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*International Economic
Development Council*



JOBS IN THE MAKING: ECONOMIC DEVELOPMENT STRATEGIES TO GROW MANUFACTURING

Executive Summary

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IEDC is the world's largest membership organization serving the economic development profession, with over 4,600 members and a network of over 30,000 economic development professionals and allies. From public to private, rural to urban, and local to international, our members represent the entire range of economic development experience. Through a range of services, including conferences, training courses, webinars, publications, research and technical assistance efforts, we strive to provide cutting-edge knowledge to the economic development community and its stakeholders. For more information about IEDC, visit www.iedconline.org.

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EXECUTIVE SUMMARY

This report explores the evolution of the manufacturing sector and what communities can do to foster its viability. It combines high-level discussions of important market trends with nuts-and-bolts guidance on what those trends mean for local communities that are working to protect and grow manufacturing jobs.

Manufacturing is Viable and Vital

Pundits have been predicting the total demise of manufacturing in developed countries for decades. As labor-intensive assembly work moved to regions of the globe with low wages and few worker protections, it often seemed that manufacturing had entered an inexorable race to the bottom. Manufacturing employment in many developed nations fell, manufacturing communities were ravaged, and many talented young people no longer saw manufacturing as an appealing career. All of this was before the onset of the Great Recession, which hit manufacturing faster and harder than many other sectors.

Yet even after 30 years of declining employment, the United States remains the world's leading manufacturer and accounts for \$1.4 trillion in goods produced in 2009 and 12 million direct jobs. Even as many developing nations have become major global players, a number of developed nations have remained manufacturing powerhouses. Pressured by an integrating

and dynamic global marketplace, manufacturing in developed nations is experiencing a dramatic transformation into a more high-tech, nimble, and innovative sector.

The perception that manufacturing in developed nations is dead lingers, but writing off the sector would be a grave mistake. Manufacturing in developed nations will likely never have the employment footprint that it once did, or provide jobs for workers with limited education, but it remains vital to the long-term viability of developed and developing economies. Manufacturing is a major driver of investment in research and innovation, a key draw for foreign direct investment, and source of good jobs.

Manufacturing Has Transformed

If a manufacturing worker or plant owner from 1960 were transported to the present, he or she would recognize little in the modern world of manufacturing. Manufacturing has become a highly technical, innovative, dynamic, and networked industry. A number of important transformations are discussed in this report.

Manufacturing Sector is Extremely Dynamic

Leading companies lose market dominance more frequently, disruptive technologies are introduced more regularly, and the integration of the global economy means

that market shocks are felt across the world with greater force. As impediments to market entry have eased, the field is open to small firms and new innovations in a way that it never was before. As technological change accelerates, disruptive products and processes enter the market much more regularly. As the global movement of goods has expanded, the need for flexible transportation and logistics systems has increased.

Manufacturing is a Vital Source of Innovation

Manufacturing competitiveness requires serious investment in research and development. Only by constantly improving products and production techniques can manufacturers stay globally competitive. As a result, many manufacturers are leading the way in creating new partnerships, with other firms and public research institutions, to improve their competitive position through innovation.

Modern Manufacturing is High-Tech

Assembly work is increasingly carried out by machines, so manufacturing workers have to be more technically proficient than in the past. This has placed new demands on manufacturing workers, who now need specialized training and technical skills. Manufacturing firms often struggle to find the skilled workers they need, making this area vital for economic development.

Manufacturing is Highly Networked and Specialized

Companies no longer operate entire supply chains, conduct all research and development in-house, or contract with firms only in their own region. The incidence of collaboration

within and across supply chains is on the rise, as companies enlist each others' expertise to stay on the cutting edge. Supply chains have become globally integrated at a level unheard of 20 years ago. As the pace of change accelerates, many companies are pursuing flexible, globally dispersed strategies that can react to the ever-changing marketplace.

Because of these industry changes, drivers of global manufacturing competitiveness have shifted as well. Talent-driven innovation has replaced low costs as the most important advantage in developed economies. The United States is well positioned for success in this environment, but faces challenges particularly in terms of supplying skilled workers, maintaining its innovation edge, and ensuring the availability of reliable, competitively priced transportation options.

New Manufacturing Realities Create New Economic Development Imperatives

The changed nature of modern manufacturing has prompted new responses from economic developers. Because those most adaptable to change are the most likely to survive, communities are changing their approach to building a vibrant manufacturing presence in a host of ways. Some of the key trends in economic development practice around manufacturing include:

Building a Quality Workforce

Many manufacturing executives cite workforce concerns as the leading factor that

determines where they can be competitive. As a result, workforce development – once treated as a social service concern – must be viewed as a core competency for the economic development profession. The manufacturing jobs of today require a level of skill and training that was rare even 10 years ago. Strategies and tools that economic developers are using to build a 21st century manufacturing workforce include new data analysis techniques to better understand their region’s workforce strengths and weaknesses, improving workforce training by connecting firms with training providers, and working to foster young people’s interest in (and skills for) manufacturing careers. A Mississippi State Workforce Investment Board program called *Integrated Longitudinal Education and Workforce Performance Management System* helps workforce training providers better analyze the effectiveness of their training programs. The Austin Polytechnical Academy (APA), located on Chicago’s west side, is an example of exposing students in high schools to curricula focused on manufacturing and engineering to boost their interest in careers in these fields and provide them with the skills and training necessary for jobs in advanced manufacturing. The 79/Seventy Manufacturing Certification Program in Ohio is another example of a workforce program that is aimed at improving the baseline skills of potential manufacturing workers and connecting them directly to firms that are hiring.

Cultivating Innovation Capacity

As effective research and technology deployment become more important to more manufacturing firms, economic developers are devoting more time and resources to

building the innovation capacity of their communities. Roles that economic developers are playing to help local manufacturers stay on the cutting edge include engaging colleges and universities, fostering research and development collaborations, and helping small firms become more innovative. For example, the Commonwealth Center for Advanced Manufacturing (CCAM) in Virginia is a public-private partnership supporting aerospace manufacturers through research and development conducted by local university researchers, from both the University of Virginia and Virginia Tech, and private sector researchers. CCAM was instrumental in attracting a Rolls Royce’s aerospace manufacturing facility, which is currently under construction, to Virginia.

Supporting Manufacturing Entrepreneurship

While entrepreneurship was not a common economic development focus 20 years ago, there is evidence that the majority of new jobs created in the U.S. over the last 25 years came from young entrepreneurial companies. Economic developers can help new manufacturing firms form and survive by providing many of the same services that they provide to other types of firms, such as assistance with permitting, financing and facilities, and helping to foster an entrepreneurial culture in the community. Examples of incubators and accelerators exist in virtually every community, with many focused on helping small manufacturers. The Brooklyn Navy Yard industrial park is one such example of how local communities are helping small and medium sized companies be more successful.

Forging Global Networks

Economic development increasingly requires a global perspective, global reach, and global networks. Nowhere is this more evident than in the manufacturing sector. Economic developers are increasingly combining efforts to lure foreign direct investment with efforts to open up foreign markets for their existing manufacturers. In an integrated global marketplace, developing specific supply chain relationships is often the key to both attracting FDI and increasing exports. Global networking is also vital to modern research and development, so economic developers are playing new roles in fostering innovation partnerships. The Advanced Manufacturing Park in Sheffield, England was created so that global supply chain partners could share one space to conduct mutually important research and development.

Going Green

Manufacturers face a variety of pressures to operate more sustainably. Customer demand is one major impetus to go green, but increasing energy and material costs are often more important. As major manufacturers aggressively pursue energy and waste reductions, corporate decision-makers are increasingly evaluating locations in these terms. Moses Lake, Washington attracted a carbon-fiber manufacturer partially based on the availability of renewable energy. In a manufacturing marketplace where sustainability is increasingly relevant, communities are helping firms “green” their operations and are connecting firms to training opportunities to improve the sustainability expertise of their workers. The Purdue University

Technical Assistance Program (TAP), for example, offers a variety of courses on green manufacturing.

Adapting Traditional Economic Development Strategies to New Realities

Of course, many traditional economic development strategies remain critical to supporting manufacturers and are part and parcel of the emerging strategies outlined above. A strong business retention and expansion (BRE) program is the foundation for successful economic development in any community, and its importance has only increased since the recession. For example, layoff aversion strategies remain as critical as ever. The Strategic Early Warning Network (SEWN) is a program of the Steel Valley Authority that provides early layoff warning and job retention services to manufacturers in Pennsylvania. In the case of business attraction and marketing, economic developers are leveraging workforce assets for attraction, using attraction to enhance innovation capacity, paying closer attention to transportation and logistics competitiveness, developing investment-oriented incentives, and taking advantage of opportunities in re-shoring and attracting foreign direct investment.

New Resources Being Used

Fortunately, communities don’t have to reinvent the wheel as they work to support manufacturers; there are many examples of successful approaches to manufacturing support that economic developers can learn from. Case studies included in this report address strategies such as creating networks to grow advanced manufacturing, cultivating

supply chains and new markets, creating spaces for collaborative innovation, commercializing technologies, building worker pipelines, averting mass layoffs, creative financing, and more.

In addition to case examples, there are also many resources for technical assistance. Federal resources in the areas of business finance, innovation, export promotion, brownfields redevelopment, energy efficiency, supply chain development, business plan improvements, and production process upgrades all are catalogued in the report. Many public and private financing resources, including both debt and equity financing, are also outlined. Finally, a toolkit is included that contains guidance on designing and administering dislocated worker surveys, developing a layoff aversion network, and assessing transportation and logistics capacity.

Conclusion

The ways in which today's manufacturing firms need support, and the ways to provide that support, have changed dramatically over the last decade. As the global manufacturing marketplace has become more dynamic, high-tech, and integrated, the needs of manufacturers have changed and diversified. Economic developers have to respond more quickly and flexibly, look farther afield, draw on a wider range of resources and partners, and use increasingly sophisticated strategies. This report attempts to provide some of the clarity, tools, and direction that will help economic developers succeed.

Organization of This Report

This report is organized into three sections.

1. **Overview of the Manufacturing Sector:** Chapters 1 through 3 provide an overview of the history, current status, and outlook of the global manufacturing marketplace. These chapters provide the context in which economic development efforts must function.
2. **Best Practices in Economic Development:** Chapters 4 through 7 review traditional economic development strategies to support manufacturing, emerging strategies, financing resources, and lessons learned.
3. **Case Studies, Toolkit, and Federal Resources:** Chapters 8 through 10 provide case studies on effective economic development efforts to support manufacturing, economic development tools, and federal resources available to manufacturing communities and firms.

Section 1 – Overview of the Manufacturing Sector

Chapter 1 – History and Importance of Manufacturing in the United States

Chapter 1 traces the trajectory of American manufacturing from World War II through the worst of the Great Recession and into the early stages of a tenuous recovery.

Chapter 2 – Welcome to the Integrated, Accelerated, and Globalized Manufacturing Marketplace

Chapter 2 looks at the nature and structure of today's global manufacturing

marketplace and discusses how the pace of change is forcing manufacturers to become more flexible, collaborative, innovative, and global.

Chapter 3 – Remaining Competitive in the Global Manufacturing Marketplace

Chapter 3 examines what makes manufacturing firms and nations competitive in the 21st century. It also looks closely at the key advantages of U.S. manufacturers and the investments and efforts that will be required to keep American manufacturing competitive.

Section 2 – Best Practices in Economic Development

Chapter 4 – Supporting Manufacturing with Traditional Economic Development Strategies

Chapter 4 examines how traditional economic development strategies are changing to meet the demands of the modern manufacturing sector. In the context of business retention, expansion and attraction, it discusses strategies for accelerating innovation, addressing workforce needs, developing supply chain relationships, export promotion, and layoff aversion. It also covers transportation and logistics competitiveness, investment-oriented incentives, re-shoring opportunities, and attracting foreign direct investment.

Chapter 5 – Emerging Strategies to Support Manufacturing

Chapter 5 focuses on areas of economic development practice that are becoming increasingly vital to manufacturing, including workforce development strategies, best practices in innovation and technology commercialization, and ways to foster entrepreneurship.

Chapter 6 – Financing Manufacturing

Chapter 6 discusses the roles that economic development organizations play in helping manufacturers to secure financing and reviews a wide array of private and public sources of debt and equity.

Chapter 7- Lessons Learned

Chapter 7 summarizes the lessons learned from the research covered in sections 1 and 2.

Section 3 – Supplementary Materials

Chapter 8- Case Studies

Chapter 8 provides detailed information on many of the examples and case studies mentioned in Section 2. The cases cover a range of topics, including: workforce development, innovation, technology commercialization, finance, redevelopment, layoff aversion, and supply chain development.

Chapter 9 – Toolkit

Chapter 9 provides three tools to support economic development programming in the area of manufacturing: dislocated worker surveys, guidance on developing layoff aversion networks, and a transportation and logistics self-assessment tool.

Chapter 10 – Federal Resources

Chapter 10 provides an overview of the federal resources available to support manufacturing firms and communities, including: programs that cover business finance, innovation, export promotion, brownfields redevelopment, energy efficiency, supply chain development, business plan improvements, and production process upgrades.