

- *Chicago does not even register as a “spike” on the map of the world’s most successful technology centers*
- *The most successful communities in today’s global economy attract knowledge-based firms that can translate innovation into economic value and wealth.*
- *Communities today must move beyond site-based strategies to focus on their assets which have the potential to add higher value to the economy.*
- *Governments today should intervene in markets to promote high technology niches by generating resources and providing incentives to generate university-industry-government relations.*

issue: *Globalizing Local Economies: Making It Happen Through Local Action*

by Rebecca Steffenson and James M. Banovetz

Editor’s Note: This is the second in a series of *Policy Profiles* presenting results from a study entitled “Assessing Global Competitiveness: A Look at Chicago” completed under the auspices of Northern Illinois University’s Center for Governmental Studies. The first Profile assessed Chicago’s adjustment to the world’s developing global economy. This second Profile will discuss how local communities can position themselves to prosper from globalization.

In today’s world, globalization is a fact of life. It has already had a major impact on the American economy. Some impacts, such as new markets and the influx of new technologies and products, have produced more jobs and profits; other impacts, such as the loss of manufacturing jobs overseas, have created hardships.

There can be no question that individual communities have been severely hurt by globalization. But, as the first *Policy Profiles* in this series has pointed out, globalization has provided the American economy, as a whole, with a number of very significant economic advantages, including a 12 percent return on every dollar sent abroad in relocated business operations.¹

While it is clear that the American economy as a whole benefits from globalization, it is also clear that individual regions of the U.S. may be very differently affected, and sometimes very adversely affected, by the forces of globalization. The Chicago region, for example, currently has more than 50 per cent of its growth driven by the global economy, yet it is not competing as effectively as it should be in that economy.²

Why isn’t the Chicago region competing effectively?

Although the Chicago region has made a relatively successful transition to the global economy, it still faces a number of competitive challenges. One major challenge stems from the fact that neither the Chicago metropolitan region nor the State of Illinois ranks among the nation’s most successful areas as a center for innovation.

Indeed, as a competitive innovation economy, the State of Illinois has been ranked no higher than 24th among the nation’s 50 states as measured by comparative levels of high tech and science engineering jobs, venture capital, patents per worker, and industry investment in research and development.³ Chicago falls well behind the national innovation leaders (such as

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table one Knowledge Occupations in the Global Economy

There are many different knowledge occupations. Listed below are examples of the kinds of occupations which make up that category:

- Executive Management
- Finance
- Computers, Electronics
- Information Management
- Architecture and Engineering
- Research and Development
- Marketing
- Human Resource Management
- Executive Search
- Office and Administrative Support
- Law

Silicon Valley, Boston, Seattle, and Denver) and is even outranked by other Midwestern cities (such as Minneapolis, Pittsburg, St. Louis, Detroit, and even Grand Rapids, Michigan).⁴ Chicago does not even register as a “spike” on the world map of the most successful technology centers.⁵

Although the State of Illinois and the Chicago region have all of the necessary components to be a leading center for innovation, including the presence of several world class universities, neither has achieved that status. Tooling up to improve its innovation competitiveness will require an effort, not only on the part of state and regional authorities, but also by local communities – counties, cities, and villages – throughout the state and region. Local economic development efforts will be more successful if local officials make a concerted effort to understand the global economy and how their individual communities can best position themselves to compete successfully in it.

What makes local places competitive in the global economy?

The global economy has become a knowledge economy. In other words, the global economy has become a place where the ability to be innovative – to be able to create new ideas, thoughts, processes, and

products – is translated into economic value and wealth.

In today’s world, the greatest economic advantage belongs to knowledge based firms which proactively enter into collaborative relationships with other firms having similar interests, and where ideas and resources can be shared. The most competitive places in the global economy are regions that can attract and retain clusters of knowledge intensive business activities. Examples of such activities are listed in Table 1.

While it is true that there are indications that the Chicago region has become globally connected and integrated – it has a high volume of trade, substantial direct foreign investment, and an impressive level of immigration into and out of the region – these factors, by themselves, do

not indicate economic competitiveness in the ever quickening global economic race. A whole host of new indicators of global competitiveness have been developed over the past decade to measure the capacity of regions to compete in the global knowledge economy. Table 2 describes what today’s competitive regions and communities look like. Appendix A lists the indicators used today to measure a region’s global competitiveness.

Such measures indicate that economic competitiveness in the new global economy depends more on the quality rather than the quantity of economic opportunities. There are even indications that income growth rather than job growth is the primary motivation driving economic competitiveness.⁶ *Economic development success today is measured, less by the number of new jobs created, and more by the creation and retention of high value-added, high-wage jobs and overall income growth.*

Why are knowledge and innovation more important in the global economy?

In today’s dynamic and ever-changing world, business competition is increasingly based on knowledge. Knowledge and skill are the source for new ideas both for the products to be made and for the processes that make them. Firms that can best as-

table two What Competitive Places Look Like

- Be rich in ideas and talent
- Attract educated people
- Have physical and cultural amenities to attract knowledge workers
- Have flexible organizations and individuals with the ability to learn and adapt
- Anchored by bold partnerships among business, government, and the non-profit sector

Source: State of the New Economy

semble knowledge teams are in the best position to be competitive.

In the past, individual firms drew on their own internal research and development departments for the new ideas that kept them competitive. But two trends have made that concept increasingly obsolete. First, the kinds and variety of knowledge that are needed have become too costly to maintain within individual firms.⁷ Second, innovations in technology have brought down the costs of long distance collaboration, making it possible and even cost effective to turn to specialized consulting companies for research and development assistance. On larger R & D projects, the work can be farmed out to a number of such firms, working in collaboration with each other, to produce the ideas needed to increase productivity and profitability.⁸

As a result, most competitive firms today are restructuring their R & D efforts, from in-house work to out-sourced effort, to take advantage of cost, capability, and contextual knowledge – the so-called “3C’s” of a global collaboration strategy.⁹ Not only are they taking advantage of low cost, highly skilled labor forces in a global marketplace, but they are also saving money by investing less in training and developing internal talent.

What role is there for communities in the global economy?

Globalization, including global shifts toward knowledge intensive industries, does not necessarily undercut the importance of local communities and of regional economic development. If applicable knowledge is available locally, globally based firms are likely to recognize and access it, and locally based firms will attempt to utilize it before they look elsewhere.¹⁰ Furthermore, many business problems require what has come

to be known as “contextual knowledge” (i.e. knowledge that a particular firm has by virtue of its location). The need for such knowledge strongly reinforces the idea that *geographic location – i.e. place – still matters*.

The importance of firms having particular expertise because of their geographical location is recognized by many students of globalization patterns.¹¹ It is always easier and more profitable to build active networks of collaborating firms that are located geographically close to each other than it is to develop such networks among firms that are widely dispersed around the globe. The prevailing logic is that firms benefit from participation in local industry clusters by gaining easier access to ideas, talent, and capital.

What does this mean for regions and local communities?

It means that, in today’s business world, even the largest firms need working relationships with many smaller firms. It also means that the traditional factors determining “best location” –access to raw materials and shipping facilities – is less important than it has been. Indeed, access to raw materials and shipping facilities is irrelevant to newly emerging firms that specialize in the knowledge economy by working in collaboration with other businesses around the world to produce ideas regarding product and process innovations.

In addition to the availability of access to contextual knowledge noted above, what is important in determining office locations today is (1) access to state of the art electronic communication technology and, to a lesser extent, passenger air transportation facilities; and (2) community based lifestyle amenities. See Appendix A.

Furthermore, it means that today there is no such thing as a bad geographic location for business development: business development can occur wherever there is an environment which meets workforce needs for jobs, connectivity to the rest of the world, and lifestyle amenities. See Table 3.

It means, in short, that any region or locality can compete in the global economy.

How can regions and communities maximize the benefits of globalization?

Maximizing the benefits of globalization requires, first and foremost, a thorough understanding of the needs and demands of global economic development forces, and, second, a proactive approach to building on the existing local economy’s resources in ways that will make those resources more attractive to global forces. It means linking the pieces of the puzzle set forth in Table 4 on the next page.

Any strategy to benefit from globalization must start with an understanding of how

tablethree The Real Meaning of Globalization

- In the 21st century, the issue is not “what will globalization do to me?”
- Rather, it is “how can I get work and investment to flow to me?”
- Nations, regions, and people who figure out the answer to this question will prosper.

Source: National Council on Competitiveness

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tablefour Pieces of the Puzzle

The global economic development challenge is one of linking:

- Economic Development
- Workforce Development
- Community Development

local industries relate to the global economy and how well the region or locality is positioned to attract new firms and more talent. A number of tools, such as business surveys and industry cluster analyses, can be tailored to help local economic development authorities understand how to target their development efforts more effectively. Learning from those who are already doing helps local authorities understand what roles they can most profitably play in addressing existing issues, marketing local selling points, and developing new strategies for “going global.”

Local community officials, too, need to understand the benefits of organizing locally to connect globally. This means taking full advantage of local, regional, national, and international networks, and often linking local and regional policy arenas which once operated independently. By understanding the scope and scale of existing networks in the vicinity, local communities can attract businesses that, by connecting with local resources, can both improve the local economy and help their region acquire the resources it needs to compete globally.

Economic development authorities around the world are trying to tap into new strategies to maximize the economic potential of local places in the global economy. They are attempting to modify their policies related to immigration, education, tax and regulation, R & D investment, and transportation with the needs of global competitiveness in

mind. Local officials must also learn how to tailor their community, economic, and workforce development strategies so that they will attract global talent and foreign investment. New education and training programs can help local residents cope with the structural shifts brought by global competition. Coordinated human services programs can address the needs of new “at risk” populations. And, community development can be adjusted to serve diversifying populations and ensure the social integration of new immigrants.

What else can local communities do?

Local communities that invest in and successfully market the full range of physical, digital, and human capital assets sought by foreign and domestic businesses have an advantage over those which do not. *This means that local communities should move beyond traditional development strategies driven by site selection and focus on their assets which have the potential to add higher value to the economy.* One suggestion is to utilize what is called “cluster based” strategies. These are strategies which promote economic development by seeking to attract a “cluster” of similar or related industries which can benefit from proximity to each other. Another suggestion, called “tech based development,” emphasizes bolstering innovative (knowledge) industries through targeted business development and technology commercialization projects.

To minimize the possibility that industries once attracted to a community might later leave, communities are urged to base their attraction strategies on “smart incentives.” These are incentives which motivate new firms to invest back into the local economy through collaborative support training, innovative infrastructure investments, and targeted cluster developments.

Finally, local development leaders must recognize that globalization has also created a new and more intensive demand for collaboration between agencies, not only globally, but also within the local area. Competitive communities are those that connect and collaborate. Local development leaders have a crucial role to play in fostering communication between firms, civic communities, and service providers, locally and globally, to insure that obstacles to future competitiveness are removed and opportunities to capitalize on the benefits of globalization are maximized.

How can communities help build clusters of knowledge based firms?

This is a good question because networked regional business clusters are widely believed to be a key component in the development of highly effective regional economies.¹² Current “best practice” beliefs in this area hold that communities can best achieve this goal by partnering with other governments and local universities in an effort to help firms mobilize the necessary resources – including technology, financial investments, and human capital – required to transfer ideas into innovative commercial ventures. In the most successful high technology and knowledge intensive business clusters – collaborative regional partnerships including local communities, regional agencies, and local universities – are designed to support firms, connect them to the resources they need,

and facilitate knowledge transfers from public institutions and universities.

Although the existence of such regional partnerships is considered a key factor to successful regional economies,¹³ there is less clarity on exactly what these regional partnerships and the resulting knowledge networks look like, and on what role the participants play in them. One of the most accepted views is that innovation increasingly hinges on university-industry-government partnerships, the so-called *triple helix*.

What role do universities play in such partnerships?

The role of area universities in the triple helix is twofold: (1) to create new knowledge, and (2) to diffuse it to the private sector in ways that contribute to economic growth.¹⁴

An entrepreneurial university is one that takes a proactive stance in putting knowledge to use by facilitating the development of incubators or science parks and human capital development programs.

Scholars have also identified a new type of university which is even more entrenched in regional economic and social development. They argue that the engaged university is one that is not only entrepreneurial in technology development, but that is also adaptive and responsive to the needs of the region and in regional social and civic structures.¹⁵ Such engaged universities play a developmental role in regional development by establishing programs, building institutions, and facilitating networks which are tailored to the needs of the regions they serve.¹⁶ Table 5 summarizes the range of activities universities pursue both to create and diffuse knowledge.

It is important to note, however, that the strength of a university as a knowledge center does not necessarily correlate with its ability to contribute to regional innovation processes. Universities that are leaders in knowledge generation are not always effective as partners in regional development. The mismatch between knowledge creation and regional impact is demonstrated by Johns Hopkins University which, despite being one of the most heavily funded research centers by the U.S. government, has failed to transform Baltimore into a high technology center.¹⁷

The impact of universities on regional development, then, is less a factor of their stature as a research center than it is a function of:

- How a particular university is organized to engage in knowledge transfer activities;¹⁹
- The structure of the regional partnership;
- The capacity of local industry to absorb knowledge produced by universities,²⁰

including the local concentration of high knowledge local employment, the densities of the collaborative knowledge networks, and the frequency of the interaction between firms in the region.

Universities alone cannot transform the region’s innovation capability and knowledge economy, but they can and should play a role in regional economic development. The rising costs of creating new knowledge and the organizational mismatch between industry and university research processes has resulted in gaps in the innovation process that must be filled by public agencies. Fortunately or unfortunately, therefore, government intervention is increasingly necessary.

What role do governments play in such partnerships?

The national and state governments have an important function to perform in closing these gaps by stepping beyond traditional regulatory functions and assuming new

tablefive The Distinction Between Creating and Diffusing Knowledge

Knowledge Creation:

- Investing in new research centers
- Attracting academic “stars” to the faculty
- Developing interdisciplinary curricula, critical thinking, and problem solving
- Using alternative forms of scholarship and service that apply to decisions regarding tenure, promotion in academic rank, and financial rewards for professional staff research centers
- Offering technical assistance to firms

Knowledge Diffusion/Transfer:

- Writing academic articles
- Securing new patents
- Selling technology licenses
- Spinning off such models for use elsewhere
- Developing incubators, accelerators, and research parks
- Organizing collaborative industry
- Providing education and training programs

Huggins, Johnson, and Steffenson (2008)¹⁸

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roles as public entrepreneurs, venture capitalists, and network brokers. While governments are increasingly expected to drive innovation by compensating for financial failures, poor information, and conflicting industry-academic cultures, their most important role is to influence business environments through policy choices. Governments can intervene in markets to promote high technology niches by generating resources and providing incentives to generate university-industry-government relations.²¹

Thus governments can be viewed as both funders and facilitators of university knowledge creation and diffusion.

But what role can local and regional governments play in such partnerships?

Local and regional governments can provide resources and incentives to generate and encourage university-industry-government relations. Most importantly, however, local and regional governments can take leadership roles in creating networking structures through which potential regional partners can foster cooperation, collective learning, and social cohesion.²² Since university knowledge flows are more likely to occur where faculty and industry have existing relationships, efforts by local and regional agencies to bring faculty and industry together in mutually beneficial contexts can be critical to a globally focused regional development effort.

Local and regional governments can also:

- Provide potential partners with information to facilitate inter and intra regional cooperation;
- Conduct industry analysis to identify market gaps and benchmarking studies to monitor progress;

- Undertake technology audits;
- Create technology stock databases; and help design and promote regional marketing programs.

In short, local and regional governments can work together to offer leadership in the creation of public-private technology networks and partnerships such as Joint Venture Silicon, the Illinois Technology Transfer and Commercialization Center Program (I-TEC), the Knowledge Circle of Amsterdam, and the London Technology Network. “The role of (governments) is to weld these components together and lubricate the process.”²³

What does this mean for the Chicago region?

Although the Chicago region has all of the necessary components required to take off as an innovation economy, it has failed to launch.

In order to stay competitive, the region’s economic development authorities will need to focus on the quality rather than the quantity of investment. Workforce development must be tailored to meet the shifting needs of industry and the quickly diversifying population. Since effective regional partnerships and technology networks are essential in the global economy, the Chicago region will have to address the challenge of developing regional cohesion out of its existing, highly fragmented local government structure.

But critical to this effort is also the need to bring the region’s universities into the effort to enhance Chicago’s competitive posture in the global economy.

Appendix A: Indicators of regional competitiveness

Globally competitive knowledge economies are measured by:

- Concentration of employment in knowledge intensive industries, worker productivity, and unemployment rates
- Workforce talent and per capita education spending
- Digital connectivity
- Innovation capacity (R & D spending, tech start-ups and spinoffs, patents, and commercialization rates)
- Entrepreneurial culture including venture capital for start-ups
- Quality of life measures such as commuting times, cultural amenities, housing prices, and schools
- Efficient regulatory and business enabling mechanisms such as Es-Gov practices
- Exports in higher value added manufacturing and service industries
- Foreign direct investment in higher paying knowledge industries

Specific measures of these indicators are listed below:

- Human capital concentration of employment in knowledge intensive industries, worker productivity, unemployment rates.
- Workforce talent levels of educational attainment, per capita education spending, quality and quantity of training programs and levels of industry participation, and collaboration with universities and community colleges.
- Digital connectivity internet access rates, computers in schools, numbers of broadband competitors, number of commercial internet domain names (“.com”)
- Innovation capacity government R & D investment, academic institutional research programs and numbers of graduate students, tech startups and spin offs, patents and commercialization rates, formal knowledge transfer channels and effective university industry linkages, job placement and training programs for highly skills science and engineering graduates.
- Entrepreneurial culture venture capital for start-ups, accepted risk taking cultures, and management processes which encourage employee participation.
- Quality of life commuting times, cultural amenities, housing prices, schools
- Regulatory methods e-Gov practices and regional collaboration on everything from marketing to regional planning of infrastructure and land use.

- Connectivity numbers of both intra and inter-regional networks of firms, universities, and public agencies; and by the presence of leadership which can, for example, act as lobbies for national funding and policy directions.
- Export focus volume and value in higher value added manufacturing and service industries.
- Foreign investment especially in higher paying knowledge industries and through Greenfield Investment in new establishments which leads to new employment

Footnotes

¹See the listing of globalization's economic advantages for the U.S. set forth in Table 4 of the first Profile in this series entitled "Globalizing Local Economies: The Chicago Region's Record to Date," Vol. 8, No. 2, November 2008, at page 3. This publication can be found on the web at http://www.cgsniu.org/portfolio/policy_profiles/index.html

²See "Globalizing Local Economies," op.cit. pp. 3-6.

³See 2007 State New Economy Index published by the Kaufman Foundation. Available at <http://www.kaufman.org/Details.aspx?id=196>

⁴See World Competitiveness Index (2006, 2005, 2004), Huggins and Associates, United Kingdom.

⁵These spikes, which include Silicon Valley, Boston, Austin, Raleigh, and Seattle in the US, represent competitive centers of talent, ideas, and investment. See Silicon Valley Index 2007 published by the Joint Venture Silicon Valley network and available at <http://www.jointventure.org/publications/index/2007%20index/The%20of%20Silicon%20Valley.pdf>

⁶See 2007 State New Economy Index cited in endnote # 3.

⁷Research in new energy technologies, for instance, is too complex and expensive to be undertaken on a large scale by individual, competitive firms. In recent years, research on more fuel efficient automobiles has also proven to be more expensive than any of the nation's three auto manufacturing firms could afford on their own.

⁸Figure 8 in "Globalizing Local Economies" op. cit., p. 6 describes one such large project, the creation of the new Boeing 787 Dreamliner aircraft which involved over 50 partnering firms from 130 different geographic locations working together for more than four years.

⁹Alan MacCormack, Theodore Forbath, Peter Brooks, Patrick Kalaher, Innovation through Global Collaboration: A New Source of Competitive Collaboration, Harvard Business School Working Paper 07-079 (2007). Available at <http://www.hbs.edu/research/pdf/07-079.pdf>

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¹²See the citations listed in footnote # 10.

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¹⁸Robert Huggins, Andrew Johnston, and Rebecca Steffenson, *Universities, Knowledge Networks, and Regional Policy*, Cambridge Journal of Regions, Economy, and Society (2008) 1(2):321-340; doi:10.1093/cires/rsn013

¹⁹This variable is a function of such variables as the clarity of a university's vision and strategic planning provisions, the emphasis and manner of organization of technology transfer activities, and the university's openness towards industry collaboration. See Markman, G., Phan, P., Balkin, D., and Gianiodis, P. "Innovation Speed: Transferring University Technology to Market," *Research Policy* 34:1058-1075 (2005); Debackere K. and Veugelers, R., "The Role of Academic Technology Transfer Organizations in Improving Industry Science Links," *Research Policy*, 34:321-342 (2005); Lockett, A., Wright, M., and Franklin, S., "Technology Transfer and Universities' Spin-Out Strategies," *Business Economics*, 20:185-200 (2003); and Mansfield, E., "Academic Research Underlying Industrial Innovations: Sources, Characteristics, and Financing," *The Review of Economics and Statistics*, 77:55-65 (1995); and Glasson, "The Widening Local and Regional Development Impacts of the Modern Universities - A Tale of Two Cities and North-South Perspectives," *Local Economy*, 18:21-37 (2003).

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²³Geiger R. and Creso, S., "Beyond Technology Transfer: US State Policies to Harness University Research for Economic Development," *Minerva* 43(1):1-21 (2005).

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