



CENTERSTATE NEW YORK AGENDA FOR ECONOMIC OPPORTUNITY

STRATEGIC OVERVIEW



METROPOLITAN BUSINESS PLAN
NOVEMBER 2013

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CENTERSTATE NEW YORK AGENDA FOR ECONOMIC OPPORTUNITY

A METROPOLITAN BUSINESS PLAN PREPARED IN PARTNERSHIP WITH THE BROOKINGS INSTITUTION METROPOLITAN POLICY PROGRAM

NOVEMBER 2013

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- Seneca County IDA
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INTRODUCTION

A MESSAGE FROM THE CENTERSTATE NEW YORK REGION

Over the last decade, the CenterState region bore witness to manufacturing decline, the Great Recession, and a long, sluggish recovery. These realities have created competitive dynamics that now demand interventions. The imperative we face is to carefully and intentionally craft strategies to transform our unique strengths into globally competitive assets.

The CenterState Agenda for Economic Opportunity responds to that imperative. Steeped in extensive data analysis, it reflects more than two years of work. It draws from the engagement of hundreds of stakeholders across the region as well as national experts. Anchored in the commitment to grow opportunity across the entire 12-county region, we designed a comprehensive, strategic approach to make the most of our opportunities and address our challenges.

CenterState CEO convened leading institutions from the public, private and non-profit sectors to guide development of the Agenda. A steering committee composed of representatives from business, government, philanthropy and education worked in partnership with The Brookings Institution Metropolitan Policy Program and RW Ventures as part of a national pilot. Battelle Technology Partnership Practice provided extensive assistance, along with KS&R, which expanded input from regional stakeholders through an interactive online forum.

The work proceeded in tandem with the New York State Regional Economic Development Councils. It drew extensively from unprecedented public input and planning by the Central New York, Southern Tier, North Country, Finger Lakes and Mohawk Valley Regional Economic Development areas, all of which include some counties in the region.

We are grateful to all of our partners for their time, resources and insights. But publication of the Agenda marks only the beginning of the real work: It inaugurates a new approach to economic development and a new way of doing business centered on closer coordination and collaboration across the region. It is intended as a living document that will grow and change as new partners become engaged and new opportunities and challenges arise.

It will only gain traction with the support of citizens and leaders, however. As a region, we must continue to think through the value proposition we offer to the global market. We need the involvement of many more citizens and organizations to carry out the strategies presented here and to expand their reach to push the region forward in the transition to its next economy.

We invite you to join us.

CHAPTER 1: INTRODUCTION TO MARKET ANALYSIS¹

The transformative nature of the next economy has major implications for the practice of regional economic development. Traditional strategies alone no longer spur growth.

The next economy is knowledge-based, innovation-driven, dynamic and global. Economic growth increasingly relies on knowledge embedded in people and advanced technologies.² Knowledge-based service sectors such as scientific and technical services; finance; professional; and business services make up nearly 75 percent of economic output in developed economies.³ Knowledge-based products and processes are proliferating across all industries, and entirely new sectors are emerging.⁴

This shift 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 much faster speeds than in the past.⁵ As a result, the economy is more dynamic. Flexible production and fluid institutional networks enable rapid redeployment of assets to new products and markets and increased customization. Further, in terms of both demand and supply, the new marketplace is global.

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.⁶ This makes metropolitan economies disproportionately productive,⁷ and, as a result, metropolitan regions are now the global economy's primary competitive units.⁸

Each region's unique combination of assets, market dynamics and institutional environments shapes its economic performance. These interactions create a whole greater than the sum of the parts. For example, industry concentrations, workforce characteristics and infrastructure succeed or fail in the context of the whole. Regions must implement tailored strategies to

affect the performance of the whole, and the strategies must reinforce each other. No one-size-fits-all solutions exist for promoting economic growth.⁹

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 move further ahead of their competitors. Small changes in direction 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.

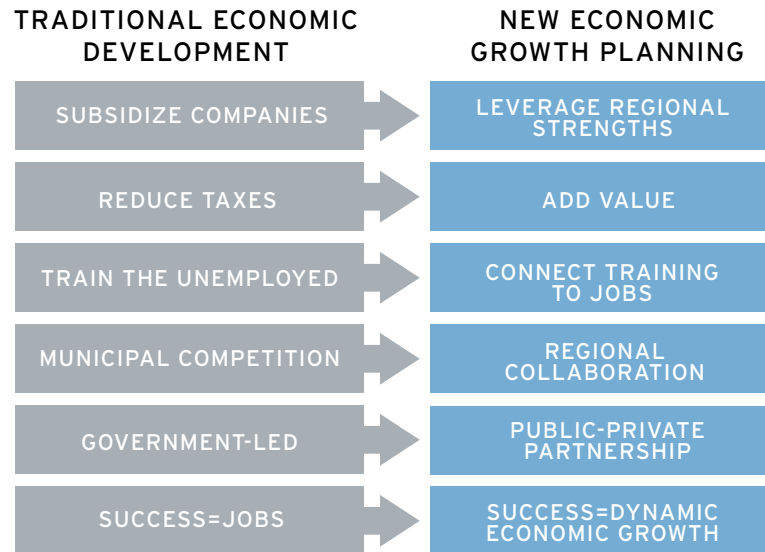
Regions must take a new approach, moving away from consumption-driven growth (e.g., retail and housing), and from deal-by-deal tactics focused on firm attraction and competing primarily on low costs.¹⁰ Instead, regions must shift their focus to the creation of production-driven economies that compete 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.

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. Long-term economic growth - across all five market levers - must be inclusive to be sustainable.¹¹

This new approach requires regions to create new institutional capacity that works across the public,

1. CenterState developed this "Agenda for Economic Opportunity" as one of seven metropolitan areas participating in the metropolitan business planning initiative launched by Brookings and RW Ventures. This section, provided by the initiative, summarizes some of the economics that inform the metropolitan business plan. 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); and "A Plan for Economic Growth and Jobs" (World Business Chicago, 2012); and "Partnering for Prosperity" (Cook County, 2013).

2. See 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).



private and civic sectors and across political boundaries. These cross-sector institutions must engage in truth-telling and discard the conventional wisdom when it no longer fits market realities. They must have a deep understanding of the unique assets and dynamics of a region; deliberately create linked enterprises to transform those dynamics; and foster the rich, transparent and dynamic networks that drive innovation and growth. They must continually monitor and adjust their action plans based on objective metrics of market performance and impact. In short, regions must make deliberate, transformative investments tailored to move forward on their unique path to prosperity.

The CenterState Agenda for Economic Opportunity focuses on that path, moving beyond the tactics of traditional economic development to identify new opportunities for growth and prosperity embedded in economic strengths and assets and devising long-term strategies to pursue them. Its over-arching goal is to accelerate the region's movement along that new path through intentional, data-driven and effective action and investment.

3. McKinsey Global Institute, analysis of Global Insight and Economist data. U.S. 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>>.

4. See "Big Data: The Next Frontier for Innovation, Competition, and Productivity," McKinsey Global Institute, 2011.

5. Consider, for example, that the companies that made up the S&P 500 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 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 per 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.

6. 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).

7. 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).

8. 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).

9. This process results in increasing rather than diminishing returns, so that the places that get ahead tend to keep getting further ahead. See 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.

10. Individual firm attraction instead plays an important role as a tactic aimed at attracting targeted firms that fit strategies tailored to the assets of the region - such as targeting firms to fill out a strong local cluster. In these circumstances the offering 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 firms and region "stickier" - less likely to leave for the next lower-cost location.

11. See 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).

A NEW ECONOMIC CENTER OF GRAVITY

Global economic forces buffeted CenterState New York over the closing decades of the last century, eroding its traditional industrial base and economic vitality. For more than a decade, regional partners have worked collaboratively to strengthen the region's knowledge assets and define a new economic profile for the new century.

Today, the region is in transition. Investments to spur entrepreneurial activity have generated new energy and opened new pathways. Cities and town centers are seeing new vibrancy, and universities and other anchor institutions are investing to attract knowledge workers and firms. Local government leaders are testing new approaches to gain efficiency and cost effectiveness.

The CenterState Agenda for Economic Opportunity builds on that momentum and charts a next phase to encourage the region's economic transformation and establish a new center of gravity for the next economy.

CenterState New York is a 12-county region that includes the Syracuse, Ithaca, Utica/Rome, and Watertown metropolitan areas. Treated as one region, it equates to the 55th largest region in the country, home to 1.5 million people, with total employment of just over 650,000 and economic output of \$62.9 billion in 2012.

The region possesses significant assets to achieve that: emerging and established technology sectors, enhanced infrastructure for innovation, expanding entrepreneurial networks, and an extraordinary network of 35 colleges and universities that give the region one of the highest concentrations of college students in the nation.

At one time, the region's natural resources provided the foundation for its economy, advanced in the early 19th century by the Erie Canal and growing demand for its products up and down the Eastern Seaboard. The Syracuse area became a great manufacturing center, attracting major firms and large production plants. Ithaca grew around Cornell University; Utica/Rome became a center for U.S. Air Force operations and research. Farmland and the waterways of Lake Ontario and the St. Lawrence River defined Watertown and the North Country.

It was a region of educators, farmers and makers, with original equipment manufacturers providing business and civic leadership. Over the last decades of the 20th century, new service sectors grew, but many large manufacturers closed production plants or left the region. That decline continued through the decade ending in the Great Recession, during which it lost another 40 percent of its manufacturing base.

Decades of de-industrialization left a region of older cities, small towns and rural communities characterized by low wages, long-term unemployment, hollowed out urban neighborhoods, obsolete industrial land and buildings. Since the beginning of this century, total economic output in the region increased 11.8 percent, which is below the national average of 19.7 percent. The region's productivity - or output per job - of \$91,105 is rising, but registers slightly below the national average of \$96,024. Productivity in the Syracuse metropolitan statistical area (MSA) is notably higher than the national average, however, at \$102,900.

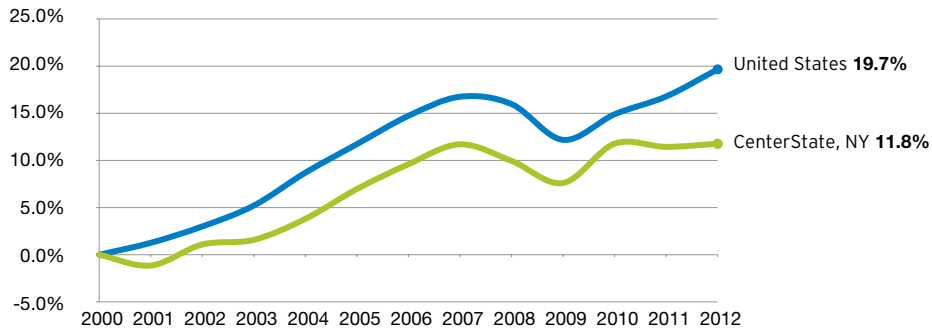
Employment in the region did not fall as drastically during the Great Recession as it did nationally, but it dipped again over the last year. And the average wage of \$39,660 is almost 20 percent lower than the national average. Poverty rates in some areas have risen significantly with high concentrations in both urban and rural areas. In the city of Syracuse, 38 percent of residents live below the poverty line, which is among the highest concentrations of poverty in the country.

Beneath those troubling indicators lie others that hold more promise: The potential for a next economy and renewed competitive strength based on capacities in regional firms that emerged from legacy manufacturing sectors and defense research.

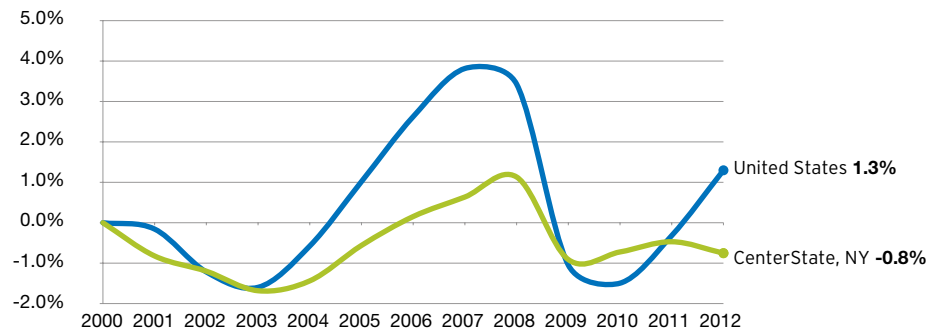


THE CENTERSTATE REGION LAGS THE NATION IN MOST CRITICAL INDICATORS OF ECONOMIC PERFORMANCE

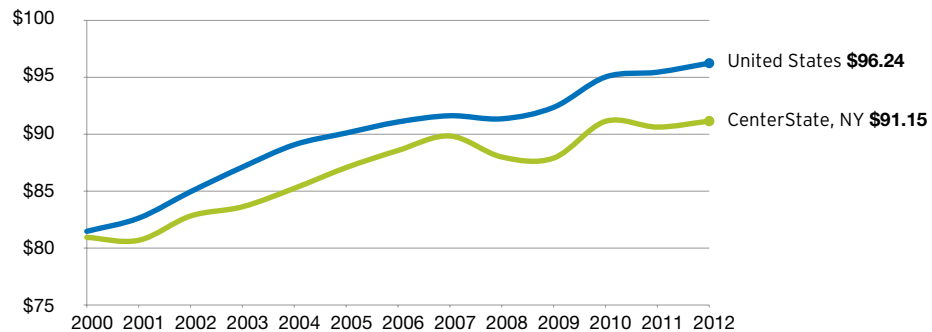
1. CHANGE IN ECONOMIC OUTPUT, 2000-2012 compared to national average



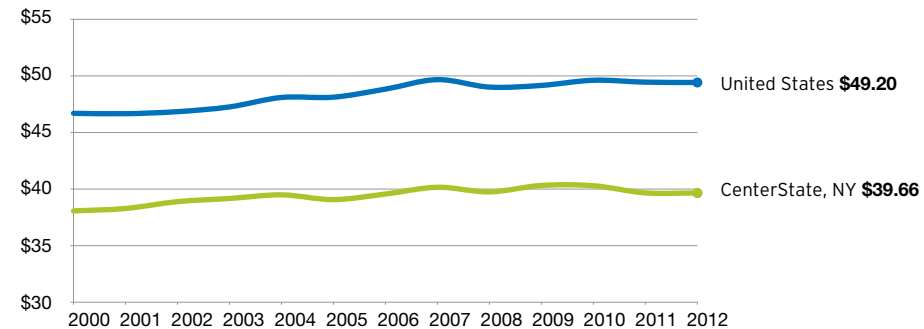
2. CHANGE IN EMPLOYMENT, 2000-2012 compared to national average



3. CHANGE IN OUTPUT PER WORKER, 2000-2012 compared to national average



4. CHANGE IN HOUSEHOLD INCOME, 2000-2012 compared to national average



Source: Brookings analysis of Moody's Analytics, U.S. Census, and American Community Survey data

THE PATH TO THE NEXT ECONOMY AND THE METROPOLITAN BUSINESS PLAN

This new reality of economic growth shaped the CenterState Agenda for Economic Opportunity, developed through the metropolitan business planning process. It is a business plan in the best sense of the term: objective and based on rigorous data analysis, it evaluates the region's strengths and weaknesses along five mutually reinforcing market levers that, when aligned, drive productivity and prosperity.

To map a strategy, stakeholders must understand the status of the region's key economic sectors in the world economy, the trends that are impacting those industries, and how key leverage points will influence economic growth. These leverage points are key economic drivers and inform the organization of this plan:

Chapter 2 - Primary Economic Sectors That Drive the Regional Economy
Chapter 3 - Large Economic Sectors that Contribute to Regional Economy
Chapter 4 - Human Capital and Talent
Chapter 5 - Innovation and Entrepreneurship
Chapter 6 - The Built Environment, Physical and Virtual Infrastructure
Chapter 7 - Public and Civic Institutions and Culture

The region's economic clusters, or concentrations of related industries, and the quality and effective deployment of its human capital, along with its capacity for innovation, impact the productivity of firms directly. The quality of government and civic governance - the cross-sector networks that enable economic activity - along with the built environment and the region's physical form create underlying conditions that support or hamper growth.

The long-term strategic actions the CenterState Agenda for Economic Opportunity proposes represent tangible steps designed to build momentum and synergy to enhance those capacities in the region. It is grounded in market realities and confronts head-on the region's challenges. It recommends eight integrated strategies and three ambitious initiatives as a first wave of implementation.

The Agenda is committed to inclusive growth and the expansion of opportunity to all parts of the region, recognizing that, in a metropolitan economy, the prosperity of all communities and populations is inextricably linked. Reversing the impact of long-term job losses, low growth rates, and rising poverty is not only a matter of equity: inclusive growth is good for business. Regions that develop and deploy more of its total human capital, land, and production assets do better in the long run than those that do not.

For more than a century, CenterState New York represented a production center fueled and driven by innovative entrepreneurs and skilled workers who created and built the legacy industries for which it became known. Its challenge going forward is to re-create an ecosystem that is as supportive of new entrepreneurial energy and innovation but focused on 21st century industries, technologies, and skills.

CHAPTER 2:

PRIMARY ECONOMIC SECTORS THAT DRIVE THE ECONOMY

The region's current industry profile encompasses 13 sectors identified as pivotal to its economic health and prospects. Accounting for a third of all employment, eight of those sectors are more highly concentrated in the region than across the country. Six are in manufacturing, which are tradable sectors (those that bring outside resources into the region rather than serving only local markets) and exert strong multiplier effects throughout the economy. Those include biomedical; clean technology; digital and electronic devices; metals production and manufacturing; packaging; and precision metalworking.

The majority of sectors this plan prioritizes are advanced manufacturers. These industries, described in detail below, are leading growth generators for the region. The region's best promise for the future lies beyond those traditional industry classifications, however. At the points of intersection among its technology, production, human capital and innovation capacities lies the potential to establish a new center of gravity in emerging markets and new products.

	AVERAGE WAGE	TOTAL EMPLOYMENT	LOCATION QUOTIENT	EMPLOYMENT GROWTH (2001-2010)
Biomedical	\$56,145	6,967	1.29	15.8%
Clean Tech	\$56,313	7,275	1.66	-36.1%
Digital and Electronic Devices	\$67,050	8,161	1.63	-15.7%
Hospitals and Health Services	\$38,712	39,295	1.24	11.9%
Insurance	\$55,674	12,652	1.39	-11.4%
Metals Production and Manufacturing	\$53,922	8,340	1.71	-38.6%
Packaging	\$45,091	6,083	1.62	-17.0%
Precision Metalworking	\$55,230	5,866	1.11	-42.4%
Private Higher Education		27,269	5.39	1.6%
Research and Engineering Services	\$63,050	5,989	0.94	34.5%
Software and Internet Services	\$57,113	5,037	0.52	2.3%
Tourism		10,632	0.72	-0.8%
Transportation and Logistics	\$43,379	13,064	0.87	2.1%

MARKET ANALYSIS

Economic and production changes hit manufacturing especially hard since the 1960s, and some of these trends continue. The Syracuse Metro Area lost 40 percent of its manufacturing jobs over the last decade, leaving a total manufacturing employment base of 26,806. Employment losses included steep declines in three of its most highly concentrated sectors: precision metalworking; metals production and manufacturing; and packaging. But the manufacturing picture is more nuanced than just one of losses. Although many companies shuttered plants, other manufacturers became leaner and more productive, operating with fewer employees. This occurred strongly in precision metalworking, metals production and clean technology.¹²

Four sectors exhibit the most promising growth trends or compelling competitive strengths. This analysis focuses on these sectors, as they will have the greatest footprint in the next economy. These include: **biomedical; clean technology; digital and electronic devices; and information technology** (including cybersecurity; assurance; and software and Internet services). Many companies in these strong growth sectors are newer than the long-established firms that represent the CenterState region's economic foundations. Other companies represent the key engineering and R&D centers or suppliers of firms that were once large manufacturers in the region but whose manufacturing and distribution functions have relocated to lower-cost production centers closer to markets. However, these firms often have maintained administration, engineering and R&D centers within the region, which have continued to grow.

This analysis does not focus only on formal North American Industry Classification System (NAICS) sectors, but on clusters of mutually reinforcing economic activity. Many firms in these sectors compete in multiple markets with multiple product lines, and while by NAICS code they are classified in one industry, they have fairly large subspecialties that apply similar technology to another market. The region needs to pay particular attention to those sectors, whose underlying technologies, supply chains, human capital needs and markets overlap. These may offer some of the most innovative components of both the individual firms and the regional economy.

These priority industries were selected based on their scores relative to the following questions and criteria:

Is the sector more concentrated here than the rest of the country?	Does it exhibit strong current or future export potential?
Is it growing in employment?	Does it provide job opportunities for individuals across the skills spectrum?
Is it a significant employer?	Is it supported or connected to research at the region's colleges and universities?
Is it a tradable ¹³ sector?	Does it have balance between large and small firms in the region?
Does it pay above the national average wages?	Will it derive added value from intervention?
Does it share markets, customers and labor pools?	Does it build upon strong, underlying regional assets?

The region has also emerged as a competitive locale for key service industries, particularly in the finance and insurance sectors. The analysis identified strong and emerging sectors based on geographic concentration; potential for collaborative relationships; shared supply chains; and common assets, including R&D facilities, labor pools and infrastructure.

12. Battelle Analysis of IMPLAN Input / Output Model for 12-County NY Region and US, 2009.

13. A tradable sector is one whose products or services are traded outside of the region in which they are produced.

BIOMEDICAL

The CenterState region is home to some of the world's leading biomedical manufacturers with:

Location Quotient	1.29
Employment	6,967
Total Output	\$2 billion ¹⁴
Average Annual Wages	\$54,594
Export Statistic	
Estimated Productivity	\$121,603 ¹⁵

While not as highly concentrated as other high-tech sectors, biomedical manufacturing represents a significant employer in the region, and one that has grown steadily. Leading national biomedical device manufacturers (Welch Allyn and ConMed) are headquartered in the region and have R&D and manufacturing operations at facilities in the Syracuse and Utica-Rome MSAs. Driven by domestic and global growth in the health services industry, employment growth in biomedical firms in the region has outpaced the national average. The national average was 7 percent from 2001 to 2010, while it grew 15.8 percent locally. Several of the region's largest, most sophisticated and fastest growing exporters are in this sector.¹⁶ ConMed, in Utica, exports at least 50 percent of its products, and Welch Allyn, in Skaneateles, exports at least 25 percent. Even a small manufacturer, Oswego County-based Design Concepts, exports 77 percent of its product.

Medical devices and equipment and research dominate the biomedical sector in this region.

The region also maintains a base of pharmaceutical suppliers producing for both human and animal markets, including Bristol-Myers Squibb and Hanford Pharmaceuticals, in Syracuse, and nearby Norwich Pharmaceuticals, in Norwich. There are also a significant number of small startups in this category. Testing and medical laboratories is also an important sub-cluster which has outpaced the nation's growth.

The linkages between the biosciences and agriculture offer another opportunity for this sector, as the region

has significant research resources in this area, such as the Boyce-Thompson Institute, in Ithaca, and the research facilities at Cornell University's agriculture school.

The recent creation of the UNYTE Translational Research Network, a consortium of academic and biomedical research centers performing clinical and translational research within the Upstate region, provides another important resource. UNYTE is administered by the University of Rochester's Clinical and Translational Science Institute and the New York State Center of Excellence in Bioinformatics and Life Sciences at the University of Buffalo. UNYTE includes four medical schools, several SUNY campuses and seven health care providers.

OPPORTUNITIES AND CHALLENGES

The region's significant presence of hospitals and health service providers support and link with its biomedical sector. These providers, which represent several of the region's largest employers, drive clinical innovation for biomedical firms. The relatively low levels of productivity within the industry offer an opportunity for growth, especially within areas dealing with aging populations and the emerging health care infrastructure in developing markets.

CLEAN TECHNOLOGY

Clean technology is a highly specialized sector and drives innovation in the region with:

Location Quotient	1.66 ¹⁷
Employment	7,725
Total Output	\$2.1 billion ¹⁸
Average Annual Wages	\$56,013
Innovation Statistic	
Estimated Productivity	\$107,922 ¹⁹

The manufacture and development of clean technology products represents one of the region's strongest industrial legacies. As the original home of the Carrier Corporation, the region has seen a proliferation

14. Battelle Analysis of IMPLAN Input / Output Model for 12-County Central Upstate NY Region.

15. Ibid page 20.

16. The biomedical devices sector had one of the highest annualized growth rates between 2003 and 2010 for any sector in the region with 9.1% growth. Emilia Istrate and Nicholas Marchio, Export Nation 2012, Brookings Institution, 2012 and Brookings analysis of data from the BEA, BLS, IRS, Moody's Analytics, NAFSA, and USITC.

17. Brookings Institution.

18. Battelle Analysis of IMPLAN Input / Output Model for 12-County Central Upstate NY Region.

19. Ibid. This is 114% of the national average. Higher levels of productivity of a local industry compared to national means that for each job, more economic output is generated, suggesting that a local industry is better able to use advances in technology to produce goods and services and produce more complex, higher-value products.

of heating, ventilation and air conditioning companies over the past two decades. While the number of establishments in this sector has grown steadily, the industry faces the continued loss of manufacturing jobs. Employment in the sector dropped by 36 percent between 2001 and 2010, primarily due to the closing of Carrier's manufacturing operations. These losses have continued with more recent closings of manufacturing operations of other clean tech companies.

Despite these losses, the region has remained a center for R&D in this field, with Carrier alone employing more than 1,000 highly skilled engineers and scientists in its R&D center. Further, the sector appears to be bouncing back from the recession quickly, with employment expanding by 0.8 percent locally since 2007, while it's declined nationally by 20 percent.²⁰

Overall demand for clean technology products and services is growing worldwide. Specific markets that are particularly strong in the region, drive this growth. They include:

- **Air Filtration Equipment** - Global market expected to exceed \$6.7 billion by 2015.²¹
- **Environmental Remediation Services** - Global market expected to reach \$8.29 billion by 2015.²²
- **Environmental Consulting** - Expected to expand by almost 10 percent in the next 5 years.²³
- **HVAC Products** - After taking a hit from the recession, expected to reach full recovery to pre-recession sales by 2015.²⁴
- **Clean Energy (Wind, solar PV, biofuels)** - Combined industry revenues of \$246.1 billion in 2011.²⁵

OPPORTUNITIES AND CHALLENGES

The key challenge to this sector is to overcome the loss of regional original equipment manufacturing (OEM) production facilities, such as those that Carrier and Daikin McQuay operated. The region retains a core expertise in thermal and environmental control systems (TECS), and if connected to growing global and domestic markets, this industry should grow. However, the future growth of this cluster will also require new institutional infrastructure and business support models, such

as that provided by the New York State Center of Excellence in Environmental and Energy Systems.

New York State, the region's research institutions and businesses made a significant investment in the Center of Excellence (CoE). The CoE, in Syracuse, can be a central exchange point for university research and business needs for new products and services.

DIGITAL AND ELECTRONIC DEVICES

Digital electronics is a highly specialized advanced manufacturing sector with:

Location Quotient	1.63
Employment	8,161
Total Output	\$3.6 billion ²⁶
Average Annual Wages	\$68,692
Regional Exports in Digital and Electronics Sector	11.3%
Estimated Productivity	\$120,620 ²⁷

Over the last decade, the digital electronics industry performed much better in the CenterState region than the nation. From 2001 to 2010, it experienced a 16 percent decline in employment, which was far less than the national decline of 38.6 percent. Despite these challenges, certain subsectors show strong growth potential. These include search; detection and navigation instruments; and electrical component manufacturing. Expanding international sales and, in some cases, increased national spending on defense contracts, fuel market and employment growth.

The digital electronics sector is also well connected to innovation drivers in the region. There is a strong base of industry R&D in the region, with \$100 million annually invested in engineering and physical sciences research. This is a major focus of talent generation, with almost 1,200 related bachelor-level and almost 1,000 graduate-level degrees awarded in 2010.²⁸ Digital electronics is also at the core of new medical, environmental,

20. Battelle Analysis of Bureau of Labor Statistics, QCEW data; enhanced file from IMPLAN.

21. PR Web, Reports on Global Air Filters and Filtration and North American Air Purification Equipment Market, January 16, 2013.

22. PR Web; "The US Environmental Remediation Services Industry to Reach \$8.29 Billion by 2015", February 7, 2012.

23. Drew Gannon, "Best Industries 2011 for Starting a Business: Environmental Consulting, Inc.," April 11, 2011.

24. IBIS World, Heating and Air Conditioning Equipment Manufacturing in the US, January 14, 2013.

25. Winnie, Trevor; "The Demonization of Cleantech: The Five Biggest Myths" Think Progress: Climate, September 18, 2012.

26. page 1.

27. Battelle Analysis of IMPLAN Input / Output Model for 12-County Central Upstate NY Region.

28. Ibid page 20.

29. Idem. Part of the shift of the knowledge economy is toward technologies/capital instead of labor, such that employment growth is not as reliable as an indicator of industry growth- from an economic growth point of view, RDP/outputs is more important (since employment will catch up if the industry continues to grow).

communication and information sector devices, so it is strongly linked to the other advanced manufacturing sectors in the region as well.

OPPORTUNITIES AND CHALLENGES

Digital electronics has long succeeded in the region. Its technology leverages multiple economic sectors, and jobs in this field are highly compensated. This pool of human capital and institutional research has generated multiple spin-offs and new company starts in this sector.

This industry has substantial ties to research being performed at the institutions, and its companies frequently compete in global markets. Therefore, they are less vulnerable to challenges from international competitors in the market. And while there is always concern about firms that focus on the defense sector, many of these companies offer diverse product lines that generate demand in commercial markets.

The challenges are that members of this sector traditionally compete with one another on national contracts, so they have not developed interregional collaboration. Although many firms rely on the same type of high-level manufacturing and engineering talent to drive innovation, collaborations have not developed organically. This industry also divides into a number of subsectors, and there are not necessarily strong relationships between companies that are engaged in defense electronics, such as interrelationship with those that are in cable television, for example.

INFORMATION TECHNOLOGY (INCLUDING CYBERSECURITY; ASSURANCE; AND SOFTWARE AND INTERNET SERVICES)

While it does not appear on traditional NAICS-based analyses, information technology and assurance represent a growing cluster. These firms are most commonly connected to software and Internet services firms that have:

Location Quotient	.52
Employment	5,037
Total Output	\$1.1 billion ²⁹
Average Annual Wages	\$58,178
Estimated Productivity	\$81,401 ³⁰

An expanded view of the overall information technology industry in the region considers three primary groups of firms that are engaged in these types of activities.

- Information technology service firms that provide mostly local business to business services are important service provider to other firms in the region.
- Internet and software start-up firms that, though many do not drive significant wages or employment, are the backbone of the region's expanding entrepreneurship ecosystem.
- Information assurance, systems, and cybersecurity firms that provide significant employment and investment in research and development.

In light of the increasing global need and applications for information assurance and cybersecurity (domestic defense and civilian demand alone are expected to increase to \$10.5 billion by 2016), the region has developed and operated a number of key R&D facilities. These include the Air Force Research Lab in Rome (AFRL), the Griffiss Institute for Information Assurance, Cornell University's Team for Research in Ubiquitous Secure Technology (TRUST) and Syracuse University's Center for Advanced Systems and Engineering (CASE).

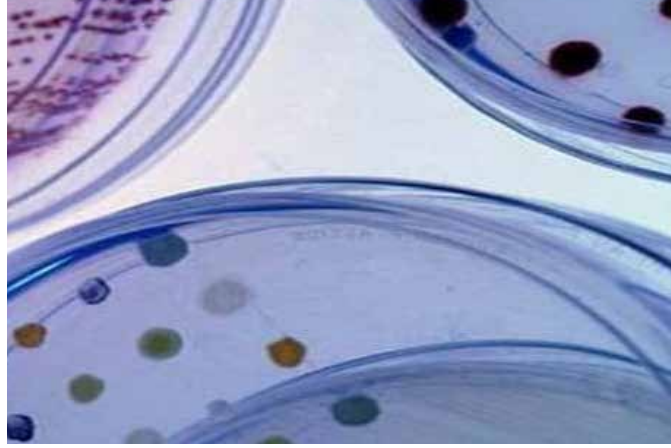
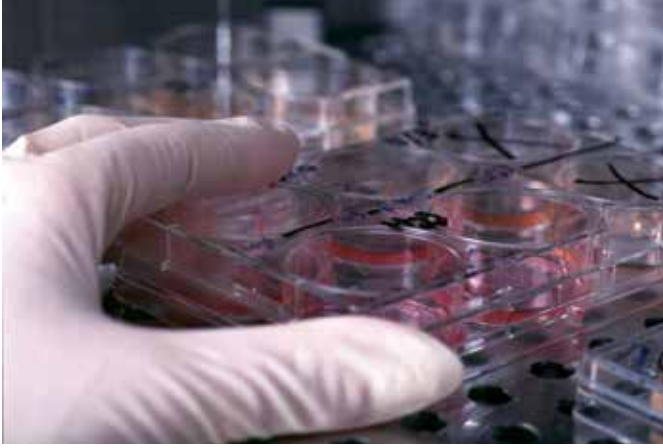
OPPORTUNITIES AND CHALLENGES

The region's information technology and cybersecurity assets have grown around the Air Force's Rome Laboratory. The lab was proposed for closure in a previous Base Realignment and Closure round and the Utica/Rome community successfully fought to maintain it. This lab has broad regional implications for research and innovation and must continue to be protected.

In addition, some of the region's strongest research assets exist at Cornell University. The key challenge to drive innovation in this sector will be leveraging the expertise, investment and research underway at these institutions into a positive economic impact on the region. Despite the presence of world-class talent and research in niches related to these fields, rates of successful commercialization and development of commercial applications for information assurance technologies are lower than the level necessary to generate significant economic impact. At a time of shrinking federal funding for science and defense-related research, the region will need new and

29. Battelle Analysis of IMPLAN Input / Output Model for 12-County Central Upstate NY Region.

30. Ibid page 20.



innovative research partnerships to maintain and enhance the value and impact of these institutions. Further, additional challenges arise in translating the valuable research developed for defense applications into more civilian-oriented sectors.

BIOSCIENCES, AGRICULTURE AND FOOD PROCESSING

CenterState New York has long been a center of farming and food production. In 2007, the region produced \$1.2 billion in agricultural sales, representing 28 percent of the market value of the products sold in New York state. In 2007, 11,700 people were employed in agriculture in the 12 counties.³¹

The primary product in this region is milk and dairy products. A recently developed niche in yogurt production has spawned strong regional development in milk demand, adding more than a thousand new jobs since 2007. There have been mixed signals on the sustainability of food processing in the region; several major national and multinational firms have located here, while others have left.

OPPORTUNITIES AND CHALLENGES

There is growing worldwide demand for food and agricultural products and, in particular, the worldwide demand for dairy products is outstripping supply. The region is slowly building its capacity to address this export market. The region's capacity in agriculture is related to multiple resources that are not readily available together in other parts of the U.S., or the world: an existing agricultural base and expertise; relatively low-cost land; fresh water; its location relative to major population centers, combined with its emerging cluster in transportation and logistics; and the presence of major colleges and institutions that focus on agriculture. The challenge for agriculture is that only about 20 percent of the farms in the Northeast earn more than \$50,000 annually.³²

31. US Department of Agriculture, 2007 Census of Agriculture, County Profiles for New York State.

32. Farm Credit East "Northeast Agriculture: The Overlooked Economic Engine, A report by Farm Credit East, 2012.

KEY FINDINGS:

The extensive market analysis, presented above, produced key findings with clear implications for redefining the region's economic profile for the knowledge economy. It identified new areas of strength and understanding of its competitive assets. It also crystallized points of weakness and challenges that the region must confront in order to establish that new economic profile.

KEY FINDING: THE REGION HOLDS STRONG POTENTIAL TO EXCEL IN NEW TECHNOLOGY FIELDS

DATA TO DECISIONS OFFERS PLATFORM TO ESTABLISH A GLOBALLY COMPETITIVE NICHE IN RAPIDLY DEVELOPING FIELDS

From across several of the region's most prominent industry concentrations, at least 50 technology companies create and build systems or components for an emerging field identified as Data to Decisions, or D2D. Along with cutting-edge researchers in the region's universities and labs, D2D firms share expertise in a variety of fields involved in processing massive flows of information to manage increasingly complex systems in real time. They possess world-class capabilities in sensing technology; signal processing; cybersecurity; systems integration and engineering; data mining; and decision support.

This group of firms employs more than 9,000 workers, and overlaps with closely related sectors that currently use and offer opportunities for dramatically expanding markets for this potential global specialization in D2D technologies. Those sectors include digital electronics primarily in defense and aerospace applications, equipment to monitor and control energy use and environmental quality in buildings, diagnostics and remote monitoring technology for health care, and information technology for data management, analysis, transmission, and security.

Sectors involved in D2D represent a highly innovative part of the CenterState economy, accounting for nearly half of all patents generated in the region in recent years, including many that have emerged from the United States Air Force Research Laboratory in Rome, a powerhouse in the region. Major universities also play an active role in developing this specialized

knowledge, particularly Cornell, Syracuse and Clarkson, whose faculties are leading regional generators of D2D intellectual property, indicating strong potential for new ventures based on cutting-edge research.



Building on these capabilities, D2D represents an exciting platform upon which to establish a globally competitive niche for the region in market sectors that are growing and expanding rapidly.

The potential impact of that specialized niche goes beyond the D2D cluster itself; building world-class capacity in D2D applications will strengthen the competitive positions of four larger clusters that D2D serves: digital electronics, information systems, medical equipment and applications, and environmental products.

Developing this platform requires a multi-pronged approach to fuel innovation and growth in the D2D cluster, particularly the formation of new partnerships to adapt technologies and product to new markets across sectors. It requires complementary action to strengthen the involvement of the region's research centers to build overall capacity for innovation and simultaneously build a competitive workforce in these fields.

RISING DEMAND OFFERS OPPORTUNITIES FOR TARGETED TECHNOLOGY SECTORS

Among tradable sectors in the region's top concentrations, three in particular are experiencing rising global demand and new market opportunities. Two of them - thermal and environmental control systems and cybersecurity - overlap with the D2D cluster.

Many of the 40 firms that make up the thermal and environmental control systems cluster occupy a wide variety of specialty niches related to heating and cooling, water filtration, and commercial and residential control systems - all fields that are seeing significant market growth and offer opportunities for the region.

Another small but significant cluster centers on the rapidly evolving field of cybersecurity, working primarily with the Rome Air Force Lab. The challenge for those firms is to move beyond defense contracting to penetrate the rapidly rising private market, which is expected to double by 2017.

In another key area, rising global demand for food and energy offers opportunities for growth in the region's strong biosciences sectors, with implications for agriculture and natural resources. The recent boom in the dairy industry that created more than a thousand jobs in yogurt production illustrates the potential for new agricultural techniques and products.

NANOTECHNOLOGY OFFERS A TECHNOLOGY PLATFORM TO ENHANCE THESE SECTORS

Nanotechnology and the College of Nanoscale Science and Engineering (CNSE) of SUNY Albany have had a major impact on eastern New York, Albany and the Hudson Valley. New York's Nanoelectronics Manufacturing and R&D Cluster include more than \$14 billion in private and public investment in high-tech R&D and manufacturing. This cluster includes semiconductor industry giants AMD, ASML, Applied Materials, IBM, NXP Semiconductor, and Tokyo Electron, among others. Proximity to suppliers and leading-edge nanoelectronics industry R&D at CNSE and Sematech North provide unique opportunities for collaboration.

The CNSE announced plans this fall to build three chip manufacturing plants in the town of Marcy. Located adjacent to the site, the SUNY Institute of Technology at Utica-Rome will train the workforce. A \$125 million Computer Chip Commercialization Center is under construction and will open next year. The state has announced that six private companies will invest \$1.5 billion in research and development work at the new center.

KEY SECTORS WITH COMPETENCIES IN DATA TO DECISIONS:

- Digital Electronics
- Information Systems
- Medical Equipment and Applications
- Environmental Products

There are also several nanotechnology assets at Cornell University, including the Cornell Nanoscale Science and Technology facility, the Center for Nanoscale Systems in Information Technology and the Nanobiotechnology Center, all of which relate to the core industry groupings within these clusters.

KEY FINDING:

THE GROWTH IN GLOBAL MARKETS CAN BOOST THE REGION'S EXPORTS AND GLOBAL FLUENCY

While many of the CenterState region's economic strengths are rooted in major multinationals and globally competitive firms, as they moved production away from the region, its orientation to global markets waned. In an increasingly global economy, and with consumption expected to more than double in emerging markets by 2025, the CenterState region must become more "globally fluent."

Currently, the region exports approximately \$8.7 billion annually to international markets with firms in emerging technology sectors playing significant export roles. But that total represents only 11.5 percent of the region's total economic output. The region must boost its orientation to international markets and ramp up exports.

Global fluency is defined as the level of global understanding in a region, its competence, level of practice and reach into world markets in an increasingly interconnected global economy.

Many of the region's most significant technology sectors and clusters present compelling opportunities for expanding the region's global reach. Products and services related to the Data to Decisions cluster, agribusiness, clean technologies, higher education, health care and engineering, all represent areas for potential expansion in the global marketplace.

CHAPTER 3:

LARGE ECONOMIC SECTORS THAT CONTRIBUTE TO THE REGIONAL ECONOMY

Extensive market analysis conducted over the last two years produced key findings with clear implications for redefining the region's economic profile for the knowledge economy. It identified new areas of strength and understanding of its competitive assets. It also crystallized points of weakness and challenges that the region must confront in order to establish that new economic profile.

Several additional industries and clusters undergird the region's economy. These include:

- Financial Services
- Hospitals and Health Services
- Higher Education
- Tourism
- Traditional Manufacturing
- Transportation and Logistics
- Forest Products
- Military Presence
- Energy

FINANCIAL SERVICES

The region has a strong financial services industry presence, with more than 24,000 financial services jobs. The strongest segments include insurance companies and banking. This industry makes up the fourth largest industry specialization in the region, with a location quotient of 1.39. Consistent with national trends in the last decade, the insurance sector in the 12-county region lost 11.4 percent of its jobs.

The region possesses important strategic advantages for this industry. There is an existing trained labor force, and there is a significant shared labor pool among financial services and insurance firms. The cost of that talent tends to be lower in the region than several other surrounding northeastern cities such as Boston, New York, Hartford and Philadelphia, which are northeastern centers for financial services. The occupancy and operations cost of this area tends to be lower here as well. Regional college programs support the industry. As a result, there are a number of major financial services firms with substantial operations in the area, and the region's colleges and universities produce significant

business and management degrees relevant to this sector. While the region is a competitive location for the industry, the financial services industry has not recovered from the effects of the 2008-2010 recession. It is still right-sizing, and recent national trends continue to point to weakness in hiring in this sector. As this sector recovers, it could again see regional growth.

Financial service firms are an important market for Data to Decisions products and services. The presence of this sector in this region creates market opportunities for D2D and information assurance products. For example, JP Morgan Chase has located a center on the Syracuse University campus to train students for its operations and to undertake information assurance projects for the bank.

HOSPITALS AND HEALTH SERVICES

The region's hospital and health services cluster is large, specialized and growing, with almost 40,000 jobs. Employment in the cluster has expanded by 12 percent since 2001, and grew even throughout the recession. Hospital and health services are more concentrated here than across the nation, with an LQ of 1.24 and a total output of \$3.9 billion. Employment in this cluster is spread throughout the region, but measures of productivity and wages in this sector are lower than national averages.

At one time, the market for most hospital and health services was considered to be only from within the region. However, due to the global growth of the middle class, the demand for high-quality health care has developed new opportunities for the region's health care providers. New efforts seek to attract patients from other regions such as New York City and eastern Ontario. However, merger and consolidation trends

are moving through the industry, forced by reductions in Medicaid and Medicare spending. Because of these downward pressures, growth in health services may not keep pace with other industries, but this industry will still generate substantial demand for new employees to replace an aging workforce. The focus for future growth lies in the region's cost advantage and services to attract patients from outside the area.

HIGHER EDUCATION

CenterState New York's network of 35 public and private sector institutions of higher education represents one of the region's largest employment sectors. The private institutions alone offer almost 27,300 jobs, a figure that doubles when the public institutions are added.

The location quotient for private higher education institutions alone is 5.39, making this one of the largest employment concentrations in the region - more than five times the average level of concentration across the country. In 2012, colleges and hospitals had the most job openings in the region, accounting for six of the top 10 employers with the most job openings. Higher education is a source of exports, as it continues to attract students from overseas.

Colleges and universities have seen growth over the last decade, although it may be unrealistic to expect that growth to continue in the face of the declining population of college-age students in the Northeast, and the rising cost of traditional college education. There will continue to be significant job demand for replacement employees.

TOURISM

In recent years, growth in tourism across the CenterState region has been vigorous. In 2011, the industry realized full recovery from the recession of 2008 to 2010, as travel spending eclipsed the 2008 high. Growth is projected at a more sustainable level of 3 percent. There are approximately 10,600 jobs in this sector. However, because of statistical classifications, two of the region's largest tourist attractions are not included as tourism employment (Destiny USA, in Syracuse, and the Turning Stone Resort & Casino, in Verona), so the actual number of jobs in tourism is higher. Tourism is also a growing source of exports for the region. However, as in the rest of the nation, average wages for tourism employment tend to be low. Tourism should continue to offer an opportunity for more growth and jobs.

PRECISION METALWORKING; METALS PRODUCTION AND MANUFACTURING; AND PACKAGING

Manufacturing was the driving force behind the region's economy, and long established industries continue to be important employers in the region with a total workforce of 26,806 in 2010. However, over the last decade, manufacturing lost nearly 40 percent of its jobs in the Syracuse Metropolitan area alone. Even with job losses many of these manufacturing industries remain more concentrated here than in the rest of the nation.

Manufacturing produces nearly 60 percent of the region's exports, and the sector still pays some of the highest wages in the region. Efforts to grow manufacturing will help the region meet its export and wage goals. In addition, several firms in these manufacturing sectors supply products to some of the manufacturing sectors that continue to grow and expand (such as medical devices) or others that make up the D2D applications sectors (such as environmental or electronics). Efforts are underway to strengthen manufacturing in the region, such as placing a greater emphasis on exports and the trend to return production to the United States due to cost advantages and higher productivity. These trends provide an opportunity to maintain this sector.

TRANSPORTATION AND LOGISTICS

Transportation and logistics has been a growing cluster over the last decade and now employs more than 13,000 people in the region, rising 2 percent over the last decade. The largest subsector is general warehousing and storage with more than 3,200 jobs. Average wages are higher for this sector than the regional norm but are lower than national employers in the same industry. Further, the sector also has a higher rate of productivity than its national counterparts.

While employment levels in transportation and logistics are lower than the national average for those sectors, it continues to grow and is regarded as an emerging strength in the region. Market demand depends on other industries and is likely to rise with initiatives targeted to grow other industries.

FOREST PRODUCTS

The forest industry possesses four general advantages: trees are a renewable resource and, in this region, growth exceeds the rate of removal by a ratio of 2 to 1; there is a skilled workforce available to harvest the resource; the wood resource is close to large markets; and gains in forest lands have offset losses due to development.³³

The industry is particularly important to the North Country,³⁴ where paper and pulp production and furniture manufacturing makes it the largest industrial cluster in that part of the region, with a location quotient of 2.81, and it is the fourth largest employer in the North Country. Forest products are an important source of exports, and worldwide demand for lumber is rising. However the domestic paper industry is declining, and there have been significant job losses in the industry. In contrast, energy producers are a growing part of the market, and a major reason the demand for pulpwood and chips has increased.

MILITARY PRESENCE

While not normally considered a business concentration, the military is a large employer in the region. Fort Drum, in Watertown, is the largest single site employer in New York state. Two other missions within the region relate to and support strategic clusters. The cybersecurity component of the information technology industry developed around the needs of the Air Force and Rome Laboratory. The operation of unmanned aerial vehicles (UAVs) from Hancock Airbase and Fort Drum supports the community's efforts to be one of the FAA's test sites for civilian applications of UAS technology. The maintenance of these missions is important to the region's economy. Expertise developed for the military in UAS operations and cyber and information assurance provides the basis for technology applications in diverse areas as health care, finances and defense electronics.

ENERGY

CenterState New York has historically been an energy-generating area, with a multiplicity of energy sources. These include hydropower, natural gas, nuclear, wind, solar and other alternative energy sources. The region generates and sells power to other parts of the state. Electric and gas utilities have a high location quotient in the Syracuse MSA at 2.94.³⁵ With the development of cost-effective methods to extract shale gas, the region may once again see a surge of development related to energy. However, the method preferred by gas companies to extract the gas is currently under review by New York State, and the state's decision will affect growth in this sector. The region has also seen a surge of investment in alternative energy proposals.

Upstate New York is an electricity surplus region and possesses the capacity to increase production, but limitations on transmission capacity make it difficult to move power Downstate. The falling price of natural gas has made it a less costly alternative to fuel oil, and, while gas is exported, most of it is used domestically. Preparing export facilities requires a large amount of capital. Falling energy costs in the United States reflect a key competitive factor in re-shoring American manufacturing.

Since stakeholders have yet to make major regional and national investments, and because of unresolved policy decisions, the energy industry is not a major focus of this report. However, an opportunity exists for the region to apply its environmental expertise to this industry, and it will also be a significant market for D2D technology.

33. NYS Tug Hill Commission; Forests, Forestry, and the Forest Products Industry: Opportunities for Creative Investment, October 2012.

34. North Country Regional Economic Development Council ; Transformational: Leading the Economic Renaissance of New York's Small Cities and Rural Counties, Strategic Plan, p.15.

35. Brookings Institution, Metropolitan Business Plans, Market Scan, page 40

CHAPTER 4:

HUMAN CAPITAL AND TALENT

KEY FINDING:

THE REGION MUST RETAIN AND EXPAND A SKILLED WORKFORCE TO GROW ECONOMIC OPPORTUNITY

The CenterState region is a strong talent generator with its exceptional concentration of colleges and universities enrolling approximately 140,000 students and awarding thousands of degrees each year. Yet one of the region's greatest challenges lies in meeting the need for higher-skilled workers for the knowledge economy.

Disruptions in the region's labor markets over several decades created long-term unemployment and limited opportunities for many workers. As a result, the regional workforce today is both older than the national average and actually smaller than it was five years ago, dropping from slightly above 720,000 five years ago to just over 700,000.

Education levels in the region remained virtually unchanged during those years, with high school attainment rates above the national norm but college attainment slightly below the national average. The presence of so many college and university students complicates an accurate assessment of education levels and skills in the workforce, but what is known is that between 2006 and 2010, the region experienced a net annual reduction in the number of residents with graduate degrees, resulting in the loss of nearly 3,600 potential higher-skilled workers.

The skill gap spans the full spectrum - from the challenge of recruiting and retaining the most highly educated workers, to shifting demand for "middle-skill" workers, to effective entry and re-entry portals for workers struggling to gain a toehold in the new economy. National estimates are that half of all new jobs over this decade will require middle skills - meaning some postsecondary training but not necessarily a degree - including technical jobs that form the backbone of the knowledge economy.

In addition to skills, the current geography of economic growth limits access to opportunity, particularly in older urban neighborhoods and rural areas. Traditional urban-suburban growth patterns characterize the region, along with small towns and rural areas. Center cities are experiencing a resurgence



that is an asset in the knowledge economy, but newer job centers have developed in areas not easily accessible on public transportation. National comparisons have identified the Syracuse area as one of the most racially and economically segregated regions in the country.

MARKET ANALYSIS

The large presence of colleges and universities dominates the region's talent pool. Although the predominant feature of the region is its talent production capabilities, the overall human capital picture is much more nuanced. As the region, and its human capital, shifts from a traditional, manufacturing-based economy, the region needs better alignment between the demand for jobs and the pool of workers.

HUMAN CAPITAL SUPPLY

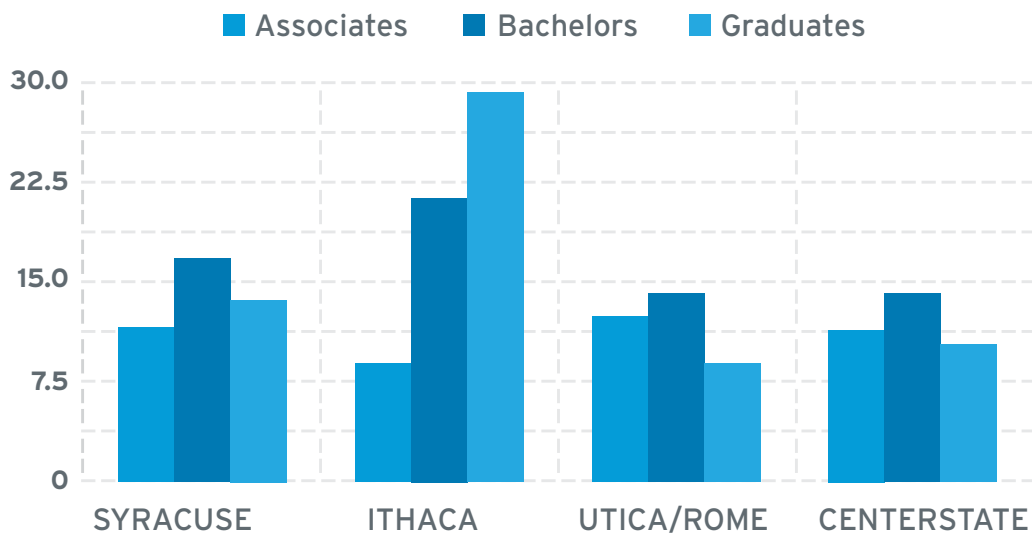
- ▶ The total labor force in the CenterState region has dropped from 720,000 five years ago to 700,000 today.³⁶
- ▶ The working-age population in the CenterState region is growing at a slower pace than in the hundred largest metro areas. In the Syracuse MSA, that population grew only 3.8 percent over the last decade, compared to a 12.5 percent average in the largest metros.³⁷
- ▶ The CenterState region is a strong talent producer, with 35 colleges and universities that enroll approximately 140,000 students each year.

Overall, the working-age population in the CenterState region is growing at a slower pace than in the hundred largest metro areas: in the Syracuse MSA, that population grew only 3.8 percent over the last decade, compared to a 12.5 percent average in the largest metros.³⁸ However, the population has grown by 16,599 from 2007 to 2011, which indicates a possible reverse in the out migration trend of the early 2000's in addition to an aging of the existing population in the region.³⁹

The educational attainment level was virtually unchanged in the CenterState region from 2007 to 2011. The number of associate degrees increased from 10.93 to 11.29 percent; the level of bachelor's degrees decreased from 13.21 to 13.01 percent; and the level of graduate degrees increased from 10.35 to 10.43 percent.⁴⁰

The Syracuse MSA saw the level of associate degrees increase from 11 to 11.2 percent; the level of bachelor's degrees increased from 15.5 to 16.4 percent, and the level of graduate degrees increased from 11.4 to 12.60 percent. The Ithaca Metropolitan Area saw the level of associate degrees increase from 6.4 to 8.5 percent, the level of bachelor's degrees decreased from 24.2 to 21.1 percent, and the level of graduate degrees increased from 28.4 to 29.2 percent. The Utica-Rome Metropolitan Area saw the level of associate degrees increase from 11.6 to 11.7 percent, the level of bachelor's degrees increased from 11.9 to 12.8 percent, and the level of graduate degrees increased from 7.9 to 8.8 percent.⁴¹

Slightly more than a third of the CenterState region's residents - 35 percent - hold a high school diploma or equivalent, which is higher than the national average of 28.5 percent and higher than the top 100 largest metro areas' average of 26 percent.



36. American Community Survey, 3-year estimates 2009-2011; American Community Survey, 3-year estimates 2005-2007.

37. United States Census, 2010.

38. United States Census, 2010.

39. American Community Survey, 1 Year Estimates 2007 & 2011.

40. Ibid.

41. Ibid.

These institutions award nearly 6,000 bachelor's degrees annually in business and STEM fields; 3,500 science, technology and math (STEM) degrees; 1,800 graduate degrees in STEM fields; and more than 1,000 post-graduate degrees in business, management and marketing.⁴² However, among higher degree holders, the region is a net exporter of talent, with many individuals who obtain post-graduate degrees leaving the region after graduation. Between 2007 and 2010, approximately 1,500 more residents with graduate degrees moved out of the Syracuse metro area than moved in.⁴³ Between 2006 and 2010, the 12-county region experienced a net reduction among holders of graduate degrees each year, resulting in the loss of nearly 3,600 residents with higher education attainment.

JOB MATCHING AND WORKER MOBILITY

- 52,700 people are unemployed in the region: 23,400 in the Syracuse Metro, 3,100 in the Ithaca Metro, 10,000 in the Utica / Rome Metro.⁴⁴
- Significant employment losses occurred in manufacturing, and these jobs have not yet been fully absorbed by other employers in the region.
- Job demand for high skilled positions has expanded in health care; digital and electronic devices; engineering services; clean technology; and biomedical industries.

A historical look at available human capital and the demands of employers shows a labor system in a serious state of flux. Mirroring the region's overall economic shift away from traditional production and low-skilled service activities, the labor market has struggled to keep up with growing demands for skilled labor positions while it has seen increased unemployment among individuals with lower skills.

Despite these losses, significant job growth and demand exists in certain sectors. Since 2000, employment in health services increased almost 12 percent, nearly 16 percent in biomedical, and research and engineering positions grew by 34.5 percent.⁴⁵ Additional industries experienced steady growth between 2000 and 2010: hospital and health services (39,295); private higher education (27,269); transportation and logistics (13,064); insurance (12,652); and tourism (10,632).

While these industries are adding jobs, they often struggle to fill these new positions. Between 2010 and 2012, many industries in the region's strongest industry clusters saw an increase in the number of unfilled positions. Industries with the highest demand include colleges and universities, health care providers and advanced manufacturers.⁴⁶ As of December 2012, the most in-demand occupations were post-secondary teachers (546 openings), registered nurses (460), mechanical engineers (234), secretaries (226), computer occupations (210) and sales representatives (205).⁴⁷

Along with firms in the clean technology and biomedical sectors, representatives of digital and electronic device manufacturers in the region report talent shortages for both entry-level positions and high-skilled engineering positions. To some extent, firms in these sectors share labor pools, including engineering talent, particularly in mechanical, chemical and electrical engineering, with workers moving between companies across these sectors, indicating potential for strengthening the talent pipeline to support these sectors.

LABOR MARKET EFFICIENCY

The region suffers from a misalignment of skills in the labor force. The region has an abundance of people who have experienced long-term unemployment after losing manufacturing positions but who have not made the transition to skills that are in demand. Many low-skilled individuals who have left production positions require specific updating of skills to obtain jobs. But there are not enough programs focused on this need, and where they do exist, participation is limited. Further, the workforce delivery system is constrained by the availability of and tight restrictions on public training dollars. For example, annually, 500 low-skilled, entry-level positions are available in the health services industry in the Syracuse Metro, yet these jobs either go unfilled or are counted as unfilled because of high turnover.⁴⁸

42. Battelle, 2011.

43. American Community Survey.

44. New York State Department of Labor, September 2012.

45. Ibid.

46. Ibid.

47. Data pulled from the Labor Insight tool run by Burning Glass Dec. 4, 2012.

48. New York State Department of Labor. Though some of these openings could be kept intentionally open by the healthcare industry due unease about the future of the healthcare industry.

INCLUSIVENESS AND OPPORTUNITY

One of the recurring themes of this plan is that in a metropolitan economy, all communities and populations are inextricably linked, and that the reversal of long-term job losses; low growth rates; and rising and concentrated poverty require deliberate focus and action. There are several indicators that the region is failing to develop and make the greatest use of all of its human assets:

- ▶ The high school graduation rate for the Syracuse City School District is 48.4 percent, while the rate in the 17 suburban districts in Onondaga County averages 89 percent.⁴⁹
- ▶ Syracuse ranks 33rd out of the top 100 largest metro areas for access to lower-skill jobs through public transportation.⁵⁰
- ▶ The Syracuse MSA is among the most economically segregated regions in the country, with high concentrations of poverty in its inner city. Other inner cities in the CenterState region also suffer from a high level of poverty,⁵¹ affecting the quality and outcome of educational systems across the region.
- ▶ The Syracuse metro area is among the top 20 metro areas in the country with the largest gap in test scores between low-income students and higher-income students. Among low-income students in the city of Syracuse, 81 percent attend schools that rank in the bottom fifth of all schools on standardized test performance.⁵²

With employment in its manufacturing base declining, sectors such as health care; finance and insurance; and tourism offer the most opportunities for lower-skilled and entry-level workers. The health care industry projects that it will add 5,000 entry-level positions over the next 10 years, including many that represent the first rung of career ladders, offering well-defined pathways for advancement to entry-level workers through training and experience. Yet, with persistent job openings in the health care industry, training programs and employers need to connect to the populations that need them.

OPPORTUNITIES AND CHALLENGES

The CenterState region confronts significant issues in human capital development and deployment that impede its ability to redefine its competitive position in the next economy. The region has long been home to strong working- and middle-class populations, which

a thriving industrial economy historically supported. Since the decline of manufacturing, many working-class communities have fallen into poverty, while many educated and upwardly mobile residents have left the region for opportunities elsewhere, since they perceive there are no jobs in the region.

Educational attainment levels are competitive with national averages and peer metro areas. Recent slight increases could bode well for the labor supply. Regional increases in associate-level degrees and graduate degrees mean a more talented labor supply for employers to choose from to fill highly skilled and lesser skilled, entry-level positions.

At the same time, employers report difficulty finding and hiring qualified workers along the entire talent spectrum, indicating that the labor market is not functioning effectively. This is especially apparent in the advanced manufacturing sectors and with health care and education providers. Businesses face serious challenges filling positions related to engineering, general business functions, technical positions and nursing positions. At the same time, the region's colleges and universities are producing graduates with the degrees and skills that these industries demand.

If the region succeeds in growing its emerging 21st century economic sectors, securing an adequate supply of talent to meet increased demand for particular skill sets will prove critical to the region's future. That reality demands an effective focus on growing, educating and training the region's workforce, including reducing educational disparities across its urban, suburban and rural school districts.

EXISTING INITIATIVES

DEMAND DRIVEN WORKFORCE ALIGNMENT PROGRAMS

Many workforce investment boards (WIBs), community colleges and other workforce development providers are tackling challenges associated with meeting workforce demands in growing industries. Further, many four-year colleges and universities have specialized training and scholarship programs that link directly with large regional employers. Addressing workforce alignment challenges through demand-driven models has been a growing trend with pilot programs, such as Green Train and Health Train, in Syracuse. The Green Train model on Syracuse's North Side has seen early success providing skill training and job readiness to workers

49. American Community Survey 1-year Estimates, 2009.

50. American Community Survey 1-year Estimates, 2009.

52. American Community Survey 1-year Estimates, 2009.

52. Housing Costs, Zoning and Access to High-Scoring Schools, Brookings.

in high-growth industries. Green Train graduated 26 students in 2012, 85 percent of whom were placed in jobs. Since 2009, the program has graduated 10 classes. In 2013, it successfully expanded into Syracuse's Near West Side neighborhood. The Green Train model led to a Health Train pilot program geared toward the health care industry. This past year, Health Train graduated 14 in its inaugural class, 13 of whom were placed in jobs at St. Joseph's Hospital Health Center, in Syracuse. More than 100 people applied for the next class, enrolling in September 2012. There are plans to expand this model to other industry sectors, based on workforce demands.

GRADUATION RATE IN STRUGGLING CITY SCHOOLS

To address the persistent challenges of educational achievement, urban poverty and joblessness, the Syracuse City School District has established the Say Yes to Education program (Say Yes), aimed directly at improving pre-K-12 education in urban environments.

Say Yes started in 2008 to address the human capital needs of business, while strengthening the city school district and the city's neighborhoods. Say Yes is a national, non-profit education foundation committed to increasing high school and college graduation rates for urban youth. Say Yes provides comprehensive supports, including the promise of free college tuition to enable every child in the program to achieve his or her potential. Syracuse is the first chapter to receive the support of Say Yes across an entire school district.

The Say Yes promise and support begins when a child enters kindergarten and can include after school and summer programming, mentoring, tutoring, and school-day academic support, family outreach, scholarships, legal, health care and social work/psychological assistance.

In 2008, Nancy Cantor, then Chancellor of Syracuse University, championed the effort and asked fellow private higher education presidents to join the Say Yes Higher Education Compact. Today, qualified city school district students can receive last dollar scholarships to more than 100 public colleges or choose from 25 private institutions that offer scholarships based on family income.

Say Yes has invested more than \$14 million in start-up costs, as well as pro bono evaluation and third-party reviews to support the Syracuse City School District's

efforts to reform its curriculum, instruction, student monitoring, professional development and financial systems.

RESULTS TO DATE

- ▶ 5,100 SCSD students are enrolled in Say Yes extended day programs, and approximately 2,200 attended Say Yes extended year programs in 2012. Ninth grade discontinuation rates decreased 44 percent from 2009 to 2012.
- ▶ 31 percent more 9th grade students passed the algebra Regents exam than in 2009.
- ▶ Say Yes has given out more than \$2.5 million in Say Yes scholarships over three years.

LITERACY CHALLENGES FACING COMMUNITIES AND NEIGHBORHOODS

Syracuse is the birthplace of the modern literacy movement in America. ProLiteracy, the organization created by the 2002 merger of Laubach Literacy International and Literacy Volunteers of America, is carrying on the work of the two organizations. ProLiteracy estimates that 14 percent of all adults in America read at a fifth-grade level or lower, and 29 percent read at an eighth-grade level. They also estimate that 75 percent of state prison inmates did not complete high school or are considered low literates.⁵³ ProLiteracy also estimates that 30 million Americans can't read well enough to fill out a job application.⁵⁴

To combat these trends in Onondaga County, stakeholders created the Literacy Coalition of Onondaga County. It is a data-driven effort that has identified a number of community indicators and launched programs to raise literacy in the community. As the work was initiated in 2010, only 24 percent of Syracuse City School District and 65 percent of county students (outside the city) met English Language Arts (ELA) proficiency standards in the 2009-2010 academic year.

More than 200 community members have met in extensive planning sessions to establish community literacy indicators and priority recommendations for achieving the coalition's shared vision of 100% Literacy through 100% Community Engagement. The coalition is working to develop action teams, baseline measures, targets and collaborative strategies to improve community literacy.

53. ProLiteracy, "The Crisis-Adult Literacy Facts.

54. Idem.

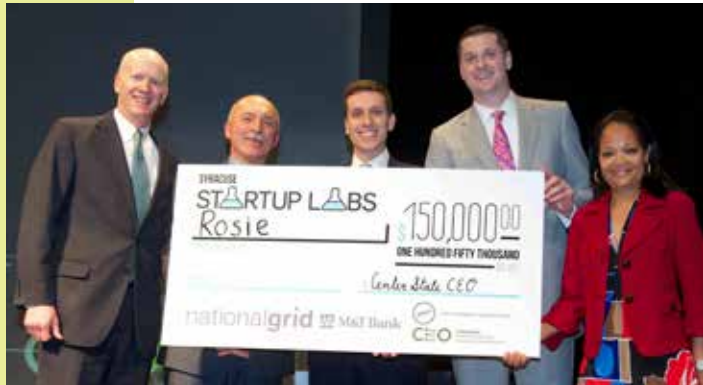
KEY FINDING:

THE REGION'S INNOVATION ECOSYSTEM IS STILL EMERGING AND REQUIRES NEW INVESTMENT

The region's investments over the last decade to renew its entrepreneurial ecosystem catalyzed more than a hundred companies now involved in its networks and a growing base of entrepreneurs and startup firms. Through these programs the region is identifying small businesses with high growth potential and connecting them to the resources they need to grow and stay within the region.

ENTREPRENEURIAL NETWORKS AND PROGRAMS:

- Syracuse Student Sandbox
- Emerging Business Competition
- Startup Weekend
- Startup Labs
- Grants for Growth
- Tech Garden
- Syracuse Center of Excellence
- CNY Biotech Accelerator
- Reh Center for Entrepreneurship at Clarkson University
- Thrive Incubator at SUNY Oswego
- Cayuga Venture Fund
- EDGEcellerator
- Shipley Center for Innovation at Clarkson University



over the last decade compared to \$933 per capita in larger regions. Between 2005 and 2008, firms in the region attracted a cumulative total of only .1 percent of the \$2.8 billion invested annually by venture capital firms located in New York state, prompting a long series of studies that have described the region as a venture capital desert.

The region boasts an exceptional research base in its universities and institutes with \$600 million in annual funding, plus \$800 million through the Rome Air Force Lab. Further, industries in the Syracuse MSA appear to be investing in research and development, indicating that closer alignment between firms and the region's research institutes could generate greater economic impact.

Those investments represent only a down payment on the long-term strategy to rebuild the region's innovation capacity. The next stage requires new vehicles for investment in companies with significant potential to support their sustained contribution to the CenterState economy, as well as strengthening other aspects of the innovation ecosystem.

A snapshot of the Syracuse MSA shows that the rate of new business formation still lags behind national averages for larger metropolitan regions. Venture capital flow into the region averaged \$27 per capita

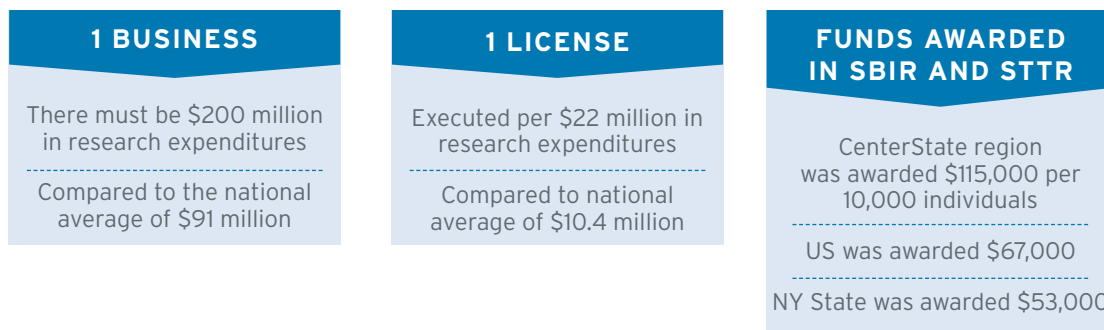
CHAPTER 5: INNOVATION AND ENTREPRENEURSHIP

MARKET RESEARCH. Entrepreneurship and innovation stagnated in the last half of the 20th century, due in part to plant closings and the loss of local control of major manufacturers, This significantly challenged overall economic growth. However, over the last three decades the region has built a resource base to support entrepreneurial growth and drive innovation in existing companies.

BASIC AND APPLIED RESEARCH

The region's 35 colleges and universities play a key role in producing talent and attracting research funding. These universities produce graduates in sectors that drive innovation and economic growth such as business management, STEM and information technologies.⁵⁵ Based on patent activity and publications in scholarly journals, CenterState's universities offer substantial strength in fields directly related to key local sectors, such as biosciences, engineering, physical sciences and math.⁵⁶

COMMERCIALIZATION OF KNOWLEDGE



Although the region has shown strength in two drivers of innovation – investment in research and production of highly skilled talent – knowledge commercialization has struggled. Despite the enormous assets of its large network of research universities generating competitive levels of invention disclosures and patents,⁵⁷ the low ratio of research funding to business formation indicates that the impact of research on economic growth in the region is low. Despite this, the region is above the national average of attracting per capita investment of SBIR and STTR.

55. Brookings, 2012.

56. Approximately 10% of the D2D patents identified from 2009 through April of 2012, 87 in total, were assigned to Cornell and Syracuse University – 73 at Cornell and 14 at Syracuse. As a percentage of these two universities' total patents held, these D2D patents represent approximately 50% of all patents generated by these two universities.

57. Battelle Analysis of AUTMN US Licensing Survey, 2009.

An examination of regional productivity rates further emphasizes this point. Productivity rates within new, high technology manufacturing sectors that were leaders in driving innovation and new technology development are mixed. Some sectors, such as precision metalworking and clean technology, experience high productivity, while other sectors, such as biomedical and digital and electronic devices, experience comparably low productivity. In addition, overall rates of productivity are dropping within the industry sectors associated with these fields (biomedical; digital and electronic devices; and computer and Internet services).

ENTREPRENEURSHIP AND FIRM GROWTH

Ratio of Establishment Births to Deaths	1.14 ⁵⁸	National Average 1.2
Regional Venture Capital Investments	.1%	Compared to the rest of the State
Rate of Investment Capital Available Per Capita	\$27	National Average- \$933
Companies in Entrepreneurship Programs	400	
Estimated Productivity	\$81,401	

Support for entrepreneurs has been a key economic development priority for over a decade. As such, a strong core of entrepreneurship support programming has matured within the region. Although this programming has not yet ushered in a shift in top-level entrepreneurship indicators, demand exists for funding and support. Programs like Grants for Growth fielded 133 applicants over 10 rounds of funding, and the combined Emerging Business Competition and Startup Labs Syracuse programs received 628 applicants and recognized 65 semifinalists over the programs' seven years. However, only 12 percent of these pre-qualified firms accessed funding after the competitions,⁵⁹ indicating a lack of available follow-up funding.

A larger theme of funding availability has emerged in the region. New York state has some of the wealthiest venture capital sources in the country who invest an average of \$2.8 billion each year. Yet, other than some smaller funds such as the CNY Seed Fund and the Cayuga Venture Fund, the CenterState region has failed to attract venture capitalist and private equity investment. The CenterState region attracts only .1 percent of venture capital investments in the state of New York,⁶⁰ earning the region a description as a venture capital desert. In addition, the rate of investment capital available per capita in the region - \$27 - is significantly lower than the national average of \$933 per person.⁶¹

Interest in entrepreneurial incubation programs is also growing. The Syracuse Student Sandbox at The Tech Garden incubator and applications to the Syracuse University RvD student venture fund has grown substantially over the last two years. Simultaneously, a number of mentor networks have emerged in the last five years, including Upstate Venture Connect and CEO Ventures. Additional informal networks and referral groups have developed to complement formal development pipelines such as those CenterState CEO created to focus on technology firms.

58. Small Business Administration.

59. CenterState CEO analysis of funding rates of Emerging Business Competition and Grants for Growth.

60. Judith J. Albers, Ph.D. and Theresa B. Mazzulo, "Venture Capital & Seed Activity in NYS: Perception, Reality, and Unrealized Potential," Excell Partners, February 2009.

61. Battelle, 2011.

CHALLENGES AND OPPORTUNITIES

The CenterState region is becoming more entrepreneurial, but needs to increase both research dollars and the commercialization of research. The region has to look at its growing technology sectors, particularly the D2D technology cluster, to drive new efforts to catalyze business innovation.

Recent programming to support entrepreneurs and increased attention to successful examples of entrepreneurship are helping reshape a regional culture that tends to be risk averse.

In order to be more innovative, the region must welcome the diversity of individuals who become entrepreneurs and drive innovation. A large number of graduate students in the STEM disciplines come from all over the world to study here, and retaining this technical talent is critical to the success of technology oriented companies. Making it easier for young entrepreneurs and those representing diverse cultures to find a place in the regional economy is essential.

Within the universities reliance on traditional technology transfer offices over newer models of technology commercialization at the region's major research universities hinders the transformation of university research into commercial products and services. Declining rates of productivity in key emerging sectors may indicate that local firms are not taking advantage of the research underway in the region's colleges and universities. A number of factors could explain this phenomenon, including a mismatch between the R&D being carried out at universities and research centers and the needs of regional industry or the possibility that regional university R&D is too early stage to be useful for private firms. It is also possible that challenges within firms—such as funding and human capital—may prevent the adoption of valuable R&D produced by local universities and research centers. The research by Battelle indicates that within this region R&D funding generates fewer business startups and a relatively low rate of transfer of university IP to firms.

The region's commitment to building a world-class entrepreneurial support system has generated multiple assets that create an evolving comprehensive, integrated entrepreneurial ecosystem. Interest in entrepreneurship programming has exploded in recent years, particularly from students and early-stage companies. The pool of investment-worthy companies is expanding, although it has not yet grown strong enough to attract significant attention from potential investors outside the region. Early-stage funding continues to be limited, presenting a barrier to sustaining the

momentum the entrepreneurial ecosystem generates. The availability of early-stage seed funding is the most persistent challenge entrepreneurs face. It must be addressed immediately.

In addition to the lack of funding support for startup firms, business and investment leaders regularly cite the relative scarcity of skilled and experienced entrepreneurs as an obstacle. Challenges in retaining highly talented individuals in STEM and business fields in the region also could contribute to the lack of qualified talent to staff and support new firms.

EXISTING INITIATIVES

INCUBATION SUPPORT FACILITIES

The CenterState region hosts an expanding network of incubators and support programs, including sites in Syracuse, Cortland, Potsdam, Ithaca and Watertown. In Syracuse, The Tech Garden, CNY Biotech Accelerator, the Center of Excellence, the Clean Tech Center and the Southside Innovation Center offer specialized support services to emerging businesses. Similarly, in the Mohawk Valley, the Griffiss Institute and the Marcy Nanocenter are partnering with local R&D assets at SUNY IT, Utica College and the Air Force Research Lab.

Innovation and entrepreneurship funding streams also exist in pockets across the region. In Ithaca, the Cayuga Venture Fund supports the growth of high-tech companies that often emerge from commercialization activities at Cornell University. Upstate Venture Connect, CEO Ventures and the Syracuse Student Sandbox are centralized in Syracuse. Other initiatives, such as the Onondaga Venture Capital Fund and UVANY, are making initial efforts to address critical gaps.

RESEARCH FACILITIES

The region's colleges and universities have made research and development a key priority. To enhance R&D activities, many institutions have developed new public-private partnerships to align the R&D needs of the business community with their institutions' assets. Other organizations are working to capture new opportunities to accelerate growth in emerging fields. Although these facilities have not yet increased significantly the amount of NSF or NIH funding the community receives (a strong gauge of R&D success), they are laying the foundation for future R&D success.

CHAPTER 6:

THE BUILT ENVIRONMENT, PHYSICAL AND VIRTUAL INFRASTRUCTURE

KEY FINDING:

THE REGION HAS MADE SUBSTANTIAL PROGRESS IN CREATING NEW CENTRAL PLACES TO STRENGTHEN URBAN LIFE AND HAS SIGNIFICANT INFRASTRUCTURE ASSETS TO SUPPORT ECONOMIC GROWTH

The CenterState region is built in a traditional development pattern of cities surrounded by suburbs, and linked by large areas of forest and farmland. The compact development which ranks the region's cities among the highest in the nation in jobs closest to the center city, provides the basis for efficient transportation, and growing center city revitalization efforts. People are choosing to live in the region's central cities again, reversing trends of the last half century.

This has been driven, at least in part by significant investment in job creation in the region's cities by knowledge based industries such as higher education, health care services, and professional, technical and creative occupations such as engineering, finance, and media and marketing. Cities have increased the impact of this investment by working with private developers to transform vacant buildings and underutilized parcels into new residential buildings, which in turn has driven the demand for local services in the region. Nationally recognized examples such as Ithaca's Commons and Syracuse's Armory Square thrive within the region.

The region also has impressive infrastructure assets that make moving goods to market, people to jobs, and business to business relationships relatively simple. The extensive transportation networks and facilities support these critical interactions. The region also has the advantage of being within a large northeastern market, and is surrounded by large metropolitan centers in the U.S. and Canada that are reached easily within six hours.

Like most of the U.S., challenges remain in maintaining this infrastructure, and large scale changes in the movement of freight or people can have a significant impact on the CenterState region. New financing mechanisms may be necessary to strengthen this infrastructure. Critical gaps also remain in high speed broadband connections, which are well established in the region's cities, but critical gaps remain in the region's rural areas.

All of these connections are necessary, particularly in urban and rural areas where low and moderate populations live, who must be better linked to the region's centers of opportunity.

MARKET ANALYSIS

CenterState New York's physical and virtual infrastructure can facilitate an increase in productivity and innovation by making it easier to move goods and ideas throughout the region. Further, the equitable and strategic growth of infrastructure assets, such as public transportation systems, can directly affect the sustainability and inclusiveness of an economy for all residents.

The 2010 U.S. Census showed a trend toward increasing population in American cities. There is evidence, including in the CenterState region, of people moving back to areas of greater density and featuring more mixed-use development. The census tracts that make up downtown Syracuse and the Syracuse Lakefront have experienced some of the greatest percentage increases in population. That trend appears to be expanding into surrounding neighborhoods. There has been an increase in knowledge-based businesses relocating or establishing themselves in the center city. This change in investment and settlement patterns may create a greater concentration of opportunities closer to communities in which unemployment is high. It may also create new development forms, such as innovation districts.

PATTERNS OF DEVELOPMENT

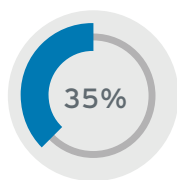
Jobs Located Within a 10-mile Radius of the Urban Center	78%
Population Living in Urban areas	60.9%
Average of the 100 Largest Metropolitan Areas	79.1% ⁶²

Analysts often cite the loss of jobs as an explanation for the decline of center cities. The Syracuse MSA includes a relatively high concentration of jobs (78 percent) in its urban center. However, residential development lags, as almost 20 percent fewer people live in urbanized areas than the average of the largest metropolitan areas in the U.S.

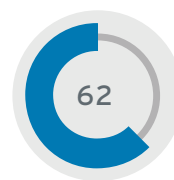
A possible factor driving this residential sprawl is the region's status as one of the nation's most affordable areas in which to own a home. Only 29.2 percent of homeowners pay more than a third of their income on owner costs, compared to 37.8 percent of homeowners in the largest metro areas and 37.5 percent nationally. While middle- and higher-income residents have consistently moved to suburbs in the region, lower-income families have remained in inner city, rural and older town environments.

Rates of home ownership in the region's inner cities are astoundingly low. More than half (51 percent) of all housing units in the Syracuse metro area are rental units, compared to 27 percent in Albany and 29 percent in Rochester. Between 2000 and 2010, owner-occupied housing in the Syracuse MSA, decreased by 7.9 percent, while rental housing declined by less than one percent.⁶³ Rented housing units have a 7.4 percent vacancy rate, while homeownership units have a 2.6 percent vacancy rates in the city of Syracuse.⁶⁴ In the Syracuse MSA, 12.5 percent of residential housing units are vacant.⁶⁵ This is slightly lower than the national residential vacancy rate of 13.1 percent.

CONNECTIVITY AND NEXT ECONOMY INFRASTRUCTURE⁶⁶



35% OF WORKERS can reach their jobs within a reasonable amount of time through public transit.



Syracuse MSA ranked **62 OUT OF 100** for least amount of congestion.

CenterState New York should exploit its central location among some of the world's greatest cities. New York City, Boston, Philadelphia, Toronto, Ottawa and Montreal are all within a short driving distance, and the region is within 750 miles of half of North America's population. Connectivity to this super-region gives CenterState a huge advantage in connecting to the rest of the world. Regional connectivity becomes important as well: Buffalo, Rochester, Albany and Binghamton are even shorter drives, and the intellectual and economic energy within this region and super-region must be considered one of CenterState New York's strongest competitive assets.

Overall, the region succeeds in moving goods and people efficiently within the region. In the Syracuse MSA, 35 percent of workers can reach their jobs in a reasonable amount of time through public transit, although, ironically, lower-skill jobs are somewhat less accessible by public transit within the region. CenterState has one of the least congested highway and road networks in the country. In a 2010 analysis of traffic congestion, the Syracuse MSA (the densest part of the region) ranked 62 out of the top 100 metros in the United States on measures of congestion.

62. Brookings Institution "Metropolitan Business Planning - Strategic Overview Metrics," Brookings Institution Analysis of American Community Survey Data.

63. US Census Bureau, 2010.

64. Idem.

65. 2011 American Community Survey, 1-year estimates.

66. For a full analysis of the region's infrastructure, see Appendix B.

Though ground transportation is not a limiting factor, the same is not true for air transportation. While access and connectivity are strong, airfares through the region's major hub, Syracuse Hancock International Airport, are higher than the national average.⁶⁷

Though transportation connectivity may not be a significant challenge now, the maintenance of this network is showing signs of strain. According to the Syracuse Metropolitan Transportation Council, many of the region's roads and bridges, which were built during the 1950s and '60s, will reach the end of their life expectancy in the next 20 years.⁶⁸ The region will face one of its largest transportation challenges as it selects a replacement for the elevated portion of I-81 as it passes through the city of Syracuse. This portion, called the I-81 viaduct, is more than 50 years old and the state Department of Transportation recognizes that it has reached the end of its useful life and must be replaced, redesigned or removed. Global forces can affect other forms of transportation connectivity in the region. Work is underway to triple in size the Panama Canal, and steamship lines are starting to build bigger ships to serve the U.S.-Asian trade, which will continue to go to West Coast ports. This will cause a shift in new shipping traffic to East Coast ports, which are already dredging and building new facilities to handle larger ships. Given the projected increases in freight movements and congestion at many of America's ports, including the Port of New York, a proposal for an Inland Port is being advanced by 3GI Terminals. The Inland Port will make it possible to move freight containers from ships to trains at the Port of New York, and then break down the freight in the DeWitt rail yard. This could lead to an increase in the demand for warehouse, assembly and supporting logistics capabilities in the region. The region's only international port, the Port of Oswego, is an asset, but is limited, because large ocean-going vessels cannot get through the St. Lawrence Seaway. Despite this challenge, the region's proximity to major East Coast ports along major freight rail lines makes it an optimal target for the location of inland ports.

Internet connectivity is a critical component of a region's infrastructure. Data from the Brookings Institution indicates that Upstate New York led the country in broadband connectivity, with Rochester, Albany and Syracuse ranking as the top three wired cities in the U.S. Despite its regional strength, connectivity is not uniform throughout the region. In its analysis of broadband capability, the North Country Regional Economic Development Council found that broadband is generally available in the population centers of the region, but less so in the rural areas.⁶⁹

ACCESS TO ECONOMIC OPPORTUNITY



Access to economic opportunity remains a persistent challenge. The Syracuse metro region is the 10th most racially segregated metro region in the country, with a score of 67.8 out of 100 on the Black White index. A zero on the index would indicate complete integration and a 100 complete segregation. Most of the CenterState region's cities have rates of poverty significantly higher than the national average of 19.5 percent: in the city of Syracuse, the rate is almost 32 percent.; in Utica, 29 percent; and in Ithaca, 42 percent.⁷⁰ Particularly in Syracuse, urban poverty is highly concentrated, and it is identified as the 37th most economically segregated region in the country in terms of access to quality education.⁷¹ Exacerbating this issue in the Syracuse MSA, housing costs near high-performing

67. Tomer, Adie and Rob Puentes. 2009. Expect Delays: An Analysis of Air Travel Trends in the United States. Washington, DC: Brookings Institution using T-100 Segment Data.

68. Ibid page 3.

69. North Country Regional Economic Development Council. Transformational: Leading the Economic Renaissance of New York's Small Cities and Rural Communities: Strategic Plan, page 10.

70. American Community Survey / State of Metropolitan America. Additional analysis provided by CenterState CEO.

71. "Housing Costs, Zoning, and Access to High Scoring Schools." Brookings, 2012. In Syracuse, 42% of low income students would have to change ZIP codes to achieve an equal distribution across schools. This makes Syracuse the 37th most economically segregated in terms of housing and test scores in the country. One contributing factor to this challenge is the presence of off-campus student housing surrounding colleges and universities in urban environments.

elementary schools are 2.4 times higher than housing costs near low-performing schools; this is the 25th highest gap in the country.⁷²

The level of racial and class segregation impacts the region as a whole. Without a strong connection to the region and mainstream economy, assets in segregated areas - human capital, real estate and market opportunities - tend not to be deployed efficiently. These wasted assets weaken regional economic performance and impose high costs of concentrated poverty. Segregation also negatively affects civic cohesion and cross-jurisdictional cooperation.⁷³

OPPORTUNITIES AND CHALLENGES

The CenterState region is anchored by long-established urban centers with significant economic, intellectual and historic foundations. While the city centers need new investment, recent trends favor revitalization: occupancy rates for both commercial and residential property have soared to 89 percent and 99 percent in downtown Syracuse, reflecting a strong movement back to the city. High-skilled, service-oriented firms are locating increasingly in central business districts, with substantial growth in medical services; educational services; and professional and creative services such as law, engineering, architecture and public relations, finance and insurance. The firms favor center city locations to take advantage of the economic benefits of physical proximity to one another and to respond to employee desires to work in the central business district. This employment trend offers the potential to create continued demand for urban infill development as it brings new, higher-income residents into urban neighborhoods. In contrast, as a result of the region's legacy as a manufacturing hub, many valuable development sites are saddled with environmental issues that must be addressed to return the property to new, productive use. This poses a challenge to large-scale redevelopment of numerous parcels in high-potential locations.

Although the existing transportation infrastructure is generally sufficient in moving goods to market, it is aging, and a variety of impending large-scale infrastructure projects will require attention in the next decade. There is a significant debate in the Syracuse MSA about how the I-81 viaduct should be replaced, as the highway splits the rapidly growing University Hill area from the core of downtown Syracuse. Additional

opportunities to enhance transportation infrastructure include the proposed development of an inland freight rail port in the town of Manlius.

Air transportation presents a challenge, with relief from high air fares and expansion of service to more markets for national and international business high on the list of the region's critical needs. Hancock must attract additional low-cost flights to encourage economic growth. An average fare reduction will stimulate additional traffic at Hancock and increase the airport's overall economic impact on the region. Hancock is constrained by the number of airlines that use 50-seat regional jets to service the market. These planes are frequently oversold. More importantly, there are long-term concerns about the future of these airplanes. Due to high fuel costs, these planes are becoming more difficult for airlines to operate on a profitable basis. More than half - 56 percent - of Hancock's commercial passenger flights use regional jets. Hancock and other mid-sized airports need to position themselves to support larger aircraft or face a loss of service as these jets disappear.

Barriers to economic opportunity remain both in the region's urban and rural communities. It is critical that residents in the region's rural areas have access to high-speed broadband networks. Existing projects need to be completed, and in order to have growth in the region's small towns and rural areas, the region needs to find opportunities to expand these networks.

Syracuse area residents have comparatively easy access to public transit,⁷⁴ but concentrated poverty continues to rise. Trends in both housing and job growth increase rather than decrease the jobs/housing mismatch for lower-skilled and lower-income workers: while middle-skill manufacturing jobs move farther away from the city center, making them less accessible, new jobs coming into the city tend to require higher skills. That disparity exacerbates the isolation of low-income urban communities, where declining geographic access to middle-skill jobs fuels long-term unemployment and increasing poverty.

72. U.S. Census Bureau Decennial Census Housing and Household Economic Statistics Division Special Reports: Housing Patterns.

73. Source: William H. Frey analysis of 1990, 2000, and 2010 Census data.

74. Although this is a low standard for comparison with less than 30% of low-skill jobs accessible by transit in less than 90 minutes in the Syracuse MSA.

EXISTING INITIATIVES

HIGH AIRFARE COSTS

The Fly Syracuse campaign promotes travel and lowering airfare costs out of Hancock International Airport. Since CenterState CEO launched Fly Syracuse in 2004, Syracuse Hancock International Airport has gone from being fourth to 24th, in terms of high airfares, among the nation's top 100 airports.⁷⁵ While this ranking has fluctuated, generally ranking 20 to 40 on the list, Syracuse has not returned to its previous position among the most expensive airports in the U.S., saving millions of dollars for travelers and reducing a major burden on CenterState's regional economy.

In 2003, preceding the launch of Fly Syracuse, Syracuse's airport handled approximately 1.7 million passengers. In 2011, the airport handled 2 million passengers, an increase of 18 percent. This percentage is in line with national passenger growth, representing a reversal of declining passenger counts in Syracuse in the late 1990s and early 2000s. Despite the success of Fly Syracuse, Hancock must continue to attract additional low-cost flights to stimulate additional traffic at Hancock and increase the airport's overall economic impact on the region.

MANUFACTURING SITES AND SHUTTERED FACILITIES

The region has redeveloped previously underutilized facilities. In Rome, Mohawk Valley EDGE has led an effort to reuse and redevelop the Griffiss Air Force Base into a vibrant facility housing many fast growing cybersecurity firms. In Syracuse, the reuse of facilities like the General Motors Inland Fisher Guide plant by the German firm Bitzer Scroll have added strong jobs in this clean technology company. Further, anchor institutions have led redevelopment efforts of previously underutilized facilities throughout Syracuse. In particular, SUNY ESF and SUNY Upstate Medical University have partnered to redevelop Kennedy Square, a low-income housing complex, into Loguen's Crossing, a multi-use educational, research and development and student housing neighborhood on the city's Near East Side. The Seneca County IDA is leading an effort to redevelop the Seneca Army Depot, which at 10,600 acres, is the largest single development site in New York state.

AGING TRANSPORTATION INFRASTRUCTURE

Additional transportation infrastructure projects are in planning stages, including improvements to rail infrastructure in Cortland County and the redevelopment of the I-81 viaduct through Syracuse. Utica is investing heavily in upgrading its sewer systems and its downtown waterfront area.

DOWNTOWN REVITALIZATION

Concentrating amenities such as cultural attractions, entertainment, small specialty businesses, restaurants and nightspots, can create great spaces, particularly when combined with market-rate residential development, waterfront assets and historic preservation. The region, unfortunately, does not have enough of these high-quality urban spaces and must do more to take advantage of existing federal and state historic preservation tax credits, Brownfield tax credits, new markets tax credits and land banks to provide the financial incentives to create them.

During the last 30 years, educational and medical institutions have driven the regional economy and revitalization efforts. Many of these institutions are the largest employers within their counties. In Onondaga County, four of the top 10 employers are medical and institutional employers. All are centrally located within a mile of each other. Throughout the region, health care and educational institutions have made large capital investments in new plant and equipment.

In Onondaga County alone, medical and educational institutions have invested more than \$1.6 billion in the central city over the last 20 years. Most of that has occurred in University Hill, one of the nation's leading academic and medical complexes. Six medical and educational institutions - Syracuse University, SUNY Upstate Medical University, SUNY College of Environmental Science and Forestry, Crouse Hospital, Hutchings Psychiatric Center and the Veteran's Administration Center - have invested in the area.

Over the last 10 years, a second wave of investment took place. The campuses are spreading into downtown Syracuse - most notably Syracuse University's Warehouse, SUNY Upstate Medical University's West Campus development (which straddles I-81) and St. Joseph's plan to move one of its operations into downtown Syracuse. SUNY Oswego located its Metro Center in downtown Syracuse, 36 miles from its main campus in Oswego, and is seeking branch campus status for it. St. Joseph's Hospital Health Center invested \$200 million in its campus. Onondaga Community

75. U.S. Department of Transportation.



College recently announced plans to build a satellite campus at the Syracuse Lakefront, anchoring a proposed \$350 million investment in the lakefront's redevelopment by the COR Companies. COR is also undertaking a projected \$340 million investment in University Hill, with the construction of a mixed-use center, replacing a former low- to moderate-income housing project. The project will include investments by SUNY Upstate and SUNY ESF in the Biotechnology Accelerator and a new office building for SUNY Upstate to move its employees from suburban spaces.

Syracuse has the potential to reinvent its city center as an Innovation Center, linking University Hill, downtown, the lakefront, Prospect Hill, the Near West Side and the Southeast Gateway.

Anchor institutions and new investment by private developers, such as the two COR projects, could build a vital urban area that combines historic preservation, next economy, creative businesses, urban housing, hospitality/tourism, thriving neighborhood business districts and high-technology businesses - all of which create jobs and opportunity for city residents.

Neighborhood stabilization and revitalization needs to proceed as well, and the region must make these neighborhoods more attractive to home builders. The region must link improvements to urban school systems. However, since the vast majority of households in America do not have school-age children, the condition of those school systems should not become an excuse not to begin the effort.

CHAPTER 7: PUBLIC AND CIVIC INSTITUTIONS AND CULTURE

KEY FINDING:

THE 21ST CENTURY REQUIRES MODERNIZING LOCAL GOVERNMENT

The next economy favors regions that are highly networked and fluid in the movement of goods, people, and ideas. It favors regions in which both government and civic governance are transparent, open, and adept at working collaboratively across sectors. The CenterState region faces formidable challenges in this area largely related to the structure of local government and tax climate.

The region has nine times the average number of governmental units per capita compared to the largest metropolitan areas. National comparisons also rank the tax climate in New York state among the worst, with a combined state and local tax burden that is the second highest in the nation as a percentage of income. Property taxes in five counties in the region are among the highest in the nation as a percentage of home values.

Local government leaders in Onondaga County have taken initial steps to address this critical issue through the consolidation of some agencies and services, and they support the need to bring about further change.

In addition to cost and efficiency, the large number of government jurisdictions also complicates decision-making in critical areas, such as investments in infrastructure. The CenterState region faces significant needs to upgrade infrastructure for the 21st century, including utility systems, electricity transmission, air service, freight capacity, and the extension of broadband in rural areas.

MARKET ANALYSIS

The region faces historic challenges to governance. Decades of growth have established unsustainable forms of government that cannot facilitate economic growth. In the face of this, emerging collaborations and leadership can begin streamlining processes, increasing transparency and information sharing, and engaging a broader cohort of citizens, businesses and the civic sector in decision-making.

GOVERNMENT FRAGMENTATION

2,466 UNITS
OF LOCAL GOVERNMENT

9 TIMES
THE NATIONAL AVERAGE

Within the region, even the most densely populated metropolitan areas are still well above the national average in terms of units of local government per 10,000 citizens (Syracuse 1.52; Utica / Rome 2.71; Ithaca 1.68). As a comparison, Albany has 1.24, Rochester has 1.2, and Buffalo has .58 units of local government for every 10,000 citizens. In another measure of fragmentation, the CenterState region, as a whole, has more special districts (fire, lighting, sewer, etc.) than the U.S. average.⁷⁶

TAX-VALUE PROPOSITION

New York State and Local Tax Burden Percentage	12.1%
National Average	9.8%

The Tax Foundation has identified New York state as having one of the worst tax climates of all states in the U.S. The state and local tax burden percentage ranks among the nation's highest, currently estimated at 12.1 percent of income (second nationally) compared to the current national average of 9.8 percent. Further, property taxes consistently rank among the top 10 in the nation as a proportion of property values. Five of the top 25 counties in the country that have the highest property taxes as a percentage of home value are in the CenterState region.

Even though New York is a high tax state, this alone is not a good indicator of the economic climate in the region. Only when citizens and businesses believe that their tax burden is not providing quality public services does a tax-value proposition become misaligned. In 2010, aside from the District of Columbia, New York spent more money per pupil (\$18,618) than any other state in the nation, yet ranked below the national average in many indicators of student academic achievement. Further, the state ranks sixth nationally in infrastructure spending per highway mile, but 46th for overall highway performance.

76. The CenterState region has 1.41 special districts per 10,000 citizens compared to the national average of 1.24. U.S. Census Bureau Census of Governments Integrated Governments Directory 2007 Edition.

OPPORTUNITIES AND CHALLENGES

The success of strategies outlined in this plan depends on a supportive business environment. Unfortunately, the region's fragmented governance structure limits the efficiency of public services and undermines the tax-value proposition for residents and businesses. This excessive fragmentation contributes to a high-cost business environment and decentralized control over taxation authorized by New York state's Home Rule mandates. Unfunded state mandates increase costs for local governments and directly contribute to the region's high-cost business environment.

The local cost of doing business thwarts efforts to grow the region's economy. Although spending on public goods is high, quality of the delivery of these goods is inconsistent, causing businesses and residents to feel they are not receiving a good value for their tax dollars. This perception stifles business attraction and leads firms to move operations to lower-cost states. While municipal budget crises are occurring across the country, fiscal challenges are particularly acute in the CenterState region, with impending fiscal instability holding the potential to threaten essential government services and functions.

Despite these challenges, pockets of public leadership offer creative solutions and partnerships, particularly between the City of Syracuse and Onondaga County, which have combined economic development offices and have proposed the combination of planning departments. In addition, some partnerships between towns and villages in the region have shown promise but have yet to drive significant change. Government fragmentation stymies collaboration across jurisdictional boundaries and among villages, towns, cities and county governments. Large-scale coordination is rare between municipalities within counties and among counties across the region. The state's recent creation of Regional Economic Development Councils prompted new collaboration to spur economic development, although the division of the 12-county CenterState region into multiple regions assigned by the state introduces a new layer of complexity.

The state of many municipal budgets also limits improvement. The state's two percent property tax cap, in conjunction with increasing unfunded state mandates, create an unsustainable situation for many villages, towns and cities. Some municipalities have dipped into dwindling reserves to cover budget gaps. When these reserves are exhausted, municipalities will

be forced to address budget gaps by cutting services or pursuing more efficient means of service delivery, which could spur new partnerships and collaborations. In a worst-case scenario though, local control could be lost if the state hands over the fiscal management of municipalities to a state-appointed control board, as occurred in Buffalo.

EXISTING INITIATIVES

PROMOTING INTERGOVERNMENTAL COLLABORATION

Limited inter-municipal agreements have initiated a significant step toward better coordination and shared services for efficiency; however, a critical mass of activity has yet to occur.

Coordinating activities between city and county municipalities has shown some success, such as the coordinated planning efforts among multiple counties under the CNY Regional Planning and Development Board and the creation of a joint office of economic development and joint purchasing departments for the City of Syracuse and Onondaga County.

CATALYZING GOVERNMENT MODERNIZATION

Syracuse 20/20, a civic organization promoting government modernization measures in the region, is leading an effort to create a local government modernization commission. This blue-ribbon commission, authorized by the New York State Legislature, would study how government services are delivered in Onondaga County and would make a recommendation, to be put to public referendum, on how to improve service delivery and modernization.



CHAPTER 8: STRATEGIES AND INITIATIVES FOR TRANSFORMATIVE GROWTH

STRATEGIES: The previous chapters have identified key findings from a market analysis of the region. Based on these findings, the CenterState Agenda for Economic Opportunity recommends eight strategies designed to drive growth, build synergies across the region and create a new center of gravity for the next economy. While each strategy alone is intended to have significant impact on the economy, they are designed to be complementary and work together toward growth. These strategies build upon existing initiatives that are already affecting change in the region or show significant promise to do so.

STRATEGY 1:

ESTABLISH THE REGION AS A GLOBAL CENTER FOR DATA TO DECISIONS FIRMS, PEOPLE AND IDEAS

- Establish the Data to Decisions Innovation Alliance
- Create a Skills Broker
- Position the Region as a Leading Center for D2D Research

STRATEGY 2:

STRENGTHEN THE REGION'S POSITION AS A LEADER IN CYBERSECURITY; THERMAL AND ENVIRONMENTAL CONTROL SYSTEMS; AND AGRIBUSINESS

- Accelerate the Growth of the Thermal and Environmental Control Systems Cluster
- Establish the Region as a Center for Cybersecurity
- Grow Agribusiness, Bioscience and Natural Resource-based Industries

STRATEGY 3:

GROW EXPORTS AND FOREIGN DIRECT INVESTMENT

- Implement the Metropolitan Export Initiative
- Support Immigration Reform
- Seek Greater Foreign Direct Investment

STRATEGY 4:

BUILD A WORLD-CLASS ECOSYSTEM FOR INNOVATION AND ENTREPRENEURSHIP

- Create a Regional Seed and Venture Fund
- Build Out the Entrepreneurship Ecosystem
- Prioritize and Strengthen Student Entrepreneurship
- Forge Stronger Relationships Between Entrepreneurs and Mentors Within and Outside the Region



**STRATEGY 5:
DEVELOP EMPLOYER-DRIVEN
APPROACHES TO ALIGN WORKERS
AND JOBS**

- Establish a Demand Aggregator
- Strengthen the Human Capital Pipeline
- Build on Existing Efforts to Engage, Retain and Attract Talent
- Expand Training Programs

**STRATEGY 6:
SET PRIORITIES FOR
INFRASTRUCTURE INVESTMENTS
AND IMPROVEMENTS**

- Attract New Air Service
- Develop an Inland Rail Freight Port and Upgrade the Capacity of the Port of Oswego
- Invest in a Transformative Project to Redevelop the Viaduct Portion of I-81
- Enhance Transit Services
- Support Extension of Broadband
- Support Infrastructure Upgrades

**STRATEGY 7:
CULTIVATE OPPORTUNITY-RICH
ENVIRONMENTS**

- Leverage Anchor Institutions
- Strengthen the Job Pipeline in Communities of Need
- Enhance Transportation to Employment Centers
- Develop and Promote Market-Rate Housing and Urban Infill
- Implement Onondaga County's Sustainable Growth Plan

**STRATEGY 8:
BUILD EFFECTIVE PUBLIC
AND CIVIC INSTITUTIONS AND
CULTURE**

- Develop a Government Modernization Commission for Onondaga County
- Support Regional Economic Development Councils
- Support Citizen-Driven Solutions

STRATEGY 1:

ESTABLISH THE REGION AS A GLOBAL CENTER FOR DATA TO DECISIONS FIRMS, PEOPLE AND IDEAS

The businesses that form the emerging D2D cluster have individual market opportunities for growth but a potentially larger opportunity exists for the region to carve out a specialized niche in the application of technologies across multiple sectors. To pursue that opportunity as a platform for growth, the region will undertake a multi-pronged approach: develop a cluster with world-class capabilities, provide a skilled workforce and create stronger connections to the region's formidable research institutions:

➤ Establish the Data to Decisions Innovation

Alliance with the mission to grow and expand the cluster and related innovation capacity across the region. A full list of the activities of this Alliance is below.

➤ Create a Skills Broker to match pre-qualified candidates with job openings in the D2D cluster, particularly high-skilled positions in engineering and technical fields.

➤ Position the Region as a Leading Center for D2D Research through stronger linkages between this critical growth sector and the region's universities and research institutes.

STRATEGY 2:

STRENGTHEN THE REGION'S POSITION AS A LEADER IN CYBERSECURITY; THERMAL AND ENVIRONMENTAL CONTROL SYSTEMS; AND AGRIBUSINESS

The region's strong natural resources, 21st century manufacturing sectors, and capacity for research and technology development position it for growth but require sustained focus on key tradable sectors. To that end, the region will:

➤ Accelerate the Growth of the Thermal and Environmental Control Systems Cluster, particularly the region's small- and medium-sized firms. Establish an experienced team of public and private partners that will accelerate the transformational rebirth of a cluster of small and medium-sized enterprises (SMEs) that manufacture thermal and environmental control systems (TECs), which heat and cool buildings, refrigerate produce, control manufacturing processes and enable a variety of other applications.

KEY STRATEGIC COMPONENTS:

- Develop and strengthen cluster networks.
 - Align with programs and services of the CenterState Metropolitan Export Initiative.
 - Focus assistance for region's SMEs by providing engineering growth services and deploying continuous improvement and quality-control systems.
 - Fund strategically targeted, market-driven research projects that are intended to create breakthroughs in applications of nano-materials and energy conversions.
 - Develop and provide training programs to transfer displaced workers from local automotive manufacturers to in-demand TECs manufacturing jobs.
- #### ➤ Establish the Region as a Center for Cybersecurity, maintaining the critical asset offered by the Rome Laboratory and assisting the industry to enter new markets such as finance and health care. The CenterState region is emerging as an attractive location for firms engaged in cybersecurity and information assurance. To date, much of that work has focused on meeting defense needs or other government contracts. Much of this work is driven by the presence of the Air Force's Rome Laboratory Opportunities exist to transfer this capability to meet market-driven needs to develop specialized financial security functions, or to be applied to the rapidly growing health information sector. Existing financial services providers should collaborate with information assurance systems providers to fill developing needs.



KEY STRATEGIC COMPONENTS:

- Support existing operations through financial incentives, workforce initiatives and connections with academia to support company expansion.
 - Strengthen existing technologies, such as cybersecurity, database management and software development.
 - Expand proactive marketing and attraction campaign to make companies aware of the CenterState region's assets in this field.
- **Grow Agribusiness, Bioscience and Natural Resource-based Industries**, leveraging the region's logistics capabilities, land and water resources, aligning research and technology development to support innovation in agriculture and other industries. Clear domestic and international market opportunities exist to drive new production and employment for the region's agricultural producers and food processors. A unified, market-based cluster development strategy for agriculture will direct the region's numerous assets toward sustained growth opportunities. In addition, a biosciences-based industry is emerging within the region. This industry can build on the institutional R&D assets to develop new products and processes, maximizing the value of this expertise.

KEY STRATEGIC COMPONENTS:

- Develop both industry-specific plans and a long-term, comprehensive strategy for the region's food and bio-based assets.
- Seek greater access to markets for the region's food producers, and take advantage of the region's logistics capability to:
 - Assist food producers in increasing sales and market share in the major metropolitan areas of northeastern U.S. and Canada.
 - Assist aggregators and producers to compete more effectively in the world market, following the example of Cayuga Marketing for dairy products.
- Build on the world-class assets in agriculture at Cornell, plant science at the Boyce-Thompson Institute and forest products at SUNY ESF and encourage collaboration among the institutions to enhance the development, commercialization and application of technologies produced.
- Seek to attract more investment in the region by international agricultural and bio-based businesses,

including those focused on food processing, and bio-based energy and chemical production.

- Increase the supply and compensation for farm labor through immigration reform or training for agricultural workers.



STRATEGY 3:

GROW EXPORTS AND FOREIGN DIRECT INVESTMENT

With 95 percent of the world's consumers living outside the United States, the region must strengthen its presence in the global marketplace and grow exports. First steps:

- **Implement the Metropolitan Export Initiative** to help more firms increase their presence in foreign markets and increase the number of firms that do export. This strategy is outlined in a companion piece, The CenterState Metropolitan Export Plan.
- **Support Immigration Reform** to increase opportunities for international students to remain in the region after college. This will also help fill industry needs. International students can serve as a bridge to compete more effectively in international markets. In addition, the region's agricultural economy is highly dependent on access to foreign farm labor.
- **Seek Greater Foreign Direct Investment** To capture the growing trend of manufacturing re-shoring, the region should look to become an attractive destination for the location of newly re-shored manufacturing facilities with a specific focus on D2D; cybersecurity; thermal and environmental systems; and agribusiness manufacturers.



STRATEGY 4:

BUILD A WORLD-CLASS ECOSYSTEM FOR INNOVATION AND ENTREPRENEURSHIP

The region must take to the next level its agenda to develop a robust innovation ecosystem by enhancing the range of capital resources available to entrepreneurs and building stronger connections between the region's research institutions and firms in its critical growth sectors. In addition to the pilot for D2D research described above, the region will:

- **Create a Regional Seed and Venture Fund** to encourage new entrepreneurial development and close a critical gap that still exists in early stage and seed funding.
- **Build Out the Entrepreneurship Ecosystem** so that startup businesses and entrepreneurs from across the region have easy access to entrepreneurship support networks. Some support services, such as business plan competitions and other traditional economic development assistance, are already available throughout the CenterState region. However, localized support services, such as incubation spaces, co-working spaces, accelerators and mentor networks, are not equally accessible across the region. To improve access, existing entrepreneurial support facilities and experts can be tapped to help communities throughout the region.
- **Prioritize and Strengthen Student Entrepreneurship** to support the explosive growth and interest in the handful of student entrepreneurship programs. These programs not only drive new business; they also serve as an important tool to retain regional talent colleges and universities generate. Existing student entrepreneurship programs can expand and tailor their services to the unique curricula of the region's 35 colleges and universities.
- **Forge Stronger Relationships Between Entrepreneurs and Mentors Within and Outside the Region.** Integrate a mentor development strategy into the expansion and enhancement of entrepreneurship support facilities.

- **Link Regional Research Centers to Respond to Private Industry Needs** to catalyze a culture shift in R&D at the region's universities and research centers. Focus on research models that respond to industry needs as opposed to attempting to push university-developed knowledge into the private sector. Use the D2D lead initiative as a pilot attempt to alter the relationship between local businesses and regional researchers.

STRATEGY 5:

DEVELOP EMPLOYER-DRIVEN APPROACHES TO ALIGN WORKERS AND JOBS

Higher skills command higher wages and drive economic growth. Meeting the region's pressing need to increase the talent and skills of its workforce requires expanding the portfolio of education support, effective workforce training, and talent attraction initiatives and aligning them with targeted growth sectors. To strengthen the human capital pipeline and skills at all levels, the region will:

- **Establish a Demand Aggregator** to catalyze an employer-driven workforce development system, beginning with the proposed skills broker for firms in the D2D cluster.
- **Strengthen the Human Capital Pipeline** through community initiatives focused on raising education attainment across the board, with particular focus on lower-performing school districts and groundbreaking initiatives such as Say Yes to Education.
- **Build on Existing Efforts to Engage, Retain and Attract Talent** by expanding successful programs, particularly those that focus on younger workers.
 - Expand and connect successful young professionals' groups (such as Syracuse's Ignite and 40 Below) to partner on joint civic engagements projects.
 - Seed new community young professionals' groups in metros and cities not served by these organizations.
- **Expand Training Programs** that address the issue of reconnecting low-income workers to new economic opportunities, such as Green Train, Health Train and Visions for Change.

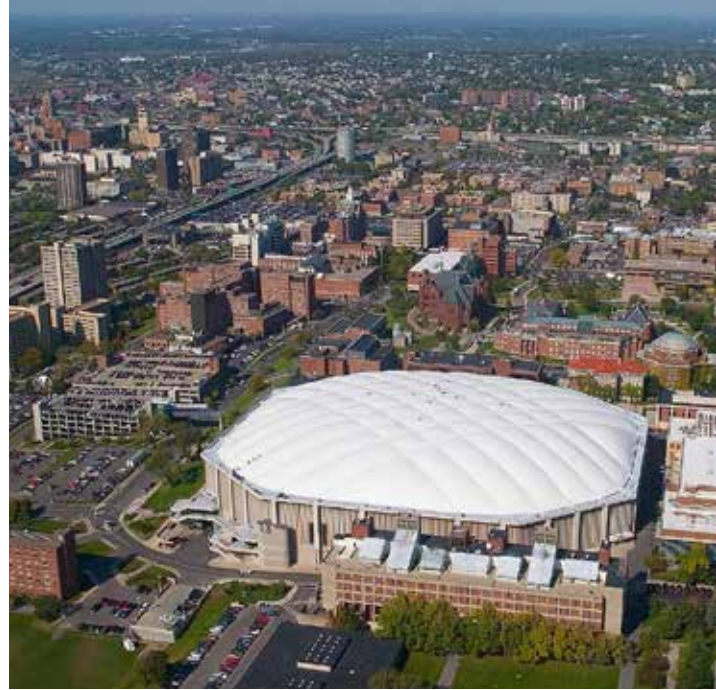
STRATEGY 6:

SET PRIORITIES FOR INFRASTRUCTURE INVESTMENTS AND IMPROVEMENTS

Due to cuts and delays in funding for transportation infrastructure, CenterState New York, like much of the U.S., is facing dilapidated roads, bridges and rails that, if left in their current state, could pose expensive and potentially dangerous challenges. While obtaining additional funding stands as a significant hurdle to maintaining existing infrastructure, public and private leaders must develop a collective list of priority projects for the next five years.

One solution, as exemplified by the proposed Inland Port project, is to address infrastructure needs through greater use of public/private partnerships. The transportation needs can be met by capital from the private sector. The constraints on rural broadband can also be met by working with private sector suppliers to improve access, speed and reliability. Tax Increment Financing tools can generate more revenue to support regional infrastructure needs.

- **Attract New Air Service** to reduce cost and increase availability of air transportation.
- **Develop an Inland Rail Freight Port and Upgrade the Capacity of the Port of Oswego.**
- **Invest in a Transformative Project to Redevelop the Viaduct Portion of I-81** running between downtown Syracuse and the University Hill area. The project should enhance the city's unique characteristics, such as its efficient transportation infrastructure and respect its ongoing urban revitalization. Use enhanced transit services to reduce the number of single-occupancy vehicles entering the area, and provide an attractive alternative for commuters.
- **Enhance Transit Services** linking neighborhoods to job centers.
- **Support Extension of Broadband** into the North Country and underserved rural areas.
- **Support Infrastructure Upgrades** by helping communities locate new sources of funding.



STRATEGY 7:

CULTIVATE OPPORTUNITY-RICH ENVIRONMENTS

The smaller metropolitan and rural areas that make up the CenterState region require different approaches to create communities that attract the firms and workers that drive the next economy. Among approaches to consider are initiatives designed to:

- **Leverage Anchor Institutions** in higher education, health care and the arts as key partners for jobs and community development.
- **Strengthen the Job Pipeline in Communities of Need** through neighborhood-based training and strong linkages to employers with middle-skill jobs.
- **Enhance Transportation to Employment Centers**, particularly those with high concentrations of entry-level and middle-skill jobs.
- **Develop and Promote Market-Rate Housing and Urban Infill** through programs such as land banks.
- **Implement Onondaga County's Sustainable Growth Plan** and encourage development of similar plans in other counties.



STRATEGY 8: BUILD EFFECTIVE PUBLIC AND CIVIC INSTITUTIONS AND CULTURE

To address the region's most threatening economic challenges, such as low wage and employment growth, the region must deal with barriers that stem from the region's government structures. Despite clear challenges, this plan will not recommend policy solutions, but will endorse a process to develop and recommend solutions in a way that engages residents and experts in a comprehensive study of the issues. To do this, the region must organize and authorize the appropriate mechanisms for studying these challenges, possibly a commission on government modernization.

- ▶ **Develop a Government Modernization Commission for Onondaga County** to examine, study and recommend a governance structure that provides efficient delivery of public services. The priority is not to consolidate government, but to develop a process to maximize the benefit from public amenities and resources.
- ▶ **Support Regional Economic Development Councils**, which are a powerful tool to bring localized decision-making into economic development planning. Future rounds of funding should support cross-regional initiatives.
- ▶ **Support Citizen-Driven Solutions** by making government data publicly available and encouraging innovative, citizen-driven solutions.

IMPLEMENTING ACTION TO BUILD THE NEXT ECONOMY

The CenterState Agenda for Economic Opportunity offers a road map for the region to adopt a shared vision for the future, align priorities, organize collaborative action and engage a widening circle of leaders and stakeholders.

The leadership team that oversaw development of the Agenda is committed to continuing its work, guiding and honing its strategies, and translating strategy into action. CenterState CEO will serve as the hub and guardian of the Agenda, taking responsibility for implementation of its first wave of initiatives, securing resources and expanding the circle of engaged partners throughout the region. It will establish and track performance metrics and report progress, monitoring regional economic output, job growth, wages, productivity and poverty rates among high-level indicators to measure impact.

Moving forward across three critical fronts, in the first wave of implementation, the region will strengthen its technology sectors, build out its innovation ecosystem, and launch development of a pragmatic approach to modernizing local government.

ESTABLISH THE DATA TO DECISIONS INNOVATION ALLIANCE

The Data to Decisions (D2D) Innovation Alliance will create a membership-based, business-driven entity that will serve as the “go to” place for firms and entrepreneurs involved in all aspects of this rapidly evolving field.

In partnership with a committee of leaders from firms in D2D sectors and advised by a panel of industry experts convened online, Battelle Technology Partnership Practice has drafted a full business plan for the Alliance that is available at www.centerstateopportunity.com.

Its mission will focus on forging connections across industries to advance the D2D cluster through market scouting and deal matching; supporting new product development within companies; and new venture development. Implementation will require intense engagement with D2D businesses, the entrepreneurial ecosystem, and resources for commercialization and research.

Conservative projections indicate that by its fifth year of operation, the Alliance will enroll 100 companies and generate up to 50 deal matches annually. Its activities will grow sales for member companies by more than \$20 million annually, and, by its 10th year, 20 new firms will exist as a result of its work.

The Alliance's impact will expand geometrically as it develops cross-sector partnerships among firms that use D2D technology in digital electronics, information systems, medical equipment and applications, and environmental products clusters.

Transferring knowledge and technologies among several of the region's most significant production sectors will create competitive advantages as a global center for D2D, leading to the establishment of new firms and products; creating new jobs; and providing global leadership for research, people and companies in these important sectors.

The D2D Innovation Alliance will offer the following services:

- 1. Market Identification and Connecting Services** to address gaps in awareness, knowledge and relationships to markets for D2D services. This will be accomplished through:
 - Creation of a web-based D2D market and innovation portal.
 - Development of a market research capability within the Alliance.
 - Cataloguing existing engineering and manufacturing capacity found across industry, university and non-profit research organizations in the region.
 - Providing connection services for advancing market-driven product development within the D2D community by facilitating matchmaking for specific project ideas.
- 2. Advance a D2D Prototyping Consortium** to reduce the time and expense of prototype construction by facilitating access to specialized facilities, instrumentation, equipment and expertise required for design, development and testing of D2D-based prototypes.
- 3. Create D2D New Venture Support Services and Accelerator** to address the need for supporting startups by leveraging its knowledge of D2D markets and regional D2D technologies to form and grow new startup companies. The focus will be to:
 - Identify market opportunities in which technology solutions offer a strong opportunity for new start-up ventures.
 - Evaluate the potential of university and in-house industry technologies to address identified market needs.
 - Launch and serve as the initial management team for the new startup in its product development phases (including raising initial angel and product development capital).
 - Recruit management teams to move the companies into growth phases.

4. **Work with Regional Education Institutions to Generate a Talent Base**

- Work with regional universities to strengthen relevant engineering, scientific and technical programs.
- Provide greater opportunities for internships to familiarize students with regional businesses while they are here for their education.
- Make regional job opportunities transparent to the market.
- Ensure current experiential standards for positions are appropriate.

CREATE A REGIONAL SEED AND VENTURE FUND

With an initial capital call of \$15 million and a goal to raise up to \$40 million, the new regional Seed and Venture Fund will close a significant gap in capital infrastructure to support entrepreneurs and early-stage firms.

Operating in alignment with CenterState CEO, the fund will work with entrepreneurial networks throughout the region, targeting companies seeking private financing from \$500,000 to \$2 million for expansion or growth. It will focus on firms in the region, although it will not be restricted to regional firms or target industries.

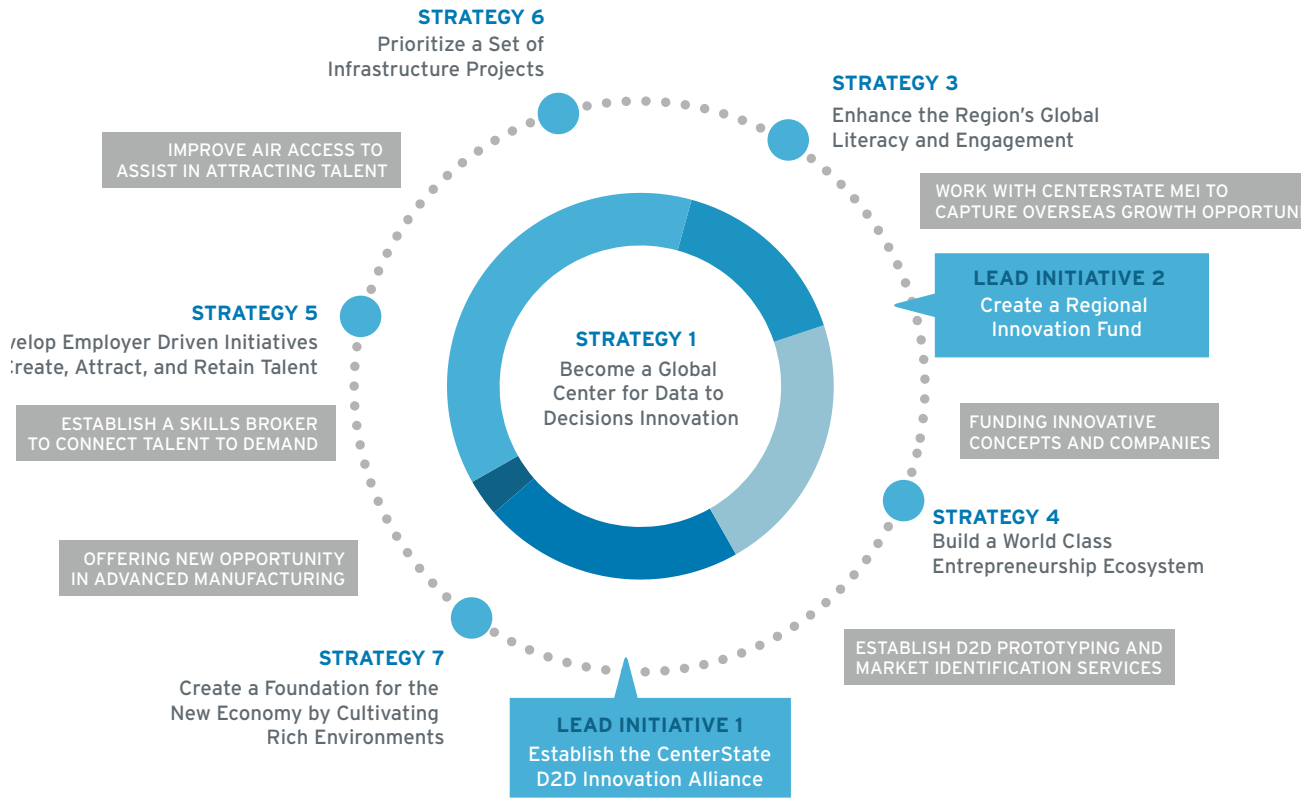
ESTABLISH A GOVERNMENT MODERNIZATION COMMISSION

A Commission on Government Modernization will explore approaches for improving local government in Onondaga County and propose a practical plan, based on public input and rigorous analysis of the costs and benefits of existing government structures.

The commission, in partnership with a supporting consultant, will focus on:

- **Gathering Public Input** to identify specific issues, challenges and concerns from residents throughout Syracuse and Onondaga County. The commission will share its findings and recommendations in a highly visible and transparent format.
- **Performing Baseline Analysis** through a comprehensive survey of the current state of local government in Onondaga County, including a comparative analysis of the costs of service delivery within each municipal jurisdiction. The survey should include a comprehensive listing of all municipal jurisdictions, special taxing districts and all other government and quasi-governmental units in Onondaga County and provide a summary of the services that each jurisdiction provides. Data should be collected from the Office of the New York State Comptroller and other publicly available sources.
- **Generating Best Practices** by reviewing government modernization efforts around the country and producing a summary of best practices, emphasizing initiatives that align most closely with the challenges and opportunities identified in the Commission's work.
- **Advancing Recommendations** based on the analysis and public input, the Commission will, with the help of outside experts as necessary, develop recommendations for improving service delivery and cost-effectiveness across jurisdictions in Onondaga County. These recommendations should be data-driven and should examine a full range of options.

STRATEGIES AND INITIATIVES ARE MUTUALLY REINFORCING



This visual shows how Strategy 1 - Become a Global Center for Data to Decisions Innovation is interwoven and connected with Strategies 3, 4, 5, 6 and 7, in addition to Lead Initiatives 1 and 2.

The plan's eight strategies have been aligned to be interwoven, supportive and mutually reinforcing. In some cases, strategies combine efforts to enhance innovation activities in a targeted industry cluster while attracting new talent to support that cluster. Each strategy is individually important, but real change can only be achieved through acting on several of these key priorities. Programs that will help the region become more innovative and entrepreneurial will also support the strategy around D2D. The seed capital fund will help finance new firm startups in this cluster. The human capital strategy must support it as well, because the growth of this cluster will demand that the region can provide the engineering, scientific, technical and management support required. Incomes in these related industries, all of which are higher than the current regional average, will help drive incomes in the region to higher levels than that of the current economy. The plan includes several examples of such intertwined strategies.

To deploy all of those assets, the community needs to strengthen its talent pipeline and help prepare all residents for the demands of these careers. The strategy reaches into all economic/demographic groups to find sufficient talent to meet the demands of the economy. Even in this period of higher-than-average unemployment, employers find it difficult to recruit the talent they need. The region must build the skills of its workforce and make the most of people who relocate here, including the many international students who attend regional colleges and universities.



CHAPTER 9: IMPLEMENTATION: CREATING CENTERSTATE NEW YORK'S NEXT ECONOMY

INSTITUTIONAL CAPACITY

The partners in this planning effort believe CenterState New York's next economy is an ever-evolving picture that requires market analysis, strategy identification, initiative development and implementation on an ongoing basis.

CenterState CEO and its partners invite everyone from the 12-county region with a stake in economic prosperity to engage in this effort. The economic agenda put forth in this plan provides a road map to transition to a 21st century economy. New challenges and opportunities will arise over the next decade that are not discussed in this plan, and will require on-going analysis and strategy development to address them.

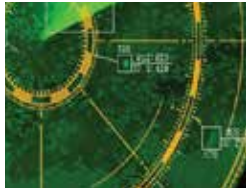
Currently, the region touches five of New York State's Regional Economic Development Councils. These groups have already proven themselves to be key partners, as well as a powerful engagement and planning entity. It is unlikely that each Council will have the direct capacity to seed and launch new initiatives that address various strategies of this growth agenda, but they can all use this plan as a guide to their own regional economic development plans.

ACCOUNTABILITY

- ▶ **Integrate the CenterState Agenda for Economic Opportunity into existing economic development activities.** This plan does not replace individual proposals and strategies put forth through the Regional Economic Development Councils, but establishes a set of forward-thinking actions available to each Council.
- ▶ **CenterState CEO will track progress toward the ultimate goal of economic growth** and will provide administration and monitoring of key metrics put forward by this agenda and process metrics designed to track implementation of key initiatives.
- ▶ **Stakeholder Engagement belongs to the region.** Stakeholders are encouraged to engage with this agenda and, as new initiatives, are launched, provide guidance and support. While CenterState CEO and its regional partners will take the lead in communicating the plan, CenterState New York's Next Economy web portal will provide tools, data, metrics, support and a forum for anyone looking to engage these strategies directly.

LAUNCHING AND MONITORING INITIATIVES

The launch of this plan is accompanied by the announcement of three lead initiatives. Future initiatives will be developed and publicly launched in the coming years. Future initiatives may not be led directly by CenterState CEO or its partners, but will fall under the leadership and guidance of groups in the region that are particularly positioned to carry forward and advance the plan's recommended strategies. CenterState CEO and its partners will work to coordinate and track these efforts.



METRICS

The CenterState Agenda will track success based only on the ability of the recommended strategies to have a significant impact. An example of the possible tracking metrics and the impact of recommended strategies is below.

STRATEGIES	TRACKING METRICS	POSSIBLE IMPACT
Establish the Region as a Global Center for Data to Decisions Firms, People, and Ideas	Total jobs in D2D industries	Increased jobs in D2D industries
	Total product for D2D industries	Increased product for D2D industries
	Total \$ commercialized and new research \$ committed in D2D industries	New companies formed, new research dollars received, and new revenue received from licensing and patents for D2D industries
Strengthen the Region's Position as a Leader in Cybersecurity; Thermal and Environmental Control System; and Agribusiness	Total jobs in Cyber, TECS and Agriculture	Increased jobs in Cyber, TECS and Agriculture
	Total product for Cyber, TECS and Agriculture	Increased product for Cyber, TECS and Agriculture
	Total \$ commercialized and new research \$ committed in Cyber, TECS and Agriculture	New companies formed, new research dollars received, and new revenue received from licensing and patents for Cyber, TECS and Agriculture
Grow Exports and Foreign Direct Investment	Total amount of goods and services exported	Double regional exports in five years
	Share of overall product going towards exports	Increase region's overall share of product going towards exports
	Immigrant entrepreneurship and participation in job training activities	Enhance region's support for immigrants
Build a World Class Ecosystem for Innovation and Entrepreneurship	Total dollars available for investment in startups	Improved establishment birth to death ratio
	Total dollars invested in startups	Increased employment by region's entrepreneurs
	Jobs created by participants in startup programs	
	Companies formed through research commercialization	

STRATEGIES	TRACKING METRICS	POSSIBLE IMPACT
Develop Employer-Driven Approaches to Align Workers and Jobs	Total job openings in targeted sectors Total available candidates in targeted sectors Education attainment and skill level in region	Fill openings in high demand positions Decrease vacancy times for targeted positions Retain higher level of skilled individuals in high growth areas Improve job access for low skilled individuals in growing employment sectors
Set Priorities for Infrastructure Investments and Improvements	Average airfare at Hancock International Airport Total congestion Broadband penetration	Decrease average airfare Maintain total congestion levels Increase broadband access
Cultivate Opportunity-Rich Environments	Poverty rates tracked by neighborhood and zip code Job and housing sprawl Geographic location of jobs matched with type of jobs available	Decrease poverty rates Increase connection of areas in needs with employment centers Decrease black / white segregation index
Build Effective Public and Civic Institutions and Culture	Total number of governments per 10,000 individuals Tax rates Infrastructure needs and ratings School achievement	**Facilitate an informed discussion about future delivery of public service

**This plan does not presuppose a particular course of action or outcome of the activities of the Commission on Government Modernization. Our goal is to provide the Commission with the resources, information, input and tools needed to effectively propose to voters an informed plan to achieve modernization in the region.



A CALL TO ACTION

CenterState New York holds the potential to change its economic trajectory, overcoming the losses of the past decades and establishing the region as a global center for innovation and technology in emerging knowledge industries.

The CenterState Agenda for Economic Opportunity is ambitious and comprehensive, and it will require sustained, focused effort backed by significant resources. CenterState CEO and its partners will take the lead in communicating the plan and pushing forward the work already underway to launch three lead initiatives.

The ultimate success of the Agenda is up to the region. It must make the commitment to stay the course, building on initiatives underway, expanding the reach of collaborative action and undertaking significant new initiatives to change the region's economic path. Working together, its leaders and key institutions can redefine the region's economic profile and establish a new center of gravity for the next economy.



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