and households. In addition to the aging interstate

highway system and insufficient transit system coverage described above, several other components of the region's infrastructure may warrant continued investment to facilitate regional economic growth.

- **Port of Milwaukee:** Global trade is playing an increasingly important role in the region's economic prosperity. Overall merchandise exports from metro Milwaukee have increased significantly in recent years, and the tonnage of port cargo traveling to and from foreign ports posted a 35% year-over-year increase in 2012.<sup>134</sup> Efficient port operations are critical to some regional industries, particularly those producing heavy products (e.g., water- and power-related equipment) for overseas destinations. The capacity of the port and quality of its infrastructure will need to be monitored to ensure that it can accommodate additional volume and compete with other markets.
- **Intermodal Freight:** Connections between the region's rail infrastructure and its highways and port may need to be upgraded and strengthened in the coming years to keep pace with demands for multi-modal freight movements. Efficient movement of large products poses particular challenges, and may need to be addressed to facilitate growth in the region's promising industries (e.g., mining machinery, gears and transformers).
- **Inter-State Passenger Rail:** The Milwaukee region's economy is part of the Milwaukee-Chicago-Gary urbanized corridor and increasingly interconnected with both the metropolitan Chicago (with which its geography overlaps) and northwest Indiana economies. For example, approximately a quarter of Kenosha County resident workers are employed in Illinois' Lake or Cook Counties.<sup>135</sup> Other Wisconsin-Illinois-Indiana commuting patterns are less robust, but have been growing over time.<sup>136</sup> Many of these inter-state commuters travel by Amtrak rail, pushing passenger volumes on the Hiawatha service (Milwaukee to Chicago) to record levels for the ninth time in ten years and making it the busiest line in the Midwest and the 6<sup>th</sup> busiest in the nation.<sup>137</sup> At the same time, the proposed Kenosha-Racine-Milwaukee (KRM) Commuter Rail project that would serve nine stops in Wisconsin and connect to 25 communities on the Chicago Metra Union Pacific North line has been placed on indefinite hold.<sup>138</sup> Continued capital and operating investments that enhance the speed and frequency of service will be important to growing economic integration across the tri-state region.
- **Airports:** Air service plays a key role in supporting the Milwaukee region's headquarters cluster, by enabling management to access their domestic and international operations, as well as customers, suppliers and other partners. Despite recent passenger declines resulting from the loss of hub status for two airlines (Midwest/Frontier and AirTran), General Mitchell International Airport has seen a 67% increase in passengers serviced since 1990.<sup>139</sup> At the same time, Mitchell has experienced a loss in the number of nonstop flights

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<sup>134</sup> Exports rose 47% from 2005 to 2011, and their share of gross regional product increased from 8% to 10% over this period. US Department of Commerce, International Trade Administration and Bureau of Economic Analysis.

<sup>135</sup> US Census Bureau, LEHD, 2011 data

<sup>136</sup> MMAC analysis of LEHD data

<sup>137</sup> "Amtrak's Hiawatha Services Sets Ridership Record," *Milwaukee Journal Sentinel*, February 4, 2013

<sup>138</sup> See <http://www.transitnow.org/KRM.html>.

<sup>139</sup> General Mitchell International Airport, 1990 & 2012

to domestic locations. Nonstop international service from Mitchell is limited, compelling regional travelers to rely on Chicago's O'Hare International (less than 90 minutes away), which offers 110 daily international flights.<sup>140</sup> Aerotropolis Milwaukee, a public-private partnership, is developing and implementing a strategy to link and leverage the region's air, rail and road transportation capabilities in the area immediately surrounding the airport.<sup>141</sup>

- **Utilities:** The region possesses sufficient energy infrastructure to meet current industry and household needs (including those of the manufacturing base), pricing is competitive with nearby regions/states, and capacity continues to be expanded through efforts of Wisconsin Energy Corp and American Transmission Corp., among others, including interconnections with energy production in neighboring states.

Other utility issues exist in some counties within the region. Despite regional access to the abundant waters of Lake Michigan, ongoing water supply issues exist in some communities in Waukesha and Washington Counties.<sup>142</sup> Availability and speed of broadband internet service is also lagging in some counties.

## **ASSESSMENT**

The Milwaukee region's existing urban growth form is not well aligned with the type of dense, mixed-use, well-connected built environment that will support growth in the new economy. Its existing urban form is a legacy of industrial-era sprawl, which does not make efficient use of the region's land assets and transportation infrastructure. Both jobs and housing have decentralized, physically disconnecting residential areas from employment hubs and increasing auto dependence.

The region is also not efficiently utilizing its human capital assets to foster inclusive economic growth. Minority and low-income populations are particularly isolated from economic opportunities – including because existing transit systems do not sufficiently connect them to employment centers. Recent trends of people and firms seeking to move back toward density create the opportunity to bring jobs back by creating and enhancing strategic nodes of economic activity – mixed-use infill development that leverages existing transportation and other infrastructure. Along with increasing affordable housing near suburban employment centers (or enhancing access between the two, when co-location is not feasible) and improving transit networks throughout the region, recognizing and responding to these shifts in residential and business location preferences can begin to productively reshape the region's built environment.

Further, the region's infrastructure – transportation, water, energy, digital, etc. – is under pressure to keep up with changes in the nature and level of demand from businesses and workers. Key systems must be continually and critically examined to ensure that they are

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<sup>140</sup> Chicago Department of Aviation, as of January 2012

<sup>141</sup> See Appendix A4 for further detail

<sup>142</sup> While most of the region possesses an abundant supply of water, international agreement is required to allow communities located west of the sub-continental divide to access the Lake Michigan water supply.

sufficient to meet the evolving needs of the economy, and to enable strategic, value-added investments that will lay the foundation for new-economy growth.

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## VII. Effective Public and Civic Institutions

In the increasingly dynamic economy, regions that enable the ready entry of new people and firms and the fluid development of relationships, deals and activities that drive economic progress are the ones that will succeed. Facilitating this type of environment requires a new form of governance – a constellation of public, private and civic institutions – that fosters open, adaptive and flexible cross-sector networks.

Government needs to enable economic activity through value-added public goods; efficient and streamlined processes; transparency and information sharing; and broad-based stakeholder engagement. In addition, public-, private- and civic-sector actors alike need to heighten their capacity to deliberately and proactively engage in collaborative, cross-sector efforts; develop locally tailored economic growth strategies; and engage leaders and stakeholders across all sectors to own and execute them.

Examining these issues falls into three broad categories:

- a. *Fragmentation* – the proliferation of units of government, both vertically and horizontally, and their effects on firm efficiency, productivity and the costs of doing business
- b. *Tax-value proposition* – the value that firms and households receive in the form of public goods and services, relative to the amount of tax dollars paid
- c. *Cross-sector institutional environment and culture* – the extent to which public, private and civic stakeholders coordinate and collaborate, and the norms of local business culture (e.g., openness, flexibility, etc.)

### **MARKET FACTS**

#### **a. Government Fragmentation**

The Milwaukee MSA is home to a higher-than-average share of general purpose governments compared to other large metros: 0.61 per 10,000 residents, ranking it 64<sup>th</sup> among the nation's 100 largest metros. It ranks 31<sup>st</sup> with regard to special purpose governments (0.39 per 10,000 residents).<sup>143</sup> Together, these figures include 146 municipal governments (cities, villages and towns), 93 public school districts, three metropolitan sewerage districts, four technical college districts and three workforce investment boards.

Government fragmentation is most evident in the competition for limited resources between the City of Milwaukee and surrounding suburban municipalities. Outward migration in recent decades has resulted in a concentration of challenges in the region's core city – e.g., unemployment, declining educational attainment, etc. – engendering an “us vs. them” mentality within the region. The “sewer wars” of the 1980s and 1990s further strained

<sup>143</sup> Brookings Institution analysis of U.S. Census Bureau's Census of Governments Integrated Governments Directory 2007 Edition



resources between the City and suburbs, and competition within the region for resources and economic opportunities has continued to divide the region and impose unnecessary costs on competing jurisdictions.

To date, collaborative, inter-jurisdictional initiatives to alleviate the effects of government fragmentation have been largely unsuccessful. For example, multiple attempts to connect city and suburban systems under a regional transit authority have failed. Recently, a small number of successful intergovernmental cooperation initiatives have emerged around shared services among suburban communities (see Appendix A5 for details).

### **b. Tax-Value Proposition**

The knowledge economy favors places that compete for growth opportunities based not primarily on low costs, but rather on tailored value-added. Therefore, regions must strategically determine the combination of taxes and public goods and services that will make their location most attractive and productive for their target firms and industries. Which types of investments – e.g., infrastructure, human capital, research centers, etc. – will make the most sense, and at what costs (e.g., via taxes, user fees, etc.), will vary based on the region's mix of target industries.

Businesses and residents in the Milwaukee region face a relatively high tax burden. At the same time, public goods and services, which provided a good value to firms and households in the context of the industrial economy, are not yet well aligned with the needs of either group in the next-economy environment.

Property taxes average \$2.17 per \$100 in the Milwaukee region but vary significantly by community, with some of the highest rates located in the region's principal cities: Milwaukee (\$2.87) and Racine (\$2.86) both significantly exceed the state average of \$2.06.<sup>144</sup> In comparison to other large cities, rates are relatively high. For example, the City of Milwaukee's 2011 property tax rate was nearly 60% above the median for a group of large US cities, ranking it 7<sup>th</sup> of 51.<sup>145</sup>

Conversely, the combined state and local sales tax for the City of Milwaukee ranked 99th lowest among the nation's 108 largest cities (those with 200,000 or more population).<sup>146</sup>

While the types and quality of public goods and services vary by jurisdiction across the seven-county Milwaukee region, overall the region offered a strong tax-value proposition during the industrial era. Its combination of infrastructure, public education, safety and other foundational amenities were both high quality and affordable, enhancing the region's attractiveness to both households and businesses. As the drivers of growth have shifted in the

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<sup>144</sup> *Town, Village, and City Taxes – 2012*, Wisconsin Department of Revenue

<sup>145</sup> The sample represents the largest city in each US state, plus Washington, DC. *Tax Rates & Tax Burdens in the District of Columbia – A Nationwide Comparison*, 2011, Government of the District of Columbia, issued September, 2012

<sup>146</sup> Tax Foundation, April 11, 2012

transition to a more knowledge-intensive economy, public goods and services have not fully adapted to enable enhanced productivity and efficiency of next-economy firms and workers. To enable economic growth, the region's governments will need to increasingly make strategic investment in specialized infrastructure and programs that add value for firms in the region's key clusters – e.g., improved transit coverage and service, community college curricula driven by industry needs, etc.

It is important to note that the tax structure under which local governments in Wisconsin operate poses challenges for making the investments in public goods and services that are required to support economic growth. Local governments have minimal control over their revenue streams, as they are heavily reliant on the property tax and shared income and sales tax revenues from the state (much more so than local governments in many other states), and municipalities are prohibited from levying sales, income or other general use taxes to augment those primary sources. Governments' fixed costs continue to rise, and as a result, local governments lack sufficient revenue to make strategic investments in new infrastructure and services.

### **c. Cross-Sector Institutional Environment and Culture**

The increasingly global and dynamic economic environment places a premium on rich formal and informal networks that enable exchange of ideas and facilitate relationships, transactions and coordination across the public, private and civic sectors. In the Milwaukee region, cross-sector stakeholders tend to be engaged in limited networks that hamper their ability to effectively coordinate and collaborate to shape the economic environment. Within the economic development sphere in particular, organizations tend to be unaware of each other's work and either do not have the capacity or interest to collaborate. They often operate in distinct silos, either geographically or by focus area – e.g., workforce development, entrepreneurship, cluster-focused efforts, etc. – and therefore fail to realize the synergies that would be possible if their efforts were more closely coordinated.<sup>147</sup> Since its creation in 2005, Milwaukee 7 has made meaningful strides in bringing economic development stakeholders from across the region to a common table. Creating and engaging in ongoing implementation of this economic growth plan will provide a valuable vehicle for continued, deeper collaboration among cross-sector stakeholders.

In the new economy, flexibility, dynamism, openness to new ideas and people and an appetite for risk are valued characteristics of business culture (see Chapter V, section d for a related discussion of culture in the context of innovation and entrepreneurship). The Milwaukee region's business culture bears the imprint of the metro's industrial past and its mature industries. The region became relatively risk-averse and relied on prominent business and political stakeholders – i.e., an “old-boy network” – to get deals done, limiting access of outsiders. The past decade has seen dramatic broadening and opening of the institutional

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<sup>147</sup> “Assembling the Parts,” Public Policy Forum, 2011; <http://publicpolicyforum.org/research/assembling-parts-examination-milwaukee%E2%80%99s-economic-development-landscape>.

networks that fuel the economy, as well as emergence of new networks, as the region's economy has evolved.

## **ASSESSMENT**

The institutional environment and business culture in the Milwaukee region reflect its industrial past and the challenge that local governments, businesses and other institutions face in making the transition to this new economic environment.

Fragmentation in the public sector can create arbitrary jurisdictional boundaries that impose unnecessary costs on businesses that must navigate a maze of disparate and potentially contradictory policies, regulations and taxes. Historical conflicts between the City of Milwaukee and its suburbs, in particular, foster competition rather than collaboration, among the region's counties and municipalities. Enhanced coordination and collaboration among the region's numerous government bodies could serve to reduce duplication, achieve efficiencies of scale and streamline the delivery of public goods and services, ranging from transportation to workforce development to public safety to administrative functions.

The region's tax structure – particularly its property taxes – places an additional cost burden on both businesses and residents. At the same time, local governments must contend with a state-level tax structure that gives them virtually no ability to generate local revenue streams to pay for investments in new or upgraded public goods and services. Further, what revenues are available are not yet being invested in ways that align with the priorities of the region's new-economy firms. In the industrial economy, the Milwaukee region was considered a good place to do business (e.g., quality infrastructure, education and other public goods). However, in the context of the new economy, the region's governments have not yet identified the right balance between managing the region's costs of doing business and making new investments in the value-added goods and services that will be most effective at supporting and growing its emerging mix of industries. Absent a significant change in the state tax structure – acknowledged as an extremely challenging policy to pursue – local governments need to undertake concerted efforts to reduce their costs of doing business, through the types of reduced fragmentation and inter-jurisdictional collaboration described above.

The Milwaukee business culture and institutional networks are in transition, evolving from a top-down traditional structure that served it well during the industrial era to one that is more open, flexible and able to meet the needs of the more fluid and dynamic economy that is emerging. Public, private and civic stakeholders are beginning to interact in more coordinated ways and engage in cross-sector networks that create a more vibrant business environment for the region.

## VIII. Strategies<sup>148</sup>

Reflecting the assets, challenges and opportunities revealed in the market analysis, a set of nine mutually reinforcing strategies are proposed below for moving the Milwaukee region forward on the path to new-economy growth. Each strategy is designed to increase the productivity of local firms by leveraging the region's unique strengths, taking advantage of its emerging opportunities and addressing its most critical challenges.

These nine strategies are deliberately crafted to cut across market levers and be mutually reinforcing: through coordinated implementation, their impact will be enhanced. Together they build upon current assets and momentum to enable the Milwaukee region to realize its potential to become a leading place to do business in the next economy, and a thriving, prosperous and dynamic region. These strategies provide a framework that encompasses, contextualizes and aligns existing efforts, and offers guidance for identifying, developing and prioritizing future economic growth initiatives.

The nine strategies are summarized in Figure 17 below, and described in further detail throughout the balance of this chapter.

**Figure 17: Nine strategies for regional prosperity** [To be created/inserted]

### *Targeted Cluster Development*

The foundation of regional growth planning is increasing the number, size and productivity of a region's firms. In the Milwaukee region, three interrelated clusters demonstrate particularly high potential for driving the region's growth in the next economy. Specific strategies for addressing the particular challenges and opportunities identified in each of these clusters (see Chapter III) will be developed in partnership with the respective cluster organizations as part of the implementation of this plan.<sup>149</sup>

1. Become a leading innovator, producer and exporter of products and services related to **energy, power and controls**
2. Become a global hub for innovation and start-up activity in the **water technology industry**

<sup>148</sup> [M7 team: Based on the October working group meetings, these strategies address the key opportunities and challenges for the region. The M7 team should further elaborate on them, focus/tailor them to the specifics of the region and integrate them with one another based on input from local experts and stakeholders, as necessary.]

<sup>149</sup> [M7 team: To the extent possible, these three strategies should be further built out, with your input and that of the three active cluster organizations – we began relevant discussions at the October meetings, but didn't get deep enough into any of the specific clusters to have sufficient content for inclusion here. Points should draw on the challenges and opportunities surfaced in the research and planning processes of FaB, MWERC and The Water Council and foreshadow particular initiatives that might be implemented.]

3. Leverage the region's geographic, supply chain and human capital advantages to grow the **food and beverage** cluster

These cluster-specific strategies serve to identify three current areas of priority for the Milwaukee region, based on existing assets and activities in the region that can be leveraged to capture the growth opportunities presented by global trends. The three cluster strategies are also synergistic, as the clusters themselves are interrelated – e.g., water technologies can improve performance of the food and beverage cluster; energy, power and controls solutions can improve the performance of the water technology cluster; and so on.

This trio of cluster strategies does not suggest that other clusters – including those that are emerging or in the process of redeploying their assets into new markets – are not also worthy of attention and development. Other strategies, below, will support growth across a broad range of clusters. As new cluster opportunities emerge over time, they can and should be elevated within the plan.

4. Enhance the **export capacity and capability** of the region's firms, focusing on small- and medium-sized enterprises

Given that the majority of the world's purchasing power is outside the US, and a disproportionate share of global economic growth over the next decade will occur beyond US borders, increasing export activity is imperative to the economic future of the Milwaukee Region. The opportunity to engage more of the region's companies in the international marketplace is significant – the region does not export at a level commensurate with the size of its manufacturing economy, and the bulk of export activity is occurring within a very small number of large firms. The region has all of the necessary components already in place to support the development of a broader export base, and sizeable opportunities exist to expand and strengthen exporting by the region's manufacturers, especially small- and mid-sized firms that are either new to exporting or lack the capacity to expand their current export programs.

Components of this strategy include:

- Improve alignment among stakeholders around exporting
- Support small- and mid-sized firms in developing export strategies and plans
- Leverage large firms as catalysts/mentors for smaller companies
- Explore opportunities for expanding service exports – establish a baseline model
- Advocate for export policy as a critical success factor in regional development

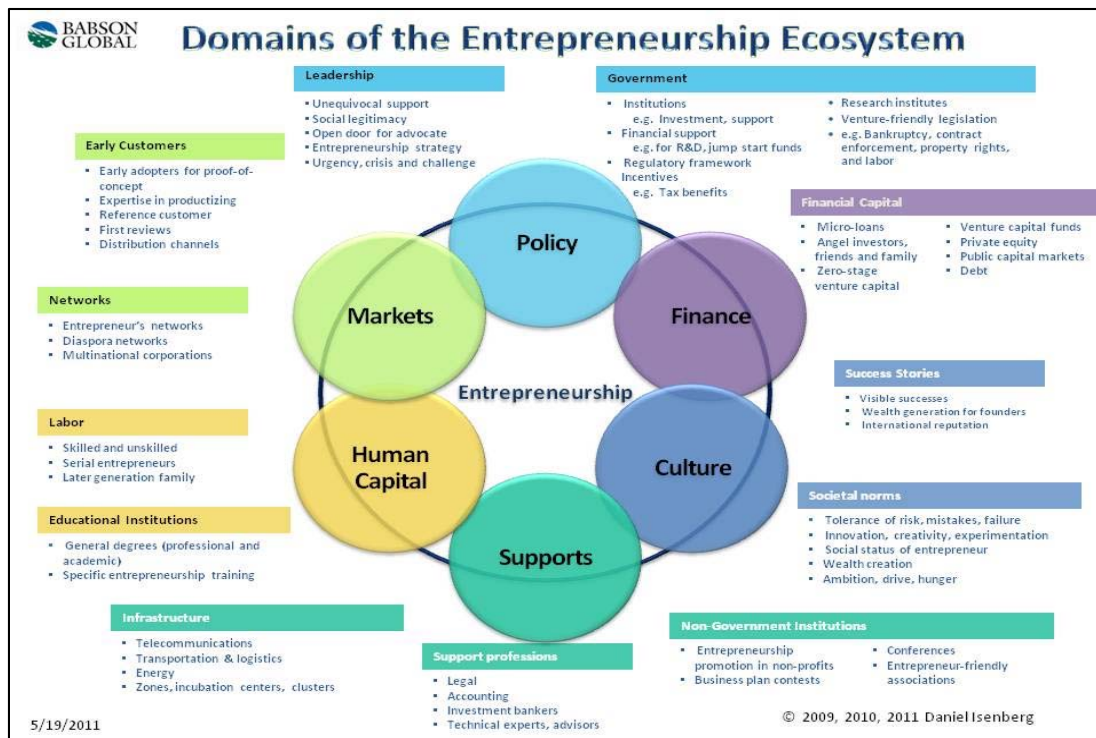
5. Align **workforce development** with growth opportunities in targeted, high-potential industry clusters

Perhaps the most critical factor for increasing the productivity – and therefore overall growth prospects – of the region’s clusters is to upgrade and better align the skills of the workforce with the occupations that are and will be demanded by employers. Increasing the number and type of “on-ramps” to labor force participation and articulating paths to upward mobility, particularly for the region’s core city and minority populations, will also enhance economic growth by more effectively deploying the region’s full spectrum of human capital assets.

Key elements of the strategy include:

- Augment the quantity and quality of information – including real-time data through technologies such as Burning Glass – available to the education and training system to improve regional intelligence regarding the demand for and supply of particular skill sets (across the spectrum of low-, middle- and high-skilled occupations) in the region’s priority clusters
- Strengthen the feedback loop between employers and workforce development providers to enable better alignment of training curricula with workplace needs – building, for example, off of efforts such as FaB’s employer engagement and curriculum development
- Articulate cluster-specific career pathways and create certification and credentialing programs to enable more robust firm-worker matching and upward career mobility for low- and middle-skill workers
- Identify the need for and develop rapid up-skilling programs to assist workers in upgrading and redeploying their skills into emerging occupational opportunities – building, for example, off of the technical colleges’ sector-specific “boot camp” programs or the efforts of WRTP/Big Step
- Enhance attraction and retention of college-educated young professionals in high-demand occupations
- Leverage limited state and federal resources by promoting coordinated application for and use of available funding by system providers

6. Foster a dynamic, richly networked **innovation and entrepreneurship ecosystem**, building on existing nascent, but fragmented activities



The Milwaukee region is at a critical inflection point in the development of its innovation and entrepreneurship ecosystem. There is significant momentum among private, public and institutional actors that must be deliberately leveraged to boost rates of new firm creation and build the competitive advantage of existing firms.

The region's high-priority clusters (see Chapter III) present ample opportunities for innovation and entrepreneurship, including new processes and products to further accelerate already-strong clusters' growth trajectories, opportunities for legacy clusters to redeploy their resources into new products and markets and creation of entirely new products and services in emerging clusters. Efforts to boost innovation and entrepreneurship should now, however, be limited to these areas of focus, but rather provided more broadly to individuals and firms across a broad range of industries and technologies.

Key elements of this strategy – all of which are mutually reinforcing – include:

- Strengthen industry-academic partnerships – e.g., like that of Johnson Controls and UWM (see Appendix A1) – to better align institutional R&D agendas with industry needs
- Stimulate university technology transfer to bring more institutional R&D to market through commercialization in existing firms and spin-off of new companies

- Enrich the array of technical support, funding and other resources (e.g., mentorship, incubation facilities, etc.) available to emerging innovators and entrepreneurs, including those in the region’s high-potential clusters
  - Augment capital resources available to regional entrepreneurs, focusing on early-stage ventures as well as those in the fast-growth, scale-up stage of development
  - Accelerate adoption of new technologies, processes and business models in more mature industries, particularly among small and medium manufacturing enterprises, to facilitate their transition toward the next economy
  - Promote creation of dense, mixed-use, well-connected districts – centered around particular technologies, innovation- and entrepreneurship-enabling facilities (e.g., incubators, co-working spaces, etc.) and/or high-potential clusters – that enable the face-to-face interactions and cross-fertilization that facilitate innovation (see also strategy 7, below)
  - Enhance the visibility of entrepreneurial activity, encourage creative problem-solving and elevate risk-taking as a cultural norm through competitions, hack-a-thons and other contests
  - Cultivate a densely networked, integrated and dynamic ecosystem of regional actors driving innovation and entrepreneurship
7. Catalyze **“economic place-making”** in the region’s core cities and strategic locations throughout the region

The physical development pattern in the Milwaukee region reflects its old-economy history and needs to be reshaped to align with the drivers of growth in the more dynamic, knowledge-intensive next economy. The region must streamline the movement of goods, people and ideas throughout the region; reconnect its underutilized human capital assets to economic opportunities; and better leverage its strategically located land assets to foster growth in the new economic environment. The shift in regional development patterns has begun to take place through, for example, the Menomonee Valley, Century City, Machinery Row and the UW-Milwaukee Innovation Park. Catalyzing additional development that follows the next-economy principles of density, mixed uses and strong physical and virtual connections between specialized nodes of residential and commercial activity will further accelerate the region’s growth.

Key elements of this strategy include:

- Enhance physical (e.g., transit) and virtual (e.g., broadband) connections between nodes of economic activity throughout the region, including between workers and firms and across supply chains, and particularly focused on currently under-served geographies in the region’s core cities and outlying counties



- Create policies, programs and incentives that promote evolution of the region’s built environment toward a constellation of well-connected, dense, mixed-use communities – e.g., foster infill development, walkability, transit access, etc.
- Promote strengthening and creation of dense, mixed-use, well-connected districts – focused around particular technologies, innovation- and entrepreneurship-enabling facilities (e.g., incubators, co-working spaces, etc.) and/or high-potential clusters – that enable the face-to-face interactions and cross-fertilization that facilitate innovation (see also strategy 6, above)

8. Modernize **regional infrastructure** to enhance efficiency, cost-effectiveness and connectivity

High-quality infrastructure contributes to the region’s economic growth by enabling enhanced productivity of private-sector firms. The role of transportation infrastructure – facilitating the efficient movement of people and goods into, out of and within the region – is particularly critical. Strategic investments to improve the existing transportation network will better connect workers to employers, suppliers to customers and headquarters to their facilities in other regions and nations. By lowering firms’ costs of doing business and enhancing the ability of workers to access well-matched jobs, the region will become a more competitive location for doing business from the perspective of a diverse range of business and worker types. While transportation infrastructure is the current emphasis of this strategy, other types of strategic infrastructure investments (e.g., broadband upgrades, green infrastructure, etc.) should also be pursued as the need arises.

The primary elements of this strategy are:

- *Upgrade and strategically expand public transit* to provide more direct and timely access between residential and job centers. Preserve, improve and strategically expand service based on current and projected growth patterns for both housing and employment and evaluation of which locations could most benefit from service improvements (e.g., where private auto ownership is lowest or employment opportunities are most limited).<sup>150</sup> Initiatives might include a combination of expanded days, hours and frequency of service, extensions of existing transit lines, express transit service and coordination of service across jurisdictional boundaries.
- *Rebuild the aging freeway system* to and reduce congestion, improve safety and address design deficiencies.
- *Maintain and improve commercial air service* at General Mitchell International Airport (GMIA) to serve the needs of regional businesses, including particularly the headquarters and business services cluster, which tends to be among the most travel-intensive. Expand and upgrade airport facilities as needed to address the changing demands of airlines and

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<sup>150</sup> The Public Policy Forum’s “Workforce Mobility Study” and SEWRPC’s “VISION 2050: One Region, Focusing on our Future” (both currently underway) can inform and support this strategy.

passengers. Aerotropolis Milwaukee's aims to link and leverage the region's multiple modes of transportation and grow businesses in the area surrounding the airport should of course be aligned with any efforts to enhance airport facilities and services themselves.

- *Enhance the cost-efficient movement of freight* by improving water travel through the Port of Milwaukee, freight rail travel through projects such as the Muskego Yard bypass or a regional intermodal facility and connectivity between freight modes (air, water, rail, road).
- *Enhance the connection of the Milwaukee 7 Region to Northeastern Illinois*

#### 9. Enhance **institutional cooperation and collaboration** for economic growth

Government fragmentation and disjointed approaches to economic development activities in particular hamper growth potential in the Milwaukee region. These conditions create a complicated and costly environment in which to do business, and foster intra-regional competition that results in sub-optimal outcomes for the region.

To ameliorate these institutional barriers to economic growth, this strategy includes three primary components:

- *Eliminate duplication and achieve more cost-effective, efficient and streamlined provision of government services.* Government efficiency fosters economic growth by improving the tax-value proposition for firms (i.e., they reap more value for their tax dollars). The Intergovernmental Coordination Council and others have identified and begun to execute shared services initiatives across the region. These efforts should be bolstered to identify further opportunities to better coordinate public services and align policies in ways that reduce the costs of doing business and consequently facilitate economic growth.
- *Identify and leverage economic growth opportunities and connections across jurisdictions.* The local economy is regional in scope, inextricably tying together the fates of the region's core cities and their surrounding suburbs. Currently, competition among jurisdictions prevents the region from realizing its full economic growth potential. Regional leadership should proactively seek out opportunities to pursue collaborative economic growth projects that cross jurisdictional boundaries and benefit the broader seven-county region. Examples might include development of region-wide workforce training programs, development of regional transit and transportation opportunities, or innovation initiatives that focus on high-potential regional clusters and support productivity improvement in firms across the region.
- *Create cross-sector institutional infrastructure to manage the regional economy.* The next-economy environment requires collaboration among actors from across the public, private and civic sectors – often with one of the latter two in the lead – to develop strategies and initiatives, manage implementation and monitor performance of the regional economy. Creation of this plan lays the foundation for this type of cross-sector

collaboration. Continued emphasis should be placed on strengthening civic engagement and creating the extensive, nimble networks that can adapt as necessary to address economic challenges and capture opportunities.

DRAFT

## IX. Implementation/Next Steps

- This plan is only the first draft of the region’s MBP, which is a living document that supports an ongoing approach to understanding and managing the region’s economy.
- The primary goal of the MBP process is not the plan itself, but rather the portfolio of strategies that are developed to shape the region’s economic trajectory and particularly the concrete projects and enterprises that are executed to implement the strategies.
- With this first draft in hand, the next set of work proceeds along two closely related, often overlapping, tracks as described below

### Ongoing Institutional Capacity

- “Socialize” the plan with stakeholders – offer it up for comment and collaboration across the regional geography, across sectors (public, private, civic) and with the public (?) – to gather input and gain buy-in
- Create institutional infrastructure to carry the plan forward – e.g., leadership/steering committee, strategy-specific working groups, staffing (?), potential partnership arrangements/agreements (?), etc.
- Define roles, responsibilities and process framework for implementation, including: identify/execute initiatives, monitor progress/performance of implementation efforts, revisit/refresh analysis and strategies over the long term, etc.

### Development and Execution of Initiatives

- Identify existing initiatives that best support implementation of the plan’s strategies and identify (a) resources to scale them up, (b) other initiatives with which to coordinate/integrate efforts, etc.
- Develop concepts for new initiatives that supplement and build upon existing activities
- Determine accountability/ownership for initiatives (see “ongoing institutional capacity,” above), undertake detailed business planning and begin implementation
- Throughout the process of developing the MBP development process, potential initiative ideas have surfaced that provide a starting point for considering new enterprises, including:
  - Cluster-based initiatives for Water Technology, Food and Beverage or Energy, Power and Controls that might range, e.g., from big ideas -- like a new applied research center, partly supported by industry -- to more modest initiatives, like a research fellowship program
  - Employer-driven workforce intermediary
  - Innovation ecosystem platform
  - Export accelerator

- Regional collaboration – shared services and/or economic growth collaborative
- Economic place-making
- Cluster-based workforce development curricula/certifications to target high-demand occupations and skill sets (building, e.g., off of model being developed by FaB)

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## Appendix A1: Existing Initiatives – Clusters

### Power, Automation and Controls Cluster

- *Mid-West Energy Research Consortium (M-WERC)* – The primary existing initiative aimed at driving growth and competitiveness in the power, automation and controls cluster. M-WERC harnesses the engineering assets in the state’s universities and technical colleges to provide cutting-edge consulting, research and workforce development that enable industry growth and expansion. Membership has recently begun actively expanding beyond Wisconsin to complementary companies and partners throughout the Midwest.<sup>151</sup> The organization has recently announced plans to establish an energy technology incubator in Century City Tower, the former site of the Eaton Corporation Research Center.
- *UW-Milwaukee/Johnson Controls Partnership in Energy Research* – academic/industry collaboration that includes:
  - Significant investment in state-of-the-art testing facilities UWM’s College of Engineering and Applied Sciences, in which the company’s researchers work side-by-side with UWM faculty to develop new materials for the next generation of energy storage devices, including Lithium ion batteries
  - Multi-million dollar commitment to endow a chair for energy research to jointly serve UW-Milwaukee and UW-Madison
  - Partnership with UWM Research Foundation to foster energy research through grants to UWM faculty (and collaborators at UW-Madison) and grants to study particular topics central to the company’s product development roadmap

### Food and Beverage Cluster

The FaB (Food and Beverage) Milwaukee industry network was formed by the Milwaukee 7, with the support of the Metropolitan Milwaukee Association of Commerce, to enhance the competitiveness of the region’s food and beverage cluster. Its goals are to make the region an attractive location to innovate, start, expand or locate food and beverage operations and one in which to enjoy a rewarding career in the industry. FaB’s goal is to shape a regional economic food future that results in food and beverage industry job growth.

While the cluster reaches from farm to factory to fork, its central body of measures focuses on family-wage job creation by the region’s food and beverage manufacturers. Benchmark figures include:

- \$607 million in annual payroll<sup>152</sup>
- \$53,406 average annual earnings in food manufacturing

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<sup>151</sup> Illinois, Minnesota, Iowa, Missouri, Indiana, Michigan and Ohio

<sup>152</sup> BLS QCEW data, 2012

- \$68,255 average annual earnings in beverage and alcohol production<sup>153</sup>

FaB aims to grow the regional cluster by focusing its efforts to develop continuums of talent, innovation and business development. It is currently working on these strategic initiatives:

- *Technical college food manufacturing career pathway development* – Addressing a gap in the talent continuum for food and beverage manufacturers, FaB facilitated an industry-driven training partnership with Milwaukee Area Technical College (MATC). Three new programs have been identified and developed in partnership with regional food and beverage manufacturers. In fall 2013, programs will launch in Food Production (one-year diploma), Food Mechanical Maintenance (one-year diploma) and Food Technology and Science (associate’s degree). Similar career path curricula were put in place in 2012 at Waukesha County Technical College (Food Entrepreneurship) and Gateway Technical College (Urban Agriculture Certificate).
- *Pilot partnership with Vincent High School* – A joint FaB-Milwaukee Public Schools effort is underway to establish industry contacts and ensure alignment of curriculum at this Milwaukee public high school with new MATC programming. The school’s growing focus on urban agriculture, food and animal science provide an early point at which to engage students in considering careers in the food and beverage industry. Vincent and MATC are in the process of forging credit articulation agreements to enable students to gain credit toward post-secondary certification and degree programs.
- *Partnership with University of Wisconsin – Milwaukee* – FaB has engaged UWM to identify and develop advanced resources to meet area manufacturers’ production, science and research needs. Early industry-university connections include UWM’s growing specialty in Public Health and Nutrition.
- *FaB Career Center* – This online resource, created by industry for industry, was launched in July 2013 as part of the FaB website. Designed to support industry attraction and retention of talent, its target audience is industry professionals, job seekers, students and teachers, as well as human resource professionals. It includes the following resources:
  - *Industry Job Board* – Free and accessible by the public (not just FaB members), the board includes positions posted by FaB’s Employer Members that range from internships, to production and technical talent, to research, business and managerial opportunities.
  - *Career Video Collection* – Free and accessible to the public, the collection will feature industry professionals from a variety of food manufacturers in a variety of positions. The videos will a personal look at what a career in the industry looks like and the variety of pathways people have taken to their current positions. Working with Arthur Ircink, Executive Producer of the *Wisconsin Foodie* TV show and blog, FaB posted the first video featuring four professionals working at Chr. Hansen. To date, five additional food

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<sup>153</sup> Earnings figures include supplements to wages and salaries (e.g., employer contributions to items such as retirement plans and insurance). EMSI, 2013 estimate.

companies have agreed to make career videos: Butter Buds Ingredients, Glorious Malon's Fine Sausage, Ocean Spray, Palermo's Pizza and Wixon Ingredients.

- *Career Pathways* – Explicit pathways are being laid out to more effectively connect students and workers at various stages of career development and transition to career information and corresponding educational and training opportunities. FaB is also working to develop career-path connections across clusters so that, for example, a student starting on a tourism/hospitality path (which includes chefs and food service) can transition to the agriculture and food processing, where higher-wage jobs are available.
- *FaB marketplace directories* – FaB supports two directories developed for industry and launched July 2013. The General Marketplace directory is a search engine to identify members able to supply the needs of a food or beverage enterprise – from farm to factory to fork. FaB's Co-Pack/Shared Production Directory is a search engine to identify members who have both general and specific production capacity to support a food start-up or growing enterprise. FaB is in discussions with University of Wisconsin-Milwaukee to develop a directory that can offer more robust search capacities.
- *Food and beverage manufacturing accelerator program* – In partnership with Bizstarts Milwaukee, the Global Entrepreneurship Collective and UW-Milwaukee, FaB is working to develop an accelerator that serves the distinct needs of the food industry. The program will leverage FaB's 400-member executive network as a mentor pool, and will leverage the existing inventory of shared use-kitchens, micro-batch and co-pack facilities. It will focus on food industry innovations that offer high potential for scalable products, technologies and process development. A whitepaper is being introduced to the cluster in October 2013 to gain momentum and input and will result in an application to the Wisconsin Economic Development Corporation (WEDC) for grant support.
- *Food and beverage manufacturing campus* – In partnership with a local developer, Wispark, FaB is exploring a potential development at which five to six medium or large food or beverage manufacturers could be co-located on a shared campus. Tenants would benefit from, for example, direct access to students attending the MATC food programs.

## **Water Cluster**

The Milwaukee Water Council aims to align the regional fresh water research community and water-related industries to establish the region as a global hub for water research, economic development and education. The Council has several initiatives underway, including:

- *Global Water Center* (opened July 2013) – water research and business accelerator center in Milwaukee's Walker's Point neighborhood. The center houses water-related research facilities for universities, existing water-related companies and accelerator space for emerging water-related companies. It is a venue for attracting and creating new businesses in the water industry, and aims to address key local and global water-quality technology and policy issues. This building's redevelopment also serves as a catalyst for the development of the Reed Street Yards, which has been designated by city of



Milwaukee as an 18-acre water technology research park and will serve as a global showcase for water management.

- *Industry/University Cooperative Research Center (I/U CRC)* – The University of Wisconsin-Milwaukee was awarded a grant by the National Science Foundation (NSF) to launch an I/U CRC in Water Equipment and Policy. This center ties the research programs of UWM and Marquette University to six regional companies. In this industry-directed research model, the companies contribute funds for research programs and an Industrial Advisory Board made up of company members selects the projects that will be pursued. To date, industry members have sponsored approximately \$900,000 in research projects at UWM and Marquette, and researchers at these institutions have subsequently won related research support. Industry members are working to find commercial applications for this work. This includes two industry partners that are investigating surface treatments and coatings that may be resistant to fouling in brass, cast iron and other materials.
- *Global Freshwater Seed Accelerator* – the world’s first mentor-driven seed accelerator focused on entrepreneurs that address the global freshwater challenges. Working with the Wisconsin Economic Development Corporation and in partnership with the University of Wisconsin-Whitewater’s College of Business and Economics, the program provides \$50,000 grants, low-cost leases, a mentor network, investor contacts and a training program to help water technology entrepreneurs get their products and services to market. The first class of four entrepreneurs was selected in July 2013 and will begin the program in September 2013.
- *Integrated university STEM program* – collaboration with the University of Wisconsin System to build a unified curriculum relevant to the water industry across five University of Wisconsin campuses.

### **Other Clusters**

Various other industry-academic partnerships and joint research centers exist throughout the region. For examples, see, e.g., UW-Milwaukee (<http://www4.uwm.edu/research-impact/partnerships.cfm>) and Marquette University (<http://www.marquette.edu/research/centers.php>).

## **Appendix A2: Existing Initiatives – Human Capital**

### **Department of Workforce Development (DWD) – Office of Skills Development**

This newly created office will coordinate the administration of the Wisconsin Fast Forward grant program and serve as the linkage between regional economic development corporations, technical colleges, training organizations, K-12 educators and the Governor’s Council of Workforce Investment to create customized worker training programs that meet employer-identified workforce needs, which are also supported by labor market information. The legislation also creates a new Labor Market Information System (LMIS) to track job vacancies and match unemployed workers with relevant openings based upon skill identification and requirements.

### **Manufacturing Careers Partnership’s Closing the Skills Gap Initiative**

MCP is a growing coalition of manufacturers committed to coordinating efforts with educators and workforce development providers to develop solutions that will ensure a pipeline of manufacturing talent and career pathways to meet industry needs. MCP is conducting a skills gap study to quantify employer demand for welders and align those needs with the relevant workforce development experts. From the survey results, a group of manufacturers will be convened with the area's technical colleges for a session to align course competencies with the survey findings. If successful, the pilot program will be expanded to more industries and workforce development agencies.

### **Technical college sector-specific “boot camp” training programs**

The region’s technical colleges have created 16-week, entry-level boot camps that lead to industry-recognized certifications, primarily in Computer Numerical Control (CNC) operations, machining and welding. Once hired as an employee or apprentice, the student continues to develop skills while on the job. This model can be adapted to other skill set requirements.

### **Wisconsin Regional Training Partnership (WRTP)/BIG STEP**

This non-profit intermediary coordinates with area technical colleges and schools, workforce investment boards, community- and faith-based organizations and employers and unions in the manufacturing and construction sectors. Through these partnerships, WRTP/BIG STEP develops and implements short-term training programs, and facilitates the placement, follow up, retention, and advancement of workers. WRTP/BIG STEP has developed a number of industry-driven pre-employment training projects, including the Manufacturing Technician Apprenticeship, designed to provide manufacturing workers an industry-recognized credential based on skills, knowledge and competencies needed to work and grow in the advanced manufacturing economy.

### **Regional Industry Skills Education (RISE)**

RISE is the umbrella initiative of DWD and the Wisconsin Technical College System (WTCS), delivering Career Pathway and Bridge programs to low-skill workers. The Career Pathway organizes technical college occupational training as a sequence of credentials that leads adult

learners toward better jobs via a degree or technical diploma. A Bridge helps adults link basic skills with occupational skills development to accelerate the transition from pre-college to college-level attainment. Through a new Joyce Foundation grant, DWD and its partners intend to support 115 total career pathway programs and help 2,700 individuals earn a credential with at least 12 college credits.

**Milwaukee Talent Dividend Initiative**

Supported by the national Talent Dividend initiative developed by CEOs for Cities, this initiative is a regional collaboration of businesses, educators, economic and workforce development agencies and civic and non-profit service providers that aims to develop, align and retain regional talent. It aims to connect students, parents, K-16 educators and businesses while promoting policy changes to shorten time to degree; removing educational attainment and financial barriers for students; developing education and career pathways for students and adults; increasing the availability of talent development tools such as internships, mentoring and job shadowing opportunities; and the sharing of best practices throughout the region.

**Milwaukee Area Workforce Funding Alliance**

One of 31 national sites under the National Fund for Workforce Solutions, the alliance is a consortium of private and public funders of workforce development (including education, job training and placement, and support services) which aim to grow employment that benefits both businesses that need skilled workers and individuals seeking good jobs with family-supporting wages. Its goals are to:

- Fund agencies, programs and projects that provide career advancement support for low-income and low skilled people; and
- Develop a better coordinated workforce development system of public and private collaboration that enhances regional competitiveness.

**FUEL Milwaukee**

FUEL Milwaukee serves more than 7,000 young professionals and new Milwaukeeans by helping them connect to their professional peers, plug in to the community, and ensure that their voice is heard as the Milwaukee Region shapes its culture and brand. FUEL recently launched the Leadership Luncheon series, a one-hour mentoring session between top Milwaukee leaders and young professionals. FUEL also developed a diversity toolkit in partnership with the Greater Milwaukee Committee, encouraging companies to adopt best practices related to attracting and retaining diverse talent.

**NEWaukee**

NEWaukee is a group of young professionals that unites the great people in Milwaukee with the city itself. The organization’s goal is to connect young professionals to the city by showcasing all the unique destinations in Milwaukee, while raising support for Milwaukee charities and small businesses. NEWaukee sees its weekly socials, explores, adventures and large-scale events as a critical function of its mission to develop, retain and cultivate Milwaukee’s valuable talent.

In addition to the M-WERC, FaB Milwaukee and Water Council workforce initiatives referenced in Appendix A1, other more narrowly focused human capital initiatives in the region include:

- DWD Cross-Program Apprenticeship Initiative
- “Dream It. Do It.” Marketing Campaign
- Waukesha County Business Alliance Manufacturing Council and Manufacturing Tours
- City of Milwaukee Manufacturing Partnership
- Milwaukee 7 Manufacturing Careers Partnership
- Ozaukee County business/high school job fairs
- Second Chance Partners
- Milwaukee Job Corps

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## Appendix A3: Existing Initiatives – Innovation and Entrepreneurship

- **BizStarts** – Aims to create a vibrant, innovative and prosperous entrepreneurial business climate in the M7 region by inspiring, nurturing, connecting and celebrating entrepreneurs and their companies. Goals include:
  - Connecting entrepreneurs with the right resources
  - Significantly growing the number of "gazelles"
  - Promoting and creating a strong entrepreneurial business climate
  - Playing an instrumental role in promoting entrepreneurship in our educational institutions

The organization's four major initiatives are:

- BizStarts Connect, designed to connect entrepreneurs with the best possible resources online and at networking events
  - BizStarts Buzz, which promotes the importance and spirit of innovation and entrepreneurship
  - BizStarts Venture Track, designed to substantially increase the number of innovative, fast-growing companies by offering a suite of mentoring, education and connections for Venture Track entrepreneurs
  - BizStarts College Consortium, which brings together leadership from universities, colleges and technical schools to advocate for and ultimately increase the amount of entrepreneurship courses, programs and experiences offered on campuses throughout the region
- **Scale Up Milwaukee** – An integrated, bipartisan effort to simultaneously impact six domains of the entrepreneurial ecosystem in Milwaukee: culture, policy and leadership, finance, human capital, markets and supports. Launched in April 2013 and the first US application of a model developed by Daniel Isenberg and Babson Entrepreneurship Ecosystem Projects, Scale Up is focused on developing the entrepreneurial capacity in Milwaukee by bringing together the policies, structures, programs and climate that foster entrepreneurship.

Implementation activities include:

- Scalerator is an intense training series for scalable companies that are selected through a competitive process. The next cohort of companies will include 10-15 participants, which are in the process of being selected. The four-session series kicks off in late September, with topics including: Sales and Sales Management for Rapid Growth (parts 1 and 2), Entrepreneurial Finance and Building an Organizational Growth Platform.
- Stakeholder seminars aim to engage and empower critical stakeholders – public, private and entrepreneurial – in fostering Milwaukee's entrepreneurial ecosystem. The first of these targeted university professors who teach entrepreneurship, and was attended by participants from over a dozen universities, including from Madison and Chicago.

Future sessions will include an invitation-only financial stakeholder workshop, led by Professor Les Charm.

- A Corporate Venturing Summit, held in partnership with MiKE (see description below), aims to foster more effective business dialog and strategic cooperation between corporate partners and entrepreneurial ventures at different stages, while laying the initial groundwork for an ongoing forum for corporate and entrepreneurial cooperation. Sponsors, partners and participants include local corporations most prominently, but also national partners, especially American Express OPEN.
- Public leadership efforts, one pillar of Scale Up’s mission, aim to catalyze top public officials to serve as champions for and enhance the visibility of Milwaukee’s innovation and entrepreneurial acumen. Mayor Barrett has already been an eager participant (e.g., series of entrepreneurial roundtables, public acknowledgement of milestones and successes), and activities are being planned in conjunction with the governor’s and county executive’s offices.
- **Bucketworks** – Bucketworks is a co-working, meet-up and practice space for creative professionals. Membership benefits include space to work, meet and co-create while connected to a professional creative community and engaged with learning and economic opportunities.
- **Gener8tor** – Focused on first- and second-stage technology start-ups – web, software, Internet, SaaS, hardware and similar companies – Gener8tor invests its community, capital, expertise, mentorship and network in capable, entrepreneurs with innovative business models to create successful, scalable companies. The organization’s self-funded, high-energy 12-week curriculum follows a lean startup methodology, after which firms are encouraged to “build, measure, learn” as quickly as possible and are provided with needed capital, office space and access to fellow entrepreneurs, mentors, industry experts, service providers and anyone else you need to get off the ground and grow. Gener8tor is backed in this effort by a successful, experienced team of entrepreneurs and business people, and offers a plethora of services and support to help take start-ups from the “I have a great idea” stage all the way through financing to scale a new company.
- **Innovation in Milwaukee (MiKE)** – MiKE is committed to driving economic development through creative problem solving and the attraction and development of talent by fostering a culture of innovation in Milwaukee. Specific initiatives and programs in which MiKE is involved include:
  - OPEN MiKE is a physical and virtual space that promotes open source entrepreneurship. Students, freelancers, professionals and entrepreneurs come together to create a design + tech ecosystem to accelerate the development of new ideas and rapid prototyping. Spreenkler Talent Labs and BizStarts Milwaukee are conveniently located within the same space to offer a support structure to bring those ideas to market. OPEN MiKE offers: 6,800 square feet of open workspace, Wifi and network bandwidth for cloud storage and development environments, Meetups, workshops and networking events essential to design + tech industries, Access to peers, mentors and advisors

### **APPENDIX A3: Existing Initiatives – Innovation & Entrepreneurship**

- GE Healthcare Global Design Challenge is a comprehensive, cross-functional design organization within GE Healthcare spread across 6 world-class studios in 5 countries. Its core mission is to create breakthrough innovations for GE across all phases of patient care while driving design and design culture across the corporation.
- Flying Car, formerly known as Milwaukee Innovation Week, is an annual destination event to inspire minds with the year's brightest technological advances and empower them to launch their own world-changing ideas into the marketplace.
- **UW-Milwaukee Innovation & Entrepreneurship Curriculum/Programming** – The University of Wisconsin-Milwaukee is building on traditional business plan contests and programs in the Sheldon B. Lubar School of Business, with programs like the UWM Student Startup Challenges. These events reach a broad segment of the campus and help student entrepreneurs to build prototype devices. The program is in its second year and has gained support from the National Collegiate Inventors and Innovators Alliance (NCIIA) and the UW System. Students have gone on to pitch their ideas to investors through BizStarts. Second-year teams include entrepreneurs from health sciences, freshwater sciences, business, engineering and the arts.

The UWM Research Foundation Catalyst Grant program is also helping build a culture of innovation among UWM faculty and researchers – the program is targeted at commercial outcomes, helping raise faculty awareness to the importance of intellectual property, company partnerships and startups.

UWM is also growing its new ventures curriculum to teach innovation skills, reaching out to students in engineering, the arts and the sciences in addition to business students.

- **Entrepreneurship education at high schools, tech colleges and universities** – [M7 team: We received a comment from a contributor that this is important to include. Someone specifically mentioned the BizStarts College Consortium as a piece of the puzzle. If we want to include references here, need to add in more information – which campuses, curriculum, how connected to the ecosystem, when established/started, how many students...? Other educational institution suggestions that I don't know enough about to include here: Marquette (possibly MSOE as well) also growing new ventures curriculum... At MCW, post-doctoral students who are considering careers in industry rather than academia have the opportunity to act as consultants in regional biotechnology companies to offer them important business experience.]
- **VETransfer** [Accurate description of current activities?] – VETransfer provides a hands-on learning experience for Veterans who want to become entrepreneurs. Unlike traditional business plan writing programs that focus on ideas, Vetransfer's programs focus on ACTION. Veterans directly engage with customers to test the validity of their business model, while interacting with mentors that can help interpret what the Veteran is hearing from potential customers. Vetransfer is a national program sponsored by the Department of Veterans Affairs to support Veteran entrepreneurship.
- **Cluster-specific innovation initiatives** – see Appendix A1.

- **Other initiatives**

M7 team: Should any of the following highlighted organizations/initiatives be described here? Which are most relevant to the market facts, assessment and strategies contained in this plan. If you think an organization should be included, write up a relevant paragraph that provides a description of its mission and activity.

- Hudson — one of 20 some such shared work spaces ID'd by GMC
- BrightStar — a fund source/angel fund
- Whitewater's new accelerator
- Start Up Milwaukee
- WIBIC
- Launchbox
- CATI
- Fund Milwaukee – crowd funding

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## Appendix A4: Existing Initiatives – Infrastructure and the Built Environment<sup>154</sup>

### Mixed-Use and Infill Development

- Century City (Milwaukee): 84-acre mixed-use development on a recovered industrial site in an economically challenged area in north central Milwaukee. The project is expected to include 700 to 1,000 permanent jobs when fully developed.
- Machinery Row (Racine): The catalyst for RootWorks, an integrated development of public/private sector projects in downtown Racine on the Root River, Machinery Row is expected to be a bustling, eclectic live-work center. The project includes the redevelopment of historic warehouses and industrial buildings lining Water Street, which will be adaptively reused as urban lofts, live-work units and creative spaces for growing new businesses. Machinery Row is also adjacent to the River Loop, which provides 1.75 miles of scenery, bike paths, walkways, river access, parkways and access to the City's Transit Center.
- Chrysler Site (Kenosha) [M7 team: need to add in specifics]
- [M7 team: any other mixed-use projects that could be added to this list (especially those OUTSIDE the City of Milwaukee – Port Washington, West Bend, Waukesha, etc.)?]
- Milwaukee County Research Park: Created by Milwaukee County to nurture technology-based companies, this 175-acre development center at the Milwaukee County Grounds in Wauwatosa includes more than 70 high-tech firms employing 4,800 people. Major tenants include GE Healthcare's clinical systems and corporate IT facility and United Health Care's headquarters. A business incubator, the Technology Innovation Center, is home to 44 new technology-based businesses. Adjacent to the Milwaukee Regional Medical Center (Froedtert Hospital / Children's Hospital / Medical College of Wisconsin / The BloodCenter of Wisconsin). The research park features immediate access to freeways and public transportation and a unique campus-like setting with sidewalks and nature trails.
- UWM's Innovation Campus: New 89-acre mixed-use development on Milwaukee County Ground's with UW-Milwaukee's research accelerator (to open early 2014) and corporate research facilities in close proximity to the Milwaukee County Research Park and Milwaukee Regional Medical Center. The 25,000-square-foot Institute for Industrial Innovation will include state-of-the-art core laboratory facilities for use by a wide variety of academic and industry researchers.
- Menomonee Valley (Milwaukee): 300 acres of brownfield sites redeveloped into a business and environment corridor, creating 4,700 jobs in 35 companies.

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<sup>154</sup> [M7 team: Any others that should be mentioned here re: infill/mixed-use/TOD projects, transit expansion/improvements, infrastructure projects (including, especially, "next-generation" infrastructure like broadband/wi-fi, energy, water, other green projects)?]

- Aerotropolis Milwaukee – The public-private partnership, centered around General Mitchell International Airport, aims to foster economic collaboration by linking the region’s air, rail, road and shipping transportation capabilities. The partnership focuses on the evolution and implementation of a comprehensive strategy to generate the growth of business and communities in an aesthetically inviting aerotropolis area.

Its goals include:

- Retain and attract businesses and jobs in the Aerotropolis Milwaukee footprint by offering accessible, interrelated and efficient transportation in a commercial hub
- Improve the aesthetic environment of the area to make it more inviting to businesses and people
- Market the Aerotropolis Milwaukee region and its capabilities nationally and internationally to prospective businesses and industries
- Strengthen and increase the economic values of businesses, communities and real estate properties in the Aerotropolis Milwaukee region
- Support the regional economic development initiatives of the Milwaukee 7 effort.

### **Infrastructure Upgrades**

- Highway and interchange upgrades: including \$800 million for the Marquette interchange; \$1.9 billion for the North-South I-94 corridor; and \$1.7 billion for the Zoo interchange (scheduled), Wisconsin’s busiest.
- Regional Transit Initiative: This diverse group of leaders has come together with the goal of developing and implementing a collaborative regional transit leadership agenda that will improve transportation and the dynamics for job access, workforce development and the economy of SE Wisconsin. The Initiative’s vision is for a comprehensive, integrated, multi-modal transit network in SE Wisconsin that will:
  - Facilitate Milwaukee and SE Wisconsin economic and workforce growth, and connections to Chicago area economic opportunities.
  - Increase cross-jurisdictional regional connectivity, effectively linking people to jobs, education, healthcare and other destinations in the region.
  - Act as a magnet for talent and young people, and be easily affordable to people across all income levels, fostering inclusion and broad-based economic opportunity.
  - Provide collaboration and coordination across the region with buses at the foundation, and increase connections to all forms of transportation.
  - Use a credible visioning process to build a shared vision and an informed public. Engage business, civic and elected leaders; young professionals; and diverse communities in the process.
  - Be sustainably funded.

## Appendix A5: Existing Initiatives – Effective Institutions and Policy

### Government Fragmentation

- Intergovernmental Cooperation Council: A body consisting of the mayors and village presidents of the 19 Milwaukee County suburban municipalities and the county itself that promotes shared services among Milwaukee County’s municipal governments.
- Intergovernmental Cooperation Initiatives: Several instances of early-stage collaborative efforts have emerged in recent years, including:
  - Several utilities have agreements with the City of Milwaukee and neighboring municipalities to provide joint services and infrastructure, such as for recycling.
  - The City of Milwaukee has mutual aid agreements with neighboring communities for fire services, and the City provides HAZMAT services for the region.
  - The City fleet jointly purchases fuel with Milwaukee and Waukesha counties to take advantage of discounted pricing.
  - Consolidation of public safety functions, such as fire and police service, are under consideration in a number of suburban Milwaukee communities.<sup>155</sup>
  - [Others?]

### Tax-Value Proposition

- Proposed Referendum to reshape the Milwaukee County Board: To bring the Milwaukee County board expenditures in line, proportionately, with those of other Wisconsin counties, Governor Walker has proposed a bill that would give the county executive more control over the Milwaukee County Board and reduce its scope and cost. Provisions include:
  - Limiting board member salaries to the annual per capita income of the county and
  - Limiting board spending on itself to 0.4% of the county tax levy.
- Manufacturing Tax Credit: This new tax credit will be phased in over a period of four years beginning in 2013, and will virtually eliminate the tax on income derived from manufacturing activity in Wisconsin. It will effectively reduce the rate of tax on Wisconsin manufacturing income from 7.9 percent to 0.4 percent.
- [Are there any other existing initiatives that could/should be mentioned under the tax-value proposition category – e.g., other government efficiency efforts, reallocation of public funds

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<sup>155</sup> Shorewood, Whitefish Bay and Glendale are reported to be considering the feasibility of a police force merger, while Franklin, Greendale, Greenfield, Hales Corners and Oak Creek are exploring shared fire services.

to prioritize certain value-added services that are most beneficial to new-economy industries, etc.?)

*Institutional Environment and Culture*

- Milwaukee 7: M7 was formed in 2005 to take a regional approach to the growth, expansion and attraction of businesses in the region. It has been successful in engaging county economic development entities in sharing regional data and working more cooperatively on expansion and attraction leads. Development of this Metropolitan Business Plan (MBP) has successfully engaged a broad array of public, private and civic stakeholders from across the region. Institutionalizing the MBP process as an ongoing way of collaboratively managing the regional economy will further enhance institutional capacity and impact going forward.
- [Other joint public-/private-/civic-sector economic growth initiatives?]

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