

Defense Supply Chain Playbook for Economic Development Organizations

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Introduction

Wisconsin's manufacturing heritage makes the state a critical player in the U.S. defense and aerospace industries. Coupled with the global economy displaying rapidly changing conditions and opportunities for new endeavors, the state is at a juncture for increased growth and stability. With more than 450,000 existing manufacturing jobs and a job concentration quotient 87 percent above the national average, the Wisconsin Economic Development Corporation (WEDC) is committed to proactively working toward supply chain diversification to strengthen its solid economic foundation. Having spent more than \$2.3 billion on defense goods and services in the state and performed approximately \$26.5 billion of contract awards¹, Wisconsin is positioned to evaluate its dependence on defense contracts and opportunities for transformation. Based on these facts, the WEDC was awarded federal funding from the U.S. Department of Defense Office of Economic Adjustment (DOD-OEA) to create a defense supply chain playbook.

As part of the defense diversification strategy, a *Defense Supply Chain Playbook for Economic Development Organizations* was created. This playbook includes recommendations designed to empower state, regional, and local economic development organizations (EDOs) and stakeholders to take control of the factors that shape their local defense sector ecosystem, increase community knowledge, and enable informed action. While the strategies and action items are particularly applicable to the State of Wisconsin, the intent was to provide a toolkit for all EDOs across the U.S. Additionally, the Department of Defense (DOD) will benefit from the heightened awareness by EDOs on how to get engaged with the defense channel.

The State of Wisconsin has the talent and resources necessary to spark growth and retain jobs, expand the quality and quantity of its talent, advance innovation, expand into new markets, and, ultimately, be the top performing state across the globe. Though the recommendations outlined in this Playbook provide guidance for all EDOs to obtain these goals, it is necessary that specific strategies and tactics be tailored according to individual environments and situations.

¹ Office of Economic Adjustment – Defense Spending by State, FY2015 <http://oea.gov/sites/default/files/files-508/States/Wisconsin.pdf>

The Defense Ecosystem

Within the defense industry in any given region, there are a variety of players, including EDOs, manufacturers, service providers, legislatures, industry groups, etc., each playing a unique role. In any given ecosystem, the performance of any one entity is dependent on the performance of the whole ecosystem in which it operates. Within a strong ecosystem, each organization knows its role and supports the efforts of other organizations within it.

What does this mean for economic development organizations? It means you are going to be the strongest and most competitive if you are part of an ecosystem that is working together. These playbooks provide strategies for your individual EDO to implement, but also strategies that require working with other organizations and companies within your ecosystem. Thinking outside the context of your individual EDO will help ensure your success within the defense industry as well as other analogous sectors.

The table below shows some of the key differences in the roles of each type of organization. This can be tailored to match the dynamics and needs of your state:

KEY ROLE WITHIN ECOSYSTEM			
MANUFACTURER / SERVICE PROVIDER	LOCAL EDO	REGIONAL EDO	STATE EDO
<ul style="list-style-type: none"> • Understanding of and development of core competencies • Communication with EDOs • Participation in industry groups and economic development groups 	<ul style="list-style-type: none"> • Knowledge of area businesses and their challenges, through business retention and expansion (BRE) efforts • Development of local programs as appropriate • Alignment of local stakeholders to help attract funding and/or other support to support manufacturers and service providers 	<ul style="list-style-type: none"> • Efforts to analyze, identify, and support opportunities to strengthen the regional economy, such as data on clusters and target industries, federal grant programs, etc. • Regional assets and business cases; leadership in defense and related industries as appropriate 	<ul style="list-style-type: none"> • Statewide business climate • Statewide data • Network of statewide tools and resources, such as Procurement Technical Assistance Centers (PTACs), Manufacturing Extension Partnerships (MEP)s, Centers of Excellence (CoEs), etc.

EDO = Economic Development Organization

Impact by the Numbers²

Quantitative data on the existing defense industry conditions in Wisconsin were pulled to provide context for the opportunities and strategies outlined in this Playbook. Fundamentally, the data shows that a lot of opportunities exist for Wisconsin's businesses to increase market share in national defense contracts. In 2016, there were an estimated 70,917 defense-related jobs in Wisconsin. This number grew by 8,503 between 2011 and 2016 and is expected to grow by another 6,791 between 2016 and 2021. And though the state has a number of large contractors, it does not limit the opportunities for EDOs, manufacturers, or service providers. From an EDO perspective, ample opportunities are present to supply companies outside of jurisdictional boundaries, thus creating wealth and increasing development. The data below showcases opportunities for diversification.

Office of Economic Adjustment, Defense Industry Overview – United States

- **\$408.3 Billion Spent in U.S.**
- **2.3% of U.S. GDP**

Top Defense Spending Locations:

- Fairfax, Virginia - \$17.0 B
- San Diego, California - \$15.3 B
- Tarrant County, Texas - \$13.6 B
- Los Angeles County, California - \$7.5 B
- District of Columbia - \$7.2 B
- Madison County, Alabama - \$7.1 B
- Honolulu County, Hawaii - \$6.8 B
- Newport News City, Virginia - \$6.8 B
- Middlesex County, Massachusetts - \$6.1 B
- Bexar County, Texas - \$5.9 B

Top Defense Contractors:

- Lockheed Martin - \$30.8 B
- Boeing - \$18.1 B
- Raytheon - \$12.6 B
- Huntington Ingalls - \$11.6 B
- General Dynamics - \$10.0 B
- United Technologies - \$6.7 B
- L-3 Communications - \$5.7 B
- Northrop Grumman - \$5.3 B
- Humana - \$3.8 B
- BAE Systems - \$3.8 B

Office of Economic Adjustment - Wisconsin

- **\$2.3 Billion Spent in State - #36 in the U.S.**
- **0.8% of State GDP - #46 in the U.S.**
- **Areas of Focus:**
- Supplies and Equipment - 80%

- Services - 15%
- Construction - 4%
- Research and Development - 2%

Top Defense Spending Locations:

- Winnebago County - \$1.0 B
- Dane County - \$234.8 M
- Milwaukee County - \$232.2 M
- Monroe County - \$184.9 M
- La Crosse County - \$103.4 M
- Rock County - \$97.8 M
- Waukesha County - \$76.9 M
- Kenosha County - \$54.0 M
- Brown County - \$2.8 M
- Outagamie County - \$26.7 M

Top Contractors:

- Oshkosh Corporation - \$1.0 B
- Wisconsin Physicians Service Insurance Corporation - \$76.7 M
- United Technologies - \$68.6 M
- National Presto Industries - \$66.1 M
- UnitedHealth Group - \$33.0 M
- General Electric - \$32.9 M
- Snap-on Incorporated - \$30.3 M
- EnPro Industries - \$22.3 M
- Tower Industries - \$14.0 M
- Industries for the Blind - \$13.8 M

Office of Economic Adjustment Data

To find recent data on your state's defense industry and spending, visit the Office of Economic Adjustment website:

<https://www.oea.gov/defense-spending-state-fiscal-year-2015>

² Office of Economic Adjustment – Defense Spending by State, FY2015 <http://oea.gov/sites/default/files/files-508/States/Wisconsin.pdf>

Top Defense Industries in Wisconsin³

The table below depicts the top defense industries in Wisconsin. It should be noted that there is not a single North American Industry Classification System (NAICS) code or universal definition for which sub-sectors fall within the defense industry; however, there are a number of models that have been created. One of the most common models is the Indiana Business Research Center and the Purdue Center for Regional Development model, which was used to build the table below. See Appendix A for the full definition of the Defense and Security industry cluster and full Wisconsin data.

NAICS CODE	INDUSTRY	2016 Jobs	2011-2016		2016-2021	
			CHANGE	%	CHANGE	%
901200 ⁴	Federal Government, Military	16,631	(113)	(1%)	(326)	(2%)
541511	Custom Computer Programming Services	12,939	2,591	25%	1,663	13%
541512	Computer Systems Design Services	9,129	4,017	79%	2,704	30%
561612	Security Guards and Patrol Services	6,397	292	5%	(47)	(1%)
237130	Power and Communication Line and Related Structures Construction	4,583	1,097	31%	1,692	37%
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	4,481	131	3%	1,180	26%
423110	Automobile and Other Motor Vehicle Merchant Wholesalers	3,539	93	3%	282	8%
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	3,522	112	3%	(69)	(2%)
336611	Ship Building and Repairing	2,501	988	65%	421	17%
811490	Other Personal and Household Goods Repair and Maintenance	1,752	(288)	(14%)	(41)	(2%)
339113	Surgical Appliance and Supplies Manufacturing	1,295	33	3%	(10)	(1%)
332912	Fluid Power Valve and Hose Fitting Manufacturing	1,291	(99)	(7%)	(249)	(19%)
541519	Other Computer Related Services	1,161	(415)	(26%)	(38)	(3%)
336612	Boat Building	852	3	0%	(489)	(57%)
336411	Aircraft Manufacturing	844	61	8%	118	14%

Source: Emsi 2016.4

³ TPMA utilized a modified version of Stats America's Defense and Security cluster definition. Stats America provides definitions for 17 clusters, which were researched and created by the Indiana Business Research Center and the Purdue Center for Regional Development.

TPMA slightly modified the Defense and Security cluster since Emsi does not use the NAICS categories for the Public Administration sector (NAICS Code 92). Instead, Emsi groups data for the sector into larger categories. One of those categories - Federal Government, Military - is included in the cluster.

⁴ 901200 is not a standard NAICS code but instead created by Emsi.

About This Project

This project was commissioned by the Wisconsin Economic Development Corporation (WEDC) and supported by Ady Advantage, Thomas P. Miller and Associates (TPMA), and Comerford Consulting Group (Project Team) - leading experts in economic development, defense cluster analyses, talent strategy analysis and development, supply chain analysis, and communication strategies.

The main deliverables of the project were two Defense Supply Chain Playbooks: one intended for manufacturers and service providers, and the other for economic development organizations (EDOs).

The goals of this Playbook are to assist EDOs in developing a supply chain mapping initiative guided by the following questions:

- Where are we in the defense value chain?
- What are the critical elements of a supply chain mapping initiative?
- Is the defense value chain a good fit for our region and our goals?
- Do we have the capacity to help manufacturers in our region expand their defense business and/or move up the value chain?
 - What new partnerships will be beneficial to us?
 - If not, how can we identify and evaluate entry strategies into the defense value chain?
- How can we develop a long-term plan for expansion into the defense value chain?
- What are the suggested guidelines or tactics for initiating a supply chain initiative?
- What resources are available to help us work through each step of the process?

The project took place from September 2016 – June 2017 and focused on gathering data and best practice research across a broad range of defense diversification initiatives. The goals of the research were to learn what worked and didn't work, barriers to anticipate, and strategies for overcoming barriers, with the end goal being to identify universal themes and approaches for choosing options best suited for any individual EDO and/or manufacturer.

Project Methodology

The process used to develop the playbooks is diagrammed below:



Wisconsin Differentiators, Opportunities, and Challenges

There is tremendous dividend potential for EDOs to help defense contractors in their regions diversify within different tiers of the defense supply chain, as well as within other analogous industries. The goal of the *Defense Supply Chain Playbook for Economic Development Organizations* is diversification, specifically, to assist EDOs in the development of a supply chain initiative for manufacturers and service providers to grow and thrive within their respective state's defense supply chain, while also tapping into opportunities that lie outside state lines. Wisconsin has a high percentage of GDP in manufacturing, a central geographic location, a terrific work ethic, and the types of workforce skills that lend themselves to both strong contract opportunities and long-term defense relationships among different tiers and sub-sectors.

For the defense industry, a supplier directory in Wisconsin was recently initiated by the New North, Inc., a regional economic development organization. The goal of the grant, known as the *Oshkosh Region Defense Industry Diversification Initiative (ORDIDI)*, was to strengthen sustainability and lessen impacts to the region's defense manufacturing base with a goal of creating new jobs and opportunities for suppliers. Part of the ORDIDI grant was to create two directories, which was one of six distinct projects funded by the grant. These two initiatives below were part of the Defense Industry Supply Chain (DISC) initiative:

- **The Defense Industry Supply Chain Marketplace**—A voluntary directory for companies to create their own profiles with contact info, capabilities, existing and potential markets, import/export info, and more.⁵
- **The Defense Industry Supply Chain Network Maps**—A listing of basic company information.

The supply chain database process described above played an important role in increasing the awareness of the defense industry and potential supply chain opportunities among both manufacturers and service providers. As with any platform, though, a great deal of effort is required to not only build the platform, but to engage a critical mass of both buyers (especially OEMs, but Tier 1, Tier 2 and Tier 3 suppliers as well) and sellers. There are also hurdles to verify and certify the information, and resources required to maintain such a dynamic database.

Because this initiative was centered in the State of Wisconsin, the knowledge of what goes into a supply chain strategy was further developed, and the experiences from this initiative greatly informed the recommendations that follow.

⁵ Note: The Supply Chain Marketplace tool extends beyond the Defense industry, and now includes other industries for diversification opportunities, such as energy systems, food and beverage, water, wind, marine manufacturing, forest products packaging and lumber, and automotive.

Context for Defense Diversification

At its core, the overarching goals for many EDOs are to grow and diversify their economic base. One way of achieving this is to diversify its area businesses into and within the defense industry. As with any growth and diversification initiative, careful consideration should be given to what the opportunities are, how the region or state can best position itself, and what specifically an EDO can do to help increase the odds of success.

Factors to consider when assessing defense diversification include the following. Suggestions for specific data sources are also provided below:

- How much is the overall defense industry spending? How much is the spending in my state? Are trends increasing or decreasing?

Example of Wisconsin Data:

- \$2.3 Billion Spent in State - #36 in the U.S.
- 0.8% of State GDP - #46 in the U.S.
- Areas of Focus:
 - Supplies and Equipment - 80%
 - Services - 15%
 - Construction - 4%
 - Research and Development - 2%

- Who are the key defense suppliers? Where are they located? Do they have operations that companies in my region could supply?
 - EDOs can find information on their state in the following report: Office of Economic Adjustment – Defense Spending by State, FY2015 <https://www.oea.gov/defense-spending-state-fiscal-year-2015>.
- How many companies in my area serve the defense industry or could potentially serve the defense industry?
 - This information can be gathered from your ongoing interviews with existing businesses, commonly referred to as business retention and expansion (BRE) interviews. These interviews can be useful in identifying companies who are actively involved in defense industry associations, such as the National Defense Industrial Association, as well as identifying any directories or supply chain databases companies in your region may have access to (see strategy 1).

When positioning your state for industry growth, you need to identify those factors that are both important to the defense industry and that your state performs well on. Based on our research and experience, the following are examples of the types of factors that are important to the defense industry. While not a complete list, it provides a starting place for thinking about the specific factors on which to base your state or region's competitive position for defense:

- Original equipment manufacturer (OEM) profile
- Concentration and diversity of defense suppliers
- Location and transportation infrastructure
- Skilled workforce
- Proven innovation (centers of excellence, consortia, etc.)
- Overall costs of doing business
- Collaboration between industry and economic development

Recommendations

Based on our research across a number of defense communities, the project team identified five strategies for EDOs to consider. Each strategy is described below and then discussed in more detail in the following pages.

1. **Create a Statewide Defense Supply Chain Map:** Identify and map the most pressing defense supply chain gaps and growth opportunities for identified competitive niches - both within the defense sector and others - throughout the state.
2. **Develop a Framework for Collaboration:** Encourage manufacturers and service providers to collaborate at the state-level as a means of diversification problem-solving and to garner more strength and attention from federal agencies and policymakers.
3. **Empower Supplier Connectivity:** Encourage defense industry buyers and sellers to participate in an organized defense supply chain directory or database.
4. **Develop and Attract Talent:** Lead a concerted effort with industry, government, and education institutions to create a statewide, industry-specific strategic plan to attract, retain, and develop talent.
5. **Nurture Innovation and Entrepreneurship:** Encourage partnerships with universities, manufacturers, and service providers to respond to changes in the industry, including through innovation and advances in technology, to be sustainable.

Strategy 1: Create a Statewide Defense Supply Chain Map

Stakeholder interview findings suggest that opportunities exist for EDOs to gain a more thorough and concrete understanding of the existing conditions of the defense industry within their regions. Due to the volume and latitude of capabilities of individual EDOs, degrees of supply chain mapping will vary.

Clearly, steps toward diversification include pursuing the creation of a statewide defense supply chain map or pursuing a market-based alternative to identify the most pressing supply chain gaps and growth opportunities for competitive niches. In other words, all EDOs need a clear and robust understanding of the state of current defense supply chains. That alone is not enough to create a sustainable value proposition for its region: it needs to understand the capabilities of manufacturers and service providers within its region and identify opportunity areas where the two align. Supply chain mapping is an important step in understanding your region's strengths, weaknesses, opportunities, and threats. However, it is a very complex process that involves a tremendous amount of data gathering across numerous public and proprietary resources, thorough and complicated analysis, stakeholder interviews, and other tasks typically driven by proprietary methodology and varying approaches by research experts. The process is rigorous in time and resources; therefore, EDOs are encouraged to partner with supply chain research experts to conduct any supply chain mapping initiatives. Funding availability will need to be explored and identified before conducting a supply chain initiative. It is also important to understand that supply chains are highly dynamic and constantly changing; consequently, supply chain maps should be updated every two to five years due to the complexity and cost and should be 85% accurate.

Supply chain maps should include, at a minimum, the following elements:

- All statewide defense-related sectors and sub-sectors, contractors and subcontractors, and information relevant from official defense procurement data.
- Defense-related supply chain transactions flow within the state and across its borders.
- Critical economic data - including sales, employment, earnings, and purchasing levels and changes over time - for industries in the defense-related supply chain within the state.
- Critical nodes within supply chain and transaction flow relationships.
- Data on key workforce trends and forecasts in the state, including population growth projections, as well as workforce development infrastructure (i.e., K-12 schools, tech/trade, 2-4 year programs, and certification opportunities).

See Appendix B for a flowchart overview of the supply chain mapping process.

What is a Supply Chain Map?

Supply chain mapping is the process of identifying one's supplier network within a specified industry, and is often represented graphically.

Sources for collecting the data listed above will be both public and proprietary. Some of these sources will be expensive to access; as a result, EDOs should take this into consideration when selecting a supply chain specialist, as many have access to a variety of proprietary databases. Examples of sources include, but are not limited to, the following:

SOURCE	EXAMPLES OF DATA
Federal Procurement Data System	Federal contract data – 2004 to current
USASpending.gov	Data on subcontractors to defense-related prime contractors
Economic Modeling Specialists, Inc. (Emsi)	Industries, occupations, economic impact
IBISWorld	Industry-specific business intelligence – economic conditions
IMPLAN	Economic impact, fiscal impact, supply chain data
IHS Jane’s	Industry news, information, and analytics
National Employment Time Series (NETS)	Establishment and company-level data
Dun & Bradstreet Establishment Data	Establishment and company-level data

Additionally, state EDOs and MEPs might allow access to their databases, if available.

It is imperative to marry quantitative data with current phenomena occurring on the ground. Partnering more closely with the local MEP (e.g., the Wisconsin Center for Manufacturing and Productivity, for example, which collaborates with the Wisconsin Manufacturing Extension Partnership and UW-Stout Manufacturing Outreach Center) to identify companies within the defense supply chain that are looking to increase their defense contractors and/or diversification strategies is encouraged. Resources such as the MEP Supply Chain Optimization Program (<http://www.mepsupplychain.org/>) are available to manufacturers and help “create competitive advantage through stronger, more collaborative supply chains,”⁶ as well as new market support like the WEDC’s ExporTech (<http://inwisconsin.com/export/assistance/exportech/>), an export acceleration program that helps Wisconsin companies expand their global market reach through targeted export strategy development and execution. Incorporating these resources as partners in your local business retention and expansion (BRE) program is recommended. Business retention and expansion programs can also provide critical intelligence into the current industry and can help gain buy-in from current companies. More details on how BRE can be used throughout this process can be found in the action steps at the end of this section.

Understanding the inflows, outflows, gaps, and opportunities for suppliers that both manufacture goods and provide services will lay out the roadmap to target specific growth sectors in both the defense industry, as well as other complementary sectors (e.g., aerospace, aviation, etc.). Pairing this data with a comprehensive impact analysis that showcases the possible fiscal and economic impacts of growth and retraction in the defense industry will arm local, regional, and state-level economic developers with direction to strengthen the competitiveness and stability of its economy. Both original equipment manufacturers (OEMs) and the Department of Defense (DOD) are always seeking more quality suppliers. However, most supplier databases are proprietary.

Due to the complexity and geographic parameters for such a large-scale project, it is recommended for a state agency or supply chain specialist to lead the supply-chain mapping process.

⁶ <https://www.nist.gov/news-events/news/2014/01/nist-mep-supply-chain-optimization-program-aid-us-manufacturers>

Action Steps

Understanding the existing conditions - strengths, weaknesses, opportunities, and threats - of your region's supply chain is critical for sustainability and competitiveness. The first step toward diversification, whether it is within the defense sector or in other industries, is mapping the industry's supply chain which will provide insight into the sectors and sub-sectors of the defense supply chain where your region has competitive advantages and opportunities for diversification. A proposed approach is as follows.

Stage 1:

Identify existing data and resources to understand the impact of the defense industry on your region, and identify areas of growth for companies. Then, determine how you will fund a supply chain initiative.

Data and pertinent information gathered from BRE programs will provide critical intelligence. BRE programs are a proactive means for connecting with companies in your region to understand and respond to their needs. Additionally, BRE programs and associated visits are a critical means of garnering trust and buy-in from the private sector which is an integral component of a supply chain mapping initiative. Furthermore, the data obtained will serve as the foundation for planning and implementing robust and sustainable economic development policies to boost defense industry supply chains, among others. EDOs can work with their respective state's economic development association or state-level EDO for assistance in BRE program development. These areas of growth should be married with regional, national, and global industry trends and resources.

Once your EDO understands the scope of needs and opportunity in the community, identify resources and partners to help fund the supply chain initiative.

Stage 2:

Partner with state-level EDOs and/or supply chain specialists for the creation of a statewide supply chain map.

A statewide supply chain mapping initiative is a complex and resource-intensive project based on proprietary methodologies. Because of its nature, it is recommended that a state agency or supply chain specialist facilitate the supply-chain mapping process, such as the state's Manufacturing Extension Partnership (MEP) or other third parties. However, it is imperative for local and regional EDOs to connect with whoever leads the mapping process, as their on-the-ground knowledge is paramount for developing an accurate and comprehensive tool.

In order to develop a supply chain map of your region, work with economic research experts who can quantitatively analyze the following data:

- All defense-related sectors and sub-sectors, contractors and subcontractors, and information relevant from official defense procurement data across numerous sources, both public and proprietary.
- Defense-related supply chain transaction flows within the state and across its borders.
- Critical economic data - including sales, employment, earnings, and purchasing levels and changes over time - for industries in the defense-related supply chain within the state.
- Critical nodes within supply chain and transaction flow relationships.
- Data on key workforce trends and forecasts in the state, including population growth projections, as well as workforce development infrastructure (i.e., K-12 schools, tech/trade, 2-4 year programs, and certification opportunities).

Once this data is pulled and analyzed, EDOs and the research experts can physically map the locations of the defense suppliers, then verify the results with industry experts and leaders. This information will provide a platform for initiating the comprehensive supply chain database discussed later in this playbook.

Stage 3:

Work with your EDO and research partners to effectively update the supply chain map while pursuing the sectors and sub-sectors of the defense supply chain where your region has competitive advantages.

Utilizing the supply chain map and a BRE program, EDOs can continually provide additional updates and insights to enhance supply chain opportunities. Additionally, through the supply chain mapping process, local EDOs will have strategic direction on how to best market their supply chain assets to attract, retain, and grow companies in the sectors and sub-sectors identified by the data analysis.

Strategy 2: Develop a Framework for Collaboration

Informed by the perspectives of industry leaders and economic development officials, there is a clear urgency for defense manufacturers and service providers to collaborate at the state-level to pursue diversification problem-solving and to garner more strength and attention from federal agencies and policymakers. Establishing a collaborative defense industry council, association, or working group to promote the sector's strengths, needs, and opportunities can have a positive impact on your region's defense sector.

The defense industry council's recommended participants include OEMs, Tier I suppliers, high-level government officials (e.g., state and federal), and higher education and workforce leaders. Sub-groups of the council could include small business representatives, entrepreneurship thought leaders, and local public officials. The data and research collected and analyzed from the statewide supply chain map and impact analysis will provide a strong platform to launch the council, thus informing and influencing leaders on the urgent need for diversification and allocated resources.

One suggested tactic for increasing collaboration and buy-in from industry leaders and public officials is to inaugurate a statewide annual Defense Summit where experts and influential industry players brief participants on industry trends and projections. The council would host the event in which defense industry suppliers, economic developers, education institutions, and supporting institutions would participate. Ideally, this would evolve into a national summit, held in your region. The summit platform approach would provide an early success, building momentum and showcasing the execution of planning efforts from this Playbook. Additionally, industry ambassadors or champions of the council would be ideal to lead marketing efforts, building energy and participation over time. Certainly, trust and buy-in are critical for successful implementation. Thus, a stakeholder analysis of the best council composition is recommended for maximum effectiveness.

A few states have already launched defense industry consortia and working councils to address similar issues on reduced federal spending and diversification. One such model from the Indiana Aerospace and Defense Council provides a compelling example for industry and public officials to tailor to their own needs and desires. Furthermore, though a statewide defense industry council is recommended, an ideal model to attain is a multi-state alliance. A multi-state alliance could be a potential catalyst for such an effort as identifying entities and state regions which have competencies for "defense industry readiness." These entities could include state MEPS, defense organizations, and state/local level economic development organizations.

Additionally, in order to effectively and efficiently tackle issues - both challenges and opportunities - of diversification, sustainability, and competition, a collaborative approach is necessary. Specifically, increased collaboration among local, regional, and state EDOs is vital for your region and the defense industry to not only safeguard itself from volatile, external forces but also propel the region to peak performance. Furthermore, the myriad of programs and initiatives that are launched at different levels of government and the private sector may have overlapping goals, thus coordination and clarity of roles are vital for effectiveness.

As experienced economic developers know, a pivotal tactic for identifying both growth opportunities and at-risk companies is an effective BRE program. Strong partnerships and building trust with business leaders is essential to understanding industry challenges on the horizon, providing communities with a competitive advantage for tackling difficult topics, such as a decrease in federal contracts and lacking or inefficient infrastructure. Robust cooperation in BRE among all levels of economic development organizations - local, regional, and state - is critical for diagnosing challenges for companies and industries. Thus, active teamwork on BRE, particularly in the defense sector, is recommended.

One key undertaking for collaborators is establishing partnerships with federal policymakers and advocates guiding effective and appropriate legislation for increased defense contracts, as well as international market entry. The proposed defense industry council concept is the ideal platform to develop such partnerships. Additionally, members of the council should team with state and federal legislators to help promote the defense sector growth and needs. The council would provide a reciprocal platform where industry experts could disperse current information and data on U.S. Department of Defense requirements (e.g., certifications, sustainability requirements, the Quadrennial Defense Review, etc.), in addition to the development of stronger relationships with OEA, NDIA, and the Pentagon as a means to communicate back to manufacturers and develop programs to support these new initiatives.

Based on existing federal public officials engaged in the defense sector, an outline of contacts in Wisconsin was developed and is included below as an example. Appointments to these roles are likely to change, thus it is important to stay up-to-date on any modifications to staff and appointees. While the Congressmen and Congresswomen have additional committee assignments, these assignments represent current committees related to defense and defense spending at the time of writing this Playbook. To find a list of senators in your state, use the following website: <https://www.senate.gov/senators/contact/>. A list of representatives can be found here: <http://www.house.gov/representatives/>.

Furthermore, a thorough review of existing state policies to identify impediments and opportunities to grow the defense industry is recommended.

CURRENT WISCONSIN FEDERAL SENATORS AND REPRESENTATIVES	
Ron Johnson (Senator)	Chair, Committee on Homeland Security and Government Affairs Committee on the Budget
Tammy Baldwin (Senator)	Committee on the Budget Committee on Appropriations Subcommittee on Homeland Security Subcommittee on Military Construction, Veterans Affairs, and Related Agencies Committee on Homeland Security and Government Affairs Subcommittee on Federal Spending Oversight
Gwen Moore (Congresswoman)	Committee on the Budget
Glenn Grothman (Congressman)	Committee on the Budget Joint Economic Committee
Mark Pocan (Congressman)	Committee on the Budget
Paul Ryan (Congressman)	Speaker of the House
Ron Kind (Congressman)	Ways and Means Committee

Action Steps

Solving issues of diversification must be done in a collaborative manner with key industry experts, government decision-makers, and prime stakeholders. The following describes an approach for collaboration:

Stage 1:

Conduct, document, and analyze business retention and expansion (BRE) visits to identify key issues, opportunities, and players with your defense suppliers.

Utilize data gathered from BRE visits to track and project impending challenges to the defense industry in your region(s), such as deteriorating infrastructure or complex regulations involving federal contracts. Identifying the key issues and players is imperative to successfully collaborating within the defense industries, among others. Next, determine your region's target (defense) industries and build a business case for each.

Stage 2:

Engage and develop strategic relationships.

Engage the National Defense Industry Association (NDIA) - Great Lakes Chapter, Wisconsin Procurement Institute (WPI), and others to gather updated information on industry trends. In addition to gaining access to pertinent data for economic development strategies, these organizations are a pivotal resource for connecting your region to individuals and organizations which support defense industry and supply chain initiatives. It is strongly encouraged for EDOs to support Centers of Excellence (CoEs) related to defense industry topics that align with your assets and needs, such as supply chain expansion, cyber security, composite materials, etc.

Stage 3:

Develop a sector strategy consortium.

Host a defense-oriented consortium, such as a defense industry council, to inform EDOs and companies on available resources and data, as well as to regularly seek insight from the defense community to address unmet needs. While the framework should be crafted and initiated by EDOs and government officials, this example of sector partnerships must be business-driven and must discuss all pre-competitive issues, ideas, and initiatives including, but not limited to, supply chain, talent development, and harmful local, state, and federal policies. Finally, propagate successful regional programs and initiatives into other areas of the state.

Distinctly, recommended areas of focus should include talent development, innovation, public policy, marketing, and, of course, supply chain. One useful case study for a unique type of model is the Indiana Aerospace and Defense Council (IADC). IADC is a top best practice model that depicts making connections to workforce and supply chain opportunities in the defense and aerospace sectors.

Case Study: Indiana Aerospace and Defense Council

Launched in 2011, the Indiana Aerospace and Defense Council (IADC)⁷ was created to support and grow Indiana's aerospace and defense sector. The IADC is funded in part by seed funding from the state government as a means to build the pipeline of expansion and attraction deals within Indiana. It is a statewide initiative that provides a forum for aerospace and defense industry executives and thought leaders to develop personal relationships and collaborate on promising economic development initiatives. The IADC is industry-driven, yet strategically aligned with the state government - including the Indiana Office of Defense Development, the Indiana Economic Development Corporation, and the Indiana Procurement Technical Assistance Center. Its mission is to serve as a catalyst for Indiana aerospace and defense companies to achieve sustainable economic growth.

Leaders understood that one of the biggest barriers to their success is how initiatives are launched. If the government has the idea, it is difficult to get industry buy-in. If the industry starts the initiative, then it is difficult to get government buy-in. IADC leaders knew it would need to provide a very strong collaborative approach, yet have strong industry focus as a responsive state government can help move progress along. The state needed to work with existing defense and aerospace companies and be responsive, knowing it would make the state more attractive to outside companies.

Pillars of Focus

1. **Workforce:** To encourage careers in defense and aerospace manufacturing by providing training and job opportunities.
2. **Supply Chain:** To ensure that companies get help to improve the value chain of their supplier network.
 - a. Procurement Technical Assistance Center – Established a statewide resource center.
 - b. Supplier Database – E.g., Conexus ICON was created to help connect manufacturers and service providers to defense contracts.
3. **Innovation:** To stimulate the development of new technologies by working more closely with universities, tapping into federal research and development programs, and creating a defense manufacturing research and development institute.
4. **Public Policy:** To encourage state and federal public officials to enact policies in support of the growth of the aerospace and defense industries.
5. **PR/Marketing/Branding:** To increase awareness of the impact of the defense and aerospace sector to other companies and public officials.

⁷ <http://www.conexusindiana.com/aerospace-overview>

Strategy 3: Empower Supplier Connectivity

The goal of this strategy is to encourage defense industry buyers and sellers to participate in an organized defense supply chain directory or database.

Because of the increasing complexity of not only the defense supply chain, but also site expansion and relocation, OEMs are pushing destabilizing risks down the supply chain. As a means of increasing the sources and resiliency in the defense supply chain, two primary approaches have been identified:

- Supplier Directories
- Supplier Database

A third type of supply chain tool – actual supply chain mapping, which measures the inflows and outflows of goods and the connections between various entities in a supply chain – is useful to understand the dynamics of any given point in time. However, it is complex and expensive to develop and, as a result often, done at the company level.

Regardless of the tool chosen, the complexity of each varies, typically depending on the utilization goal and the funding source - either public or private funds (i.e., led by the market). The success of both kinds of supply chain tools, however, is dependent upon participation from companies. These tools also take time and resources to maintain, both of which may be hard to sustain via the public sector. The directory and database tools are described in more detail below.

Supplier Directory

The development of a directory of defense companies and service providers is a helpful tool for identifying target opportunities with prime contractors and other suppliers. A capable, pertinent statewide organization could own, maintain, and regularly update the directory, in which all suppliers could have access to as requested. An accurate list of suppliers and prime contractors in the defense industry for economic development organizations (EDOs), state officials, and industry experts to utilize for outreach and industry trends data would help the state in business attraction and retention efforts, which may also help provide more business opportunities for existing companies. Additionally, a supplier and customer list that is publicly available to both manufacturers and service providers is recommended as a means to create the strongest supply chain without any gaps and for dollars to be spent within the state instead of outside its borders.

With the understanding that large OEMs may already utilize a supply chain directory to locate suppliers, as many of them may have already conducted their own internal supply chain mapping to determine the best ways to limit costs and risks, the advantage of the new supplier directory falls to medium- and small-sized enterprises.

Additionally, while regional efforts on defense supply chain directories have been introduced due to an existing absence of a state-level strategy in some defense communities (including the St. Louis Economic Development Partnership and New North, Inc.), the benefits and shortcomings need to be weighed against a more comprehensive, statewide effort. Both Virginia and Indiana's statewide defense industry efforts provide a strong platform to guide collaboration, policymaking, workforce development, and research and development, while matched with funding (see Appendix C for descriptions of these defense communities). However, regional efforts in St. Louis, a large MSA and state capital, are built from a network of successful and collaborative business leaders and government officials. There is no uniform prescription for success. The key is partnership. When too many competing interests are involved, initiatives often fail. Alignment at the local, regional, and state levels is important.

Based on concepts by author Sangeet Paul Choudary in the book *Platform Scale*⁸, producers and consumers of the directory are encouraged to be established early on as a vehicle for creating a strong and sustainable ecosystem. Industry players coalescing around the directory infrastructure will generate valuable data for all stakeholders, thus encouraging stronger networking. As the data inputs increase, the network and ecosystem will also increase. It is noted, however, that the usefulness of the directory is only as good as the accuracy and recentness of the data provided.

Supplier Database

While a statewide supplier directory is a sufficient tool to identify local and regional companies positioned within the defense supply chain, a more comprehensive, national database tool driven by private industry has different advantages and disadvantages. On the one hand, a private entity is responsible for creating buyer-seller balance (i.e., encouraging both OEMs and suppliers to participate). It is responsible for the programming and updating of the system. On the other hand, the private sector company also retains control over the processes, criteria, and features of the database.

Based on an evaluation of prominent and relevant industry databases by the Project Team, the IBM - Supplier Connection is a recommended database platform for manufacturers and service providers in the defense industry and others to utilize. The main reasons for this selection are the volume of business currently conducted on the site; its proven status (it started in 2011); its no-cost policy to participate as a supplier; and its policies which are balanced to the needs of both suppliers and buyers. It should be noted that this database is not defense-centric, but that it would readily accommodate more defense OEMs and suppliers.

IBM

The IBM - Supplier Connection was established in 2011 in response to a request from the White House seeking innovative ways to help large companies grow the U.S. economy. The directory is currently open to small, medium, and large companies free of charge. Buyers currently partnering with IBM on the directory include:



⁸ Sangeet Paul Choudary, Platform Scale (Platform Thinking Labs Pte. Ltd.)

Additionally, between 2,400 and 3,000 suppliers are registered in the database. The range here is largely due to the fact that suppliers must renew their profile every year. If they do not, their profile will be temporarily idled. This helps ensure that profiles stay up-to-date. Note that suppliers can only register if they meet specific needs. Below are the needs:

CURRENTLY ACCEPTED COMMODITIES

 <p>FACILITIES & SUPPORT Chemicals Construction and Outside Plant Work Facilities Maintenance & Design MRO / Supplies / Office Supplies Packaging Materials and Services Security / Security Systems / Security Services Other Facility Area</p>	 <p>LOGISTICS Fleet / Auto Parts Logistics</p>
 <p>INDUSTRIAL MANUFACTURING Castings Drivetrain Assemblies & Components Electrical Components Engines & Engine Components Outside Manufactured Products Plastics Raw Steel Tires, Wheels and Track Assemblies</p>	 <p>SERVICE PARTS All providers of service parts, also known as after-market, maintenance, repair, replacement or spare parts</p>
 <p>FOOD & BEVERAGE MANUFACTURING Beverage Dairy Products Fruits Vegetables Seed & Nuts Grains Oils Protein Other food & beverage manufacturing</p>	 <p>LAB SUPPLIES & EQUIPMENT Lab Supplies Lab Equipment and Services</p>
	 <p>PROFESSIONAL, MARKETING & TECHNICAL SERVICES Consulting Services Educational Services Financial Services HR Services Legal Market Intelligence / Research Marketing / Communications Printed Material and Services Temporary / Complementary / Sub Contractor Workforce Other Service</p>
	 <p>TECHNOLOGY Connectivity Hardware IT Services Software Telecom</p>

Suppliers are asked to answer 100 questions in several different categories including:

- **Overview:** Name, address, key contacts
- **General Information:** Date established, location, workforce numbers, industries served, primary offerings/NAICS codes, value proposition, customers
- **Financial Information:** Revenue, profits, current assets, current liabilities (note: only required field is revenue bracket)
- **E-Enablement Capabilities:** Ability to receive purchase orders electronically, ability to send invoices electronically, ability to send and receive payments electronically
- **Quality and Environment:** ISO 9001 information, environmental management, and certifications
- **Compliance and Ethics:** Export compliance, basic ethics questions
- **Data Security:** Information about security breaches, encryption, reporting
- **Independent Contractors:** Existing commercial office, investment, number of clients
- **Diversity:** Diversity status

Generally, suppliers need to fill out 80 percent of the questions for their profile to be visible to buyers (i.e., OEMs). The information provides an avenue for buyers to objectively vet suppliers, but due to the differing needs of companies within the defense industry, companies may need to further evaluate potential suppliers. Additionally, a secondary mechanism is available for supplier matchmaking opportunities. This is a tool within the supplier login that enables companies to find suppliers that they may need for their own supply chain.

IBM offers compelling services for suppliers, such as courses on marketing to OEMs and opportunities to be a “featured supplier” which showcases their company on the public website login pages. To examine key fields identified in the IBM - Supplier Connection, see Appendix D.

Supplier Resources

In addition to launching the statewide comprehensive supplier database, other resources are available to defense manufacturers and service providers that can be better utilized. As an example, the following resources are available in Wisconsin. Additional supplier resources can be found in Appendix E.

The Wisconsin Center for Manufacturing and Productivity, which collaborates with the Wisconsin Manufacturing Extension Partnership (WMEP) and UW-Stout Manufacturing Outreach Center: Affiliates of the National Institute of Standards and Technology (NIST), these MEPs provide a wide range of services and initiatives to enable small- and medium-sized manufacturers within their service territory to identify opportunities that will accelerate and strengthen growth and competitiveness in the global marketplace. <http://www.wmep.org/> <http://www.uwstout.edu/moc/>

- WMEP Supply Chain Programs:
 - Value Stream Mapping with Manufacturing Critical Path Time (MCT) to reduce lead times
 - MPX - Capacity optimization modeling
 - 8D Corrective Action Resolution to gain quality advantages
 - Value Chain Management to align lean suppliers
- UW-Stout Manufacturing Outreach Supply Chain Programs:
 - Process Improvement - Lean, certifications, and basic assessments and diagnostics
 - “Discovery Center” helps companies apply research to specific problems
 - Tech Scouting - Identifies technologies to expand product base, bringing more value to customers and serving new markets
 - Technology Driven Manufacturing Intelligence (TDMI) links between a company’s unique technology and discovering new customers that need that technology

Wisconsin Procurement Institute (WISPRO, dba WPI): WPI is the state’s Procurement Technical Assistance Center (PTAC) which provides services and resources at low- or no-cost to help companies sell their products and services to the federal government. <https://www.wispro.org/>

National Defense Industrial Association (NDIA) – Great Lakes Chapter: A defense and national security association (501(c)3), NDIA is composed of affiliates, chapters, divisions, and corporate or individual members. Its purpose is to educate its constituencies on all aspects of national security. <http://ndia-greatlakes.org/>

Action Steps

In order to elevate your region's supply chain profile, encourage defense industry buyers and sellers to participate in an organized defense supply chain directory or database. The following describes an approach:

Stage 1:

Identify and evaluate all of the supply chain connection opportunities available to your region.

Understanding the benefits and issues with each kind of supply chain tool will help determine which one(s) will be most useful for the companies in your region. Furthermore, comparing existing options while developing your own in partnership with allied supply chain resources, such as your regional Manufacturing Extension Partnership (MEPs), sector partnerships, and state-level EDOs, is strongly encouraged.

Stage 2:

Train companies in your region or state on the supply chain connection tools.

Once a database or directory is chosen as the primary tool for your region, educate companies on how to use it, the expected benefits, and the importance of sustainable and accurate data input. Hold training seminars and one-on-one meetings with companies to assist in the utilization of the supply chain tool.

Stage 3:

Promote and support selected supply chain tools to companies in your region or state.

Strategically build up both buyers and vendors in the defense supply chain database or directory. Promote the benefits of utilizing the supply chain tools beyond contracting opportunities, such as benchmarking a regional company among peers in the industry, and obtaining industry-recognized certifications. Disseminating information on the supply chain tools and hosting information meetings for companies in your region is strongly encouraged.

Strategy 4: Develop and Attract Talent

To attract, retain, and expand defense-related companies in your state, quality and available talent need to be present. Conducting a thorough assessment of the existing defense sector's talent, as well as the pipeline of workers expected to enter the workforce, will help EDOs discern the impediments and future landscape for a diversification of skills to new and different industry sectors. Within the assessment, identification of gaps and network connections to educational institutions, programs, and certifications will aid the development of additional programs for skills enhancement and crossover into other industries or skillsets. Strong partnerships with your region and state's workforce development agencies are encouraged.

It is important for EDOs to strengthen the communication pipeline between employers who need talent and talent producers (i.e., K-12, colleges, trade schools, etc.). Additionally, EDOs can help identify and incorporate future defense needs into current talent development strategies.

EDOs can also inform the diversification process by identifying additional defense-related industry outside of the area and what their talent needs are. With this knowledge, state EDOs can help talent producers create the talent necessary to recruit those types of businesses.

One talent readiness initiative to utilize is conducted by ACT, a not-for-profit public trust focused on education and workforce development. While ACT is best known for the ACT college entrance system, it also provides a workforce readiness system called ACT Work Ready Communities. Several states and communities throughout the U.S. have engaged in the ACT Work Ready Communities Initiative which helps stakeholders: understand job skill requirements, measure individual skills, develop skills to match requirements, and certify individuals in essential skills.⁹ After successfully completing the program, workers receive the National Career Readiness Certificate (NCRC), an assessment-based credential widely used by employers, educators, workforce developers, and others that measures and certifies the essential work skills needed for success in jobs across industries and occupations.¹⁰ As an example of how the program can be utilized in Wisconsin, the WEDC and the Wisconsin Department of Education could use these certification tests during middle and high school to determine individual readiness to advance into college and trade schools. Because the certification process is occurring during the K-12 process, not after, the student will have an opportunity to be aware of their readiness and improve upon it as necessary.

Understanding other state models will allow EDOs and other state organizations to tweak and develop a tailored program for the defense industry. The initiative described below in Tennessee provides a template for your region's defense contractors to outline a defense industry-readiness certification.

9 http://dra.gov/images/uploads/content_files/ms-wf-act-pres-2014.pdf

10 <https://www.act.org/content/dam/act/unsecured/documents/NCRC-InformationFlyer.pdf>

Case Study: Credentialing technical training to meet employers' needs for advanced manufacturing skill sets

Rutherford County is located in the heart of Tennessee, with easy access to the state's employment clusters. Among Tennessee's top industries is a burgeoning automotive and automotive supplier sector. In fact, the state currently ranks among the top 10 U.S. locations for automotive production. The suppliers continue to demonstrate their confidence in Tennessee: Volkswagen recently announced plans to build SUVs in Chattanooga; Nissan's Smyrna plant continues to add capacity; and Infiniti opened a new engine plant in Decherd in 2014. In addition, Bridgestone has its U.S. headquarters in Nashville, as well as manufacturing plants in Warren County and Rutherford County. Other tier one and tier two manufacturers are also locating to the area to be within easy reach of their target customers.

The ED challenge

Here's how Fred Rascoe, Director of Career Readiness for Motlow State Community College, described the region's situation: "Employers were having a problem filling jobs for trained and skilled technicians. Industry came to Motlow and said, 'We're having some issues in the workplace, and we need your help.'" Rascoe cited two key reasons for these challenges:

1. With increasingly advanced technology and expensive, highly sophisticated automated equipment in use on plant floors, the manufacturing workers of today and tomorrow require more high-level skills, education, and training than their predecessors.
2. As baby boomers retire, there has been a massive exodus from the workforce. And while automated plants may require fewer workers than in the past, the workers they need must be highly qualified. The influx of new skilled workers entering the workforce is not keeping pace with the outflow of older workers - even given the reduced personnel needs of an automated plant.

Finding the sweet spot

Rutherford County's significant advantages were used to help identify a solution to these challenges. Chief among these advantages was a can-do attitude, characterized by:

- Collaborative mindset and partnership approach: The strong relationship and open communication between the public and private sectors allowed for remarkable cooperation in identifying a long-term approach that would meet employer needs while providing educational opportunities linked to real-world careers for students across the academic spectrum.
- Global outreach for world-class guidance and expertise: With international industry connections, the public-private consortium looked beyond state and national borders for engineering curriculum guidance from the best - Germany's Siemens Technical Academy.
- Willingness to pound the pavement for funding: Despite the lingering effects of the recession, industry representatives went door-to-door in 2009, asking their colleagues to commit funds for a training facility and programs, while state and local authorities stepped up to find matching funds.

What they did

A public-private consortium, co-led by industry representatives and Motlow College, raised \$500,000 in seed funding to create certification and degree programs in mechatronics - a multidisciplinary process that fuses mechanical-, electrical-, and computer-assisted engineering to create technologies used in the design and manufacturing of a range of products, including automotive components and cosmetics.

With Motlow College as the base academic institution, the consortium partnered with Siemens Technical Academy, a four-year engineering college in Berlin, which had developed a three-tiered international certification program in mechatronics. “The Siemens partnership helped us create something that is internationally accepted, giving workers portable skill sets and much broader opportunities,” Rascoe said. In addition to associate degrees in mechatronics, the program includes high school-level mechatronics certifications, as well as on-the-job, on-site training for current Bridgestone workers at the company’s Rutherford County plant.

How it helped

In 2010, Motlow College awarded associate degrees in mechatronics for the first time to an inaugural class of nine students. To date, about 80 students have earned similar degrees. With more than 200 students enrolled in mechatronics classes, the program is going strong. And there’s no shortage of companies looking to hire the graduates. According to Rascoe, more than 95 percent have found jobs in the area, and they’ve been hired by more than 50 companies, including Bridgestone, Nissan, and Infiniti.

Action Steps

Complete awareness and understanding of the region’s existing defense sector talent pool and pipeline will help EDOs support the diversification of skills to new sectors and different supply chain tiers. An approach for the initiative is as follows:

Stage 1:

Conduct a thorough assessment of the existing defense sector talent pool, in addition to the talent pipeline.

Partner with the regional workforce investment board (WIB), K-12 education providers, peer EDOs, and companies to evaluate the region’s availability of quality talent, both existing and future. The assessment must also identify gaps and opportunities for additional resources and network connections to other relevant educational intuitions, programs, certifications/credentials, and initiatives.

Stage 2:

Utilize the results of the talent assessment to help attract new companies and grow existing companies in your region for increased supply chain diversification and competitiveness.

Disseminating results of the assessment will help public officials and private industry leaders make sound decisions when identifying new opportunities for growth and sustainability in all sectors, including defense. Identifying your region’s strengths, weaknesses, opportunities, and threats will provide direction on marketing initiatives, networking opportunities, and policy recommendations for a more robust supply chain.

Stage 3:

Implement a strategic plan to address talent challenges.

In partnership with workforce developers, educational institutions, public officials, and private industry leaders, develop and implement a regional talent strategic plan to solve talent and skills gap challenges. Consider focusing tactics on talent development, talent retention, and talent recruitment.

Strategy 5: Nurture Innovation and Entrepreneurship

As we know, the future state of the defense industry and its requirements are unknown. Manufacturers will need to be able to respond to changes in the industry in a sustainable way which may mean looking to new national and international markets and developing new products or services. Ultimately, increasing intellectual property development will help mitigate risk for defense companies (and their regions) and increase market share.

State organizations like the WEDC have laid the groundwork to mobilize and nurture the environment for innovation and entrepreneurship. Currently, no other state in the U.S. has as many Centers of Excellence (CoEs). CoEs are typically driven by universities, not by EDOs, which make the leadership and project outcomes unique. Successful initiatives such as The Water Council (<http://thewatercouncil.com/>), Bunker Labs (<https://bunkerlabs.org/madison/>), and Starting Block (<http://www.startingblockmadison.org/>) also help shape CoEs. Furthermore, all existing and future Centers of Excellence assisted by WEDC will have a research and development (R&D) focus in which both sole and joint-effort R&D initiatives will spur rapid commercialization. Connecting existing and nascent entrepreneurs with resources such as facilities, equipment, technical assistance, international market research, financing guidance, and management direction will assist the diversification and growth of local jobs and businesses. Not only will guidance and financial assistance be critical, but an assessment of existing assets is recommended.

Certainly, these Centers of Excellence are unique asset values beyond any industry, vertical or horizontal. For sustainable and successful implementation, strong industry and academic interests are necessary, as is support from public officials at varying levels of government. Incentivizing these assets is critical for competing in the global business environment.

One case study that appropriately showcases the right mix of “ingredients” for a formidable innovation ecosystem is the Cortex Innovation Community in St. Louis, Missouri.

Case Study: Cortex Innovation Community – St. Louis, MO

The Cortex Innovation Community (CIC) is a 200-acre innovation hub located in St. Louis, Missouri. The CIC was completed in 2002, the same year it was opened, to provide state-of-the-art science and technology research facilities to help foster the most promising technological advancements in the United States.¹¹ Considered to be the Midwest’s premier innovation hub in the disciplines it focuses on, the community’s features include customizable labs and offices, proximity to world class research institutions such as St. Louis University, access to a highly-trained workforce, and venture capital.

The CIC is being used to foster economic development in the district. Previously an old industrial district, the CIC has been granted the following powers:

- Power of eminent domain¹²
- Power to abate taxes
- Power to approve or reject building plans

¹¹ <http://cortexstl.com/>

¹² It is important to note that eminent domain can be a controversial tool when implemented.

While having access to these tools, the CIC has used them intentionally and infrequently. These responsibilities illustrate the wide breadth of the CIC's focus areas, as they are not simply focused on creating new technologies. Instead, the CIC is also focused on:

- Land use, development, and redevelopment
- Placemaking
- District branding and marketing
- Entrepreneurial development
- Programming and support
- Financing and Fundraising

Though the innovation district is continuing to be developed, it has already made a large and positive impact on the local community and the St. Louis region as a whole. Over the last fourteen years, the innovation hub has generated over \$500 million in investments and has led the creation of over 3,800 tech related jobs.¹³ When the CIC is finally completed, it is projected to include over 4.5 million square feet of mixed-use development space, a MetroLink light-rail station, and 15,000 permanent jobs associated with the technology industry.¹⁴

Action Steps

To bolster diversification efforts in your community, manufacturers and service providers must work toward innovation and sustainability by evaluating new national and international markets and developing new products or services. EDOs can facilitate this process by doing the following:

Stage 1:

Develop formal partnerships with business consultancies and industry initiatives.

Establish formalized collaborations with Small Business Development Centers (SBDCs), Manufacturing Extension Partnerships (MEPs), and Procurement Technical Assistance Centers (PTAC) and other existing business consultancies for increased utilization and competency development for companies in your region, with the ultimate goal of boosting quality suppliers in your region. Industry initiatives, such as the National Defense Industry Association (NDIA), often provide innovation avenues for your region to join or replicate according to needs within your community.

Stage 2:

Encourage company engagement with Centers of Excellence offered in your state and region.

Help broker relationships between defense companies in your region and Centers of Excellence (CoE) to help advance innovation in your region. Link with COE stakeholders such as universities, private sector leaders, and government officials who can provide additional capabilities and human capital for innovation beyond what typical internal company budgets can support.

¹³ <https://www.brookings.edu/blog/metropolitan-revolution/2016/05/05/in-st-louis-a-gateway-to-innovation-and-inclusion/>

¹⁴ <https://www.cortexstl.com/who-we-are/>

Stage 3:

Develop incubators and accelerators focused specifically on defense industry needs.

As a means of inciting innovation in your region, evaluate the feasibility of developing industry-specific incubators and accelerators. These initiatives are platforms for helping companies identify and explore open-ended ideas, and are most successful when it provides entrepreneurs with training, idea prototyping, mentorship, partner networks, and facilities.¹⁵ Thus, conducting a case study and/or best practice review of successful development of incubators and accelerators located in similar regions as yours is a recommended first step to ensuring the sustainability of the initiative. Furthermore, a collaborative approach in conjunction with industry experts and universities is highly recommended.

¹⁵ <https://corporate-innovation.co/2014/08/13/using-corporate-incubators-and-accelerators-to-drive-disruptive-innovation/>

Conclusion

In summary, the *Defense Diversification Playbook for Economic Development Organizations* provides recommended strategies for increased economic development, innovation, collaboration, and talent development. Based on input from industry experts, business leaders, economic developers, and WEDC leadership, an assessment of existing regional and national initiatives were documented and provided the foundation for the following proposed strategies:

1. **Create a Statewide Defense Supply Chain Map:** Identify and map the most pressing defense supply chain gaps and growth opportunities for identified competitive niches - both within the defense sector and others - throughout the state.
2. **Develop a Framework for Collaboration:** Encourage manufacturers and service providers to collaborate at the state-level as a means of diversification problem-solving and to garner more strength and attention from federal agencies and policymakers.
3. **Empower Supplier Connectivity:** Encourage defense industry buyers and sellers to participate in an organized defense supply chain directory or database.
4. **Develop and Attract Talent:** Lead a concerted effort with industry, government, and education institutions to create a statewide, industry-specific strategic plan to attract, retain, and develop talent.
5. **Nurture Innovation and Entrepreneurship:** Encourage partnerships with universities, manufacturers, and service providers to respond to changes in the industry, including through innovation and advances in technology, in order to be sustainable.

The momentum created during the planning process is strong, and there is urgency for immediate implementation. With state, regional, and local EDOs, and private industry partners already working toward greater impact in these areas, the Wisconsin economy will increase its diversity, sustainability, and prosperity.

Appendix A: Defense and Security Industry Cluster Definition

The Defense and Security Cluster, as defined by the Indiana Business Research Center and the Purdue Center for Regional Development, includes the following NAICS codes.

DEFENSE AND SECURITY

212291 - Uranium-radium-vanadium ore mining	423120 - Motor vehicle supplies and new parts merchant wholesalers
237130 - Power and communication line and related structures construction	423130 - Tire and tube merchant wholesalers
325920 - Explosives manufacturing	423140 - Motor vehicle parts (used) merchant wholesalers
332912 - Fluid power valve and hose fitting manufacturing	423860 - Transportation equipment and supplies (except motor vehicle) merchant wholesalers
332992 - Small arms ammunition manufacturing	541511 - Custom computer programming services
332993 - Ammunition (except small arms) manufacturing	541512 - Computer systems design services
332994 - Small arms manufacturing	541513 - Computer facilities management services
332995 - Other ordnance and accessories manufacturing	541519 - Other computer related services
339113 - Surgical appliance and supplies manufacturing	541710 - Research and development in the physical, engineering, and life sciences
334290 - Other communications equipment manufacturing	561611 - Investigation services
334511 - Search, detection, navigation, guidance, aeronautical, and nautical system and instrument manufacturing	561612 - Security guards and patrol services
336411 - Aircraft manufacturing	561613 - Armored car services
336412 - Aircraft engine and engine parts manufacturing	561621 - Security systems services (except locksmiths)
336413 - Other aircraft parts and auxiliary equipment manufacturing	561622 - Locksmiths
336414 - Guided missile and space vehicle manufacturing	811490 - Other personal and household goods repair and maintenance (includes gun repair and maintenance)
336415 - Guided missile and space vehicle propulsion unit and propulsion unit parts manufacturing	922110 - Courts
336419 - Other guided missile and space vehicle parts and auxiliary equipment manufacturing	922120 - Police protection
336611 - Ship building and repairing	922130 - Legal counsel and prosecution
336612 - Boat building	922140 - Correctional institutions
336992 - Military armored vehicle, tank, and tank component manufacturing	922150 - Parole offices and probation offices
423110 - Automobile and other motor vehicle merchant wholesalers	922160 - Fire protection
	922190 - Other justice, public order, and safety activities
	926120 - Regulation and administration of transportation programs (includes coastguard and merchant marine)
	927110 - Space research and technology
	928110 - National security
	928120 - International affairs

This type of data can be found using Emsi data. Below is the full Defense and Security Industry Cluster data for the State of Wisconsin, as an example:

NAICS	DESCRIPTION	2016 JOBS	2011 - 2016 CHANGE	2011 - 2016 % CHANGE	2016 - 2021 CHANGE	2016 - 2021 % CHANGE
901200	Federal Government, Military	16,631	(113)	(1%)	(326)	(2%)
541511	Custom Computer Programming Services	12,939	2,591	25%	1,663	13%
541512	Computer Systems Design Services	9,129	4,017	79%	2,704	30%
561612	Security Guards and Patrol Services	6,397	292	5%	(47)	(1%)
237130	Power and Communication Line and Related Structures Construction	4,583	1,097	31%	1,692	37%
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	4,481	131	3%	1,180	26%
423110	Automobile and Other Motor Vehicle Merchant Wholesalers	3,539	93	3%	282	8%
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	3,522	112	3%	(69)	(2%)
336611	Ship Building and Repairing	2,501	988	65%	421	17%
811490	Other Personal and Household Goods Repair and Maintenance	1,752	(288)	(14%)	(41)	(2%)
339113	Surgical Appliance and Supplies Manufacturing	1,295	33	3%	(10)	(1%)
332912	Fluid Power Valve and Hose Fitting Manufacturing	1,291	(99)	(7%)	(249)	(19%)
541519	Other Computer Related Services	1,161	(415)	(26%)	(38)	(3%)
336612	Boat Building	852	3	0%	(489)	(57%)
336411	Aircraft Manufacturing	844	61	8%	118	14%
561621	Security Systems Services (except Locksmiths)	669	198	42%	37	6%
423140	Motor Vehicle Parts (Used) Merchant Wholesalers	649	(64)	(9%)	15	2%
541513	Computer Facilities Management Services	511	197	63%	202	40%
332992	Small Arms Ammunition Manufacturing	474	242	104%	73	15%
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	468	(102)	(18%)	(344)	(74%)
332994	Small Arms, Ordnance, and Ordnance Accessories Manufacturing	394	223	130%	148	38%
561613	Armored Car Services	364	6	2%	(35)	(10%)
561611	Investigation Services	332	(79)	(19%)	(70)	(21%)

NAICS	DESCRIPTION	2016 JOBS	2011 - 2016 CHANGE	2011 - 2016 % CHANGE	2016 - 2021 CHANGE	2016 - 2021 % CHANGE
332993	Ammunition (except Small Arms) Manufacturing	325	61	23%	(51)	(16%)
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	277	(90)	(25%)	(47)	(17%)
334290	Other Communications Equipment Manufacturing	276	(12)	(4%)	36	13%
336412	Aircraft Engine and Engine Parts Manufacturing	273	193	241%	134	49%
561622	Locksmiths	271	19	8%	(15)	(6%)
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	271	1	0%	(54)	(20%)
423130	Tire and Tube Merchant Wholesalers	114	(31)	(21%)	3	3%
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing	70	(30)	(30%)	12	17%
325920	Explosives Manufacturing	67	(95)	(59%)	(33)	(49%)
336414	Guided Missile and Space Vehicle Manufacturing	0	0	0%	0	0%
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	0	0	0%	0	0%
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	0	(31)	(100%)	0	0%
212291	Uranium-Radium-Vanadium Ore Mining	0	0	0%	0	0%
	TOTAL	76,723	9,107	13%	6,801	9%

Source: Emsi 2016.4 – Quarterly Census of Employment and Wages Employees, Non-Quarterly Census of Employment and Wages Employees, and Self-Employed

Appendix B: Supply Chain Mapping Process

The flowchart below shows an overview of the supply chain mapping process. While the EDO contracts with a supply chain research specialist, the EDO must work to obtain buy-in from defense contractors and share supplier leads within the contractor network, utilizing its business retention and expansion (BRE) program to help existing defense contractors. Simultaneously, the supply chain research specialist will utilize their proprietary methodology to develop the supply chain map and appropriate strategies.



Appendix C: Communities' Best Practices Report

Virginia's Key Themes

Project Summary

Project 1: International Diversification of Defense Industry

- Partner: Virginia Economic Development Partnership, Paul Grossman and Theodora von Hohenstaufen Noll
- Budget: Up to approximately \$5.5 million over several years (Actual 4 years \$6.7M)
- Audience: Companies

Project 2: Domestic Diversification of Defense Industry

- Partner: GenEdge Alliance, Virginia's Manufacturing Extension Partnership; Bill Donohue and Dean Young
- Budget: About \$4 million (Actual 3 Years \$5.5M)
- Audience: Manufacturers
- Note: They received three years of funding from DOD/OEA, and then used metrics to show the impacts of this funding to the Virginia legislature. The Legislature then agreed to fund the program four more years. Since then, GenEdge has developed a modularized program to help as many manufacturers as possible. The program's budget can be redirected to address where demand is if there is more funding needed for one aspect than another (e.g., marketing planning instead of lean).

Project 3: The City of Alexandria in Northern Virginia

- Partner: City of Alexandria
- Budget: About \$1 million (Actual 3 years \$2.4M)
- Audience: Individuals
- The city wanted to create a program that helped veterans. OEA funding does not support veterans, but it does support individuals who have worked or are currently working for defense contractors. For this reason, the grant supports veterans currently working for defense contractors and helps these individuals explore entrepreneurial career paths.

Project 4: Gov 2 Com, located in the Hampton Roads area

- Partner: Old Dominion University
- Budget: About \$1 million (Actual 2 years \$1.7M)
- Serves both individuals and companies

Virginia Key Themes

Supply chain mapping is a difficult process.

- GenEdge did supply chain mapping. It was a tedious process and results were difficult to implement.
- Information on the supply chain is known, but this is not mapped on paper meaning there is no existing roadmap.

Virginia is seeing diversification from government contracting to commercialization (being sold in the marketplace)

- Many organizations are focusing on International Business Development.
- There is a lack of urgency for much-needed diversification strategies.
- Challenges associated with understanding culture and process for commercialization, collaboration, and funding for sector crossover.

- There is a lack of innovation as a mechanism for diversification. The thought process is centered on marketing existing products/services to commercial sectors.
- There is funding available at the state level for marketing, education, and training for companies, as well as assistance to connect to international markets for diversification efforts; a need for guidance is evident.
- Virginia Economic Development Partnership needs to manage expectations on the process and timeline it will take to diversify the defense industries/companies.
- A strong need exists to help companies learn to navigate the red tape process for crossover into commercial sectors and international markets.
- Companies that have crossed over into commercial sectors (esp. internationally) did so by tapping into knowledge base/partners of existing supply chain.
- Obstacles for commercialization are also caused by some federal regulatory issues (e.g., weapons/arms sales); companies need assistance on how to navigate these areas as well.
- Lack of skilled workforce is a major barrier to scaling commercialization efforts.
- Successful companies used industry consultants to navigate diversification and international markets.

Virginia plays a large role in the U.S. defense industry as a whole, but still, has gaps to fill.

- The state has existing assets, such as the 3rd largest U.S. port, which serves as a means to diversify internationally.
- The political environment (local, state, federal) lays the foundation for international diversification; need for putting the infrastructure in place to support the diversification efforts.
- Virginia companies are reactive (instead of proactive) to the needs of the defense industry.
- Virginia Economic Development Partnership (VEDP) has been a great resource; suggestion for housing information on the process for commercialization/diversification in one place; Wisconsin Navy League was an example.
- VALET program in Virginia was cited as one of the best programs by defense manufacturers. VALET program is the Virginia Leaders in Export Program which helps companies expand into international markets via exporting their products.

Organizations like the Virginia Economic Development Partnership (VEDP) and Old Dominion University (ODU) have responded effectively to provide customized workshops, training, and services to assist manufacturers in these endeavors.

Wisconsin Key Themes

New North's supply chain mapping process, while grounded in a previously proven process used to diversify manufacturers into the Wind Industry, was also a learning process.

- The goal: To diversify the customer base of defense suppliers in the region to strengthen sustainability.
- The process started by trying to identify companies that might be feeding into Oshkosh Corp and Marinette Marine; however, defense OEMs rarely provide supplier lists as they see this as proprietary information, so New North had to create their own process.
- Sources that were used included:
 - **Federal Procurement Data System (FPDS)** – Shows direct prime and subcontractors. Can filter by state. Also, shows relevant NAICS codes. Looked at all NAICS codes and eliminated those that were not manufacturing.
 - **System for Award Management (SAM)** – Directory of companies registered to work with Federal Government. Searchable by entity, location and NAICS.
 - **Small Business Administration Dynamic Small Business Search (DSBS)** – These are companies that could be utilized by defense contractors to meet sourcing regulations.
 - **Defense and Aerospace Competitive Intelligence Service (DAICS)** – This is a paid source. Includes information on companies, contracts and upcoming opportunities.
 - NAICS Exports – **ESRI** by ECWRPC. Able to export all companies that fit with the NAICS codes identified through the FPDS.
 - Looked at what **Purdue Cluster Map for Defense** used regarding inputs and outputs.
 - **WMEP** - One on One Company Technical Assistance was provided through the WMEP – They had a direct contract to work directly with the manufacturers to help them look into diversification and what it would take for their company.
 - **Wisconsin Procurement Institute (WPI)**
 - **Advisor team contacts**
 - **New North Directory Members (Wind Works and LICI Manufacturing)**

There were some identified challenges of the process (as identified by manufacturers and other participants).

- The process utilized previously formed clusters specifically in Wisconsin for the potential industries to diversify into (e.g., food and beverage, water, energy); however, manufacturers in Wisconsin have the want and need to grow regionally, nationally or even internationally. The purpose of using already existing organized clusters in the state was that it provided an industry sector membership that you could market to immediately, in addition to partnering with to cross promote companies – It also allowed for industry sector partnerships to leverage their research and industry expertise to research new, out-of-state markets – and have a partner in taking and exposing our Wisconsin suppliers to the most appropriate marketplace.
- Manufacturers would have liked more industry data to determine where and how diversify. Data such as market size, growth, niches, key customers, would have been helpful. This is work that continues, leveraging the mapping skills and information learned in the DOD mapping – but was not funded through OEA. Energy sector is the first sector to be approached with research on market demand completed and “Go to Market” initiative planned to Power-Gen International for December 2018. Using other sector partners in the state – additional sectors will also be approached to complete similar research and ‘Go to Market’ activities.
- While the project had the support of Oshkosh Corporation and Marinette Marine – and they had representatives on the advisory committee, they did not share their supplier lists as most OEMs feel this is proprietary information.

- Companies needed to get past the competitive feeling of the project to work together.
- This process requires time, energy and other resources by all parties involved.

Many manufacturers in Wisconsin lack the resources and/or knowledge to do their own supply chain mapping.

- Individual Companies mapping out their supply chains was not included in the – DOD-OEA supply chain mapping scope of work that New North was contracted to complete, however, we asked manufacturers if they have done their own supply chain mapping.
- Most of the manufacturers that were talked to had been a part of New North’s supply chain mapping process, but had never done their own.
- A number of participants noted that manufacturers are very focused on talent right now, causing other things such as supply chain mapping to become a lower priority.

St. Louis Key Themes

The main driver of the defense supply chain project came from the region's dependence on Boeing military aircraft contracts.

- According to DoD OEA's Defense Spending by State, Fiscal Year 2015 report, Boeing was the top defense contractor in Missouri at about \$6 billion. The next highest defense contractor was Express Scripts, which did \$478.2 million in defense contracts in 2015.
- In 2013, analysts looked at forecasts for certain models of Boeing's aircrafts, including the F-18, for which there were no orders past 2016. Cutting production of these F-18s would cost the regional economy \$4.5-\$5 billion, but Boeing had done certain things to offset this, such as taking on more orders for different planes and moving some of its commercial plane production to this plant.
- The impact of the defense industry is very well-known in the region; therefore, the St. Louis Economic Development Partnership is not looking for just a web-based supply chain map that shows these effects.

The goal of the project is to help manufacturers that are part of the defense supply chain in the St. Louis region become more resilient to defense spending fluctuations, and to inform policy decision makers so as to support defense diversification.

- John Hixson from the St. Louis Economic Development Partnership (SLEDP) stated that the map might not actually be that useful to OEMs looking for suppliers, but the goal would be for it to be useful for manufacturers to find other customers.
- There is also a secondary goal regarding entrepreneurial activities. How do we take individuals' ideas and experiences and help them turn that into an actual business?
- Part of SLEDP's methodology is to bring together as many manufacturers as possible in order to share information and spread it across their own networks. This is the purpose of the Regional Advanced Manufacturing Partnership (RAMP).

The St. Louis region has a variety of industry groups working together towards this common goal.

- All levels of individuals that were talked to supported and advocated for the St. Louis Economic Development Partnership's efforts in this project.
- This helps give the St. Louis Economic Development Partnership resources to identify and reach out to companies that are part of the defense supply chain.

Missouri manufacturers may be hesitant to change and may require shocking evidence to illustrate the urgency of this project, similarly to what we saw in other regions.

Indiana Key Themes

Defense budget cutbacks and declines in awarded contracts have stimulated supply chain mapping and diversification efforts. Four main initiatives provide support:

- **Regional Opportunities Initiative** - Created December 2015, focused on education and workforce development for an 11-county region in southwest/central Indiana.
- **Indiana Aerospace and Defense Council (IADC)** - Established by the Indiana Economic Development Corporation as a forum to make connections to workforce, supply chain, policymakers, and commercialization opportunities. IADC is comprised of industry leaders, government, and education/workforce representatives.
- **Indiana Office of Defense Development (IODD)** - Created by an executive order to preserve and grow defense installations; create an environment to attract and retain defense-related companies; and to leverage intellectual assets to facilitate the commercialization of ideas into new companies and products. Recently, IODD has been awarded an OEA grant for workforce development initiatives and other diversification/supply chain mapping efforts.
- **Northeast Indiana Defense Industry Association** - Established to develop and improve the local defense community's ability to attract and retain the required talent to effectively execute business and to improve interaction between the defense industry and suppliers.

Access to suppliers both within Indiana and in neighboring states is a challenge.

- Different iterations of supplier databases have been introduced. Recently, the IADC launched an improved database called Conexus Icon.
- The Indiana Office of Defense Development and the IADC are facilitating discussions amongst OEMs and Tier I and II suppliers for increased collaboration. Long-term goals include a focus on small business development.

Focus on the defense workforce is a crucial subject.

- All four organizations listed workforce development in terms of attraction and upskilling as a major threat to the defense industry's strength. Additionally, IODD is working on identifying skills from the defense industry into other sectors.

Challenges exist to influence defense companies due to the fact that many headquarters and decision-makers are located outside of Indiana.

Defense companies are generally not utilizing available resources effectively, such as the MEP and PTAC.

- A lack of a defined organization to promote the defense industry and available resources inhibited efforts, but all four organizations are focused on increasing awareness.

Like other regions, manufacturers and some government decision-makers lack the urgency needed for diversification efforts.

Appendix D: IBM Supplier Connection

Highlighted fields are “searchable.”

IBM – SUPPLIER CONNECTION (EXAMPLE OF A PRIVATE-SECTOR DRIVEN DATABASE)
Overview
Company Name
Address
City
State
Country
Zip Code (can search by radius up to 100 miles)
Key Contact
Quote Contact
Sales Contact
Social Networks (Twitter feed, LinkedIn profile)
Value Proposition
Customers
Major Customers (highlight three)
Additional Customers
Type of Customers
Federal Details
CAGE Code
Customer Experience (can search by current federal contracts Y/N and by Prior Federal Experience (DHS, DOD, DOT, Navy, Army, etc.))
Key Teaming Partners
Federal Supply Schedules
Facility Security Clearances
Personnel Security Clearances
General Information
Date Company Established (can search by company age)
Incorporation Location
Company Incorporation Date
Stock Exchange Ticker
Company Hierarchy
Workforce (regular employees versus temporary/contract resources)
Leadership
Services and Products
Key Offerings (core business, services/products/technology this company provides)
Industries Served
Primary Offering
Additional Offering
NAICS Codes
Location(s) where company provides its goods/services
Countries from which this company provides products and services

IBM – SUPPLIER CONNECTION (EXAMPLE OF A PRIVATE-SECTOR DRIVEN DATABASE)**Diversity**

Diverse Status (can search Y/N)

Financial

Revenue Bracket Last Year

Revenue + Profit (not required)

Assets + Liabilities (not required)

Balance Sheets + Income Statements (not required)

E-Enablement

Is your company electronically enabled?

Is your company able to electronically receive and confirm receipt of Purchase Orders?

Is your company able to electronically send invoices?

Is your company able to electronically receive payments and disbursements?

Additional e-Enablement Comments

Quality and Environment

Does your company hold an ISO 9001 Certification? (can search for certifications Y/N)

If not, is there a plan for ISO 9001 certification?

If not, does your company have a documented quality management system?

Does your company have a Corporate Responsibility and Environmental Management System, which measures performance, sets goals, and discloses results?

Does your company define, deploy, and sustain your corporate responsibility and environmental management system through your engagement with your suppliers?

Does your company establish programs (within the management system) to control operations that intersect with these matters and confirm compliance with applicable law, regulation, and any particular contractual requirements?

Does your company measure performance associated with significant environmental concerns where applicable and include the following aspects: Energy conservation, scope 1 and scope 2 greenhouse gas emissions, waste management and recycling?

Does your company set voluntary environmental goals to achieve positive results?

Does your company publicly disclose results associated with these voluntary environmental goals and other environmental aspects of the management system, including any regulatory fines or penalties that may have occurred?

Does your company train employees who are responsible for performing this work?

Does your company conduct self-assessments and audits as well as management reviews?

Does your company cascade this set of requirements to your suppliers who perform work that is material to the products, parts and/or services being supplied to your customer?

If the answer to any of the above is “NO,” please indicate when this requirement will be addressed:

Does your company have a documented environmental management system?

Does your company hold an ISO14001 (Environmental) Certification?

If not, is there a plan for ISO 14001 certification?

List of similar certifications your company holds:

Will your company provide hardware materials, hardware parts, or hardware products?

Does your company have environmental controls to manage the restrictions on hazardous materials in products?

Does your company have a technical environmental contact?

List issues or concerns your company may have regarding compliance with industry restrictions on hazardous materials:

IBM – SUPPLIER CONNECTION (EXAMPLE OF A PRIVATE-SECTOR DRIVEN DATABASE)

Compliance and Ethics

Are you able to provide U.S. Export Control Classification Numbers for your equipment, software, and technology?

Will any of the articles, materials or services that a Supplier Connection member company may procure from your company be sourced from Cuba, Iran, North Korea, Sudan or Syria or will any nationals from these countries be assigned to perform services on behalf of Supplier Connection?

Are any owners, principals, members of the board of directors, officers, or senior management of your company or an Affiliate of your company (1) current or former Government officials or (2) related to a family member that is a current or former Government official?

Has anyone in your company (including any affiliates) ever offered, paid, or promised to make any payments or gifts (of money or anything of value) directly or indirectly to anyone (including government officials or employees) for the purpose of influencing, obtaining or retaining any business?

Have you or any employee of your company ever been prohibited from participating in any business activities or other matters subject to the jurisdiction of U.S. laws and regulations?

Data Security

In the last twelve months, has your company suffered a Security Breach?

Does your company have an insurance policy that would cover the costs associated with a Security Breach?

Does your company intend to outsource or subcontract duties to any third party pursuant to which such third party will obtain access to, or use of, the Personal Data?

Does your company encrypt the Personal Data loaded on laptop computers and portable storage media?

Does your company encrypt Personal Data sent over the Internet or other unsecured networks?

Does your company have a data incident reporting process?

Does your company have an information or data security program to protect Personal Data?

How does your company transport Personal Data?

Does your company provide education and training to its employees regarding proper use of the company's information or data security program?

Independent Contractors

Are you an Independent Contractor?

Do you maintain a commercial office for the purpose of conducting business?

Do you have others in your direct employ?

Are you incorporated as a corporation or organized as a limited liability company?

Provide an estimate of the net investment of your business:

Provide an estimate of the size of your client base:

Number of clients for whom you have performed services in the last 12 months:

Do you advertise your business in mass media, trade publications or other media?

Have you ever been employed by any Supplier Connection member company? (can search by whether or not confirmed supplier of Buying Members)

SAM Data

SAM (System for Award Management) data below is pulled from Federal procurement systems and the Catalog of Federal Domestic Assistance.

SAM data is a combination of data from CCR, FedReg, ORCA, and EPLS. (can search by market served - federal versus commercial)

Appendix E: Supplier Resources

Center for Strategic and International Studies - Defense Industrial Initiatives Group (DIIG): DIIG provides analysis on the critical issues at the cross-section of the Department of Defense and its industrial base. With a focus on defense acquisition trends, technological innovation, and ongoing reform efforts, DIIG monitors important developments in the global defense industry. DIIG's products consist of major research projects, published reports, commentaries, interviews, and events. <https://www.csis.org/programs/international-security-program/defense-industrial-initiatives-group/about-defense>

National Defense Industrial Association (NDIA) – Great Lakes Chapter: A defense and national security association (501(c)3), NDIA is composed of affiliates, chapters, divisions, and corporate or individual members to educate its constituencies on all aspects of national security. <http://ndia-greatlakes.org/>

National Defense Industrial Association: NDIA, comprised of its affiliates, chapters, divisions, and 1,600 corporate and 85,000 individual members, is a non-partisan, non-profit, educational association that has been designated by the IRS as a 501(c)3 nonprofit organization - not a lobby firm - and was founded to educate its constituencies on all aspects of national security. <http://www.ndia.org/about>

Supplier Excellence Alliance: Established in 2003, SEA is an aerospace and defense non-profit alliance founded by prime and tier-one companies and led by sub-tier suppliers committed to accelerating supply chain performance. SEA customers benefit from increased performance and supply chain transparency. SEA provides a lean management system and a voluntary supplier certification program for enhanced performance, collaboration, and visibility. SEA is funded by supplier memberships and sponsorships. <http://www.seaonline.org/newtosea.html>

U.S. Commercial Service Aerospace and Defense Technology: The industry's primary export resource. Our team of domestic and international trade specialists, located at our Export Assistance Centers in the United States and at U.S. Embassies overseas, is prepared to assist in increasing your export sales. <http://2016.export.gov/industry/aerospace/>

The Wisconsin Center for Manufacturing and Productivity, which collaborates with the Wisconsin Manufacturing Extension Partnership (WMEP) and UW-Stout Manufacturing Outreach Center: Affiliates of the National Institute of Standards and Technology (NIST), these regional MEPs provide targeted consulting services to small and medium manufacturers within their service territory. <http://www.wmep.org/> <http://www.uwstout.edu/moc/>

Wisconsin Procurement Institute (WISPRO): WISPRO is the state's Procurement Technical Assistance Center (PTAC) which provides services and resources at low or no-cost to help companies sell their products and services to the federal government. <https://www.wispro.org/>

