Table of Contents

Introduction ........................................................... 2
The Defense Industry Ecosystem ........................................... 3
Goals and Objectives ....................................................... 4
Project Methodology ....................................................... 5
Context for Defense Diversification .................................... 6
Diversification Strategies - Overview .................................. 7
  Strategy 1: Conduct an Internal Analysis of Diversification
    Opportunities within the Defense Industry and in Other Sectors. .... 8
  Strategy 2: Conduct and Support Supply Chain Mapping
    and Supplier Directories in Your Area ................................ 11
  Strategy 3: Participate in a National Supplier Database ............. 15
  Strategy 4: Engage in Collaboration Opportunities ................. 19
    Case Study: Indiana Aerospace and Defense Council ............. 19
  Strategy 5: Participate in Talent Development and Attraction ..... 21
  Strategy 6: Embrace Innovation and Technology .................. 23
    Case Study: The Water Council – Milwaukee, Wisconsin ........ 23
Conclusion .................................................................. 26
Appendix A: Communities’ Best Practices Report .................. i
Appendix B: Resource Guide ........................................... vii
Appendix C: Supplier Directory Example ................................ ix
Appendix D: IBM Supplier Connection ................................. x
Introduction

Wisconsin’s long heritage of manufacturing makes the state a critical player in the U.S. defense and aerospace industries. Coupled with the global economy displaying rapidly changing conditions, a decrease in defense industry spending, and opportunities for new endeavors, the state is at a juncture for increased growth and stability. Having spent more than $2.3 billion on defense goods and services in the state and performed approximately $26.5 billion of contract awards1 in 2015, Wisconsin is positioned to evaluate its dependence on defense contracts and opportunities for transformation. Based on these facts, the Wisconsin Economic Development Corporation (WEDC) was awarded federal funding from the U.S. Department of Defense Office of Economic Adjustment (DOD-OEA) to pursue diversification strategies that would both continue to strengthen the defense supply chain as well as make those firms more viable for long-term stability by diversifying into other industry sectors.

A project team led by Ady Advantage was engaged by WEDC to develop the Defense Supply Chain Playbook for Manufacturers and Service Providers to provide current defense industry manufacturers and service providers in Wisconsin with resources and strategies to help evaluate their businesses for new opportunities both within the defense industry and outside of it. The target audience for this Playbook is Wisconsin companies, and many Wisconsin-based resources are presented as part of the recommendations. However, this Playbook is also intended to be adapted to other states and regions, as appropriate, for similar strategies to help diversify their base of defense-focused companies.

The Defense Industry Ecosystem

Within the defense industry in any given region, there are a variety of players, including economic development organizations (EDOs), manufacturers, service providers, legislatures, industry groups, etc., each playing a unique role. In any given ecosystem, the performance of 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 manufacturers and service providers? It means you are going to be the strongest and most competitive if you are part of an ecosystem that is working together. This Playbook provides strategies for your individual company to implement, but also strategies that require working with other organizations and companies within your ecosystem. Thinking outside the context of your individual company 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:

<table>
<thead>
<tr>
<th>KEY ROLE WITHIN ECOSYSTEM</th>
<th>MANUFACTURER / SERVICE PROVIDER</th>
<th>LOCAL EDO</th>
<th>REGIONAL EDO</th>
<th>STATE EDO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Understanding of and development of core competencies</td>
<td>• Knowledge of area businesses and their challenges, through business retention and expansion (BRE) efforts</td>
<td>• Efforts to analyze, identify, and support opportunities to strengthen the regional economy, such as data on clusters and target industries, federal grant programs, etc.</td>
<td>• Statewide business climate</td>
</tr>
<tr>
<td></td>
<td>• Communication with EDOs</td>
<td>• Development of local programs as appropriate</td>
<td>• Regional assets and business case; leadership in defense and related industries as appropriate</td>
<td>• Statewide data</td>
</tr>
<tr>
<td></td>
<td>• Participation in industry groups and economic development groups</td>
<td>• Alignment of local stakeholders to help attract funding and/or other support to support manufacturers and service providers</td>
<td></td>
<td>• Network of statewide tools and resources, such as Procurement Technical Assistance Centers (PTACs), Manufacturing Extension Partnerships (MEPs), Centers of Excellence (CoEs), etc.</td>
</tr>
</tbody>
</table>

EDO = Economic Development Organization
The purpose of the *Defense Supply Chain Playbook for Manufacturers and Service Providers* is to provide current defense industry manufacturers and service providers with resources and strategies to help evaluate their businesses for new opportunities both within the defense industry and outside of it. As federal funds for defense-related spending have decreased over the years, it is prudent for a company that is heavily invested in the defense industry to consider long-term strategies for business sustainability. By looking at current company capabilities, products, materials, and processes, and applying those to market demands, new opportunities may be uncovered, both within the defense supply chain and outside of it – in new industry sectors.

The goals of this Playbook are to assist manufacturers and service providers with the following questions:

- Where are we in the defense industry value chain?
- Is the defense value chain a good fit for our business and our goals?
- Do we have the capacity to expand our defense business and/or move up the value chain?
  - If so, what processes will we need to change? What certification(s) will we need? What new partnerships will be beneficial to us?
  - If not, how can we identify and evaluate defense value chain entry strategies?
  - Should we expand outside the traditional defense value chain into other industries where our key capabilities and core competencies can deliver value?
- Is there an opportunity for us to use our core competencies and capabilities to expand beyond the defense industry?
- How can we develop a long-term, sustainable business plan?
- What resources are available to help us work through each step of the process?

Though the recommendations outlined in this Playbook provide guidance for all manufacturers and service providers to answer these questions, it is necessary that specific strategies and tactics be tailored according to individual environments and situations.
Project Methodology

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

This Defense Supply Chain Playbook for Manufacturers and Service Providers is one of two deliverables of the project. The other Playbook is intended for EDOs in support of the same objectives that support industry diversification in Wisconsin.

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 goal was learning 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.

The process we used to develop these playbooks is diagrammed below:

<table>
<thead>
<tr>
<th>PLAYBOOK DEVELOPMENT PROCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFENSE CLUSTER ANALYSIS</td>
</tr>
<tr>
<td>• Examined the defense industry as a whole to determine where the clusters are in the U.S.</td>
</tr>
<tr>
<td>• Used this information to identify communities to visit on-site in the next step.</td>
</tr>
<tr>
<td>DEFENSE COMMUNITY ON-SITE VISITS</td>
</tr>
<tr>
<td>• Visited four leading defense regions to determine the key challenges, needs, and best practices in the industry: Oshkosh, Wisconsin; St. Louis, Missouri; Commonwealth of Virginia; Northeastern Indiana</td>
</tr>
<tr>
<td>• See Appendix A for more details. Some findings are applicable to manufacturers.</td>
</tr>
<tr>
<td>PLAYBOOKS DEVELOPMENT</td>
</tr>
<tr>
<td>• Using the best practices identified in the on-site research, as well as input from numerous internal strategy work sessions, wrote the playbooks.</td>
</tr>
<tr>
<td>USABILITY TESTING AND PUBLICATION</td>
</tr>
<tr>
<td>• Shared Playbooks with selected participants to provide recommendations to improve the deliverables.</td>
</tr>
<tr>
<td>• Incorporated feedback and finalized deliverables.</td>
</tr>
</tbody>
</table>
Context for Defense Diversification

While this Playbook lays out the key diversification success strategies, it is important to note that what works for one company may not be the same strategy that another should take on. It is critical to determine a plan that meets your company’s specific goals and objectives and that is based on your company’s unique competencies. Before proceeding with the strategies outlined in this Playbook, it is important to conduct some internal analysis to identify these goals and competencies. The steps below will guide you through this process:

**Asset Mapping**
Identify the unique competencies of your company including products, materials, processes, technology, and other areas. Think in terms of hard and soft assets that are unique, hard to replicate, and important to your business, to the defense industry, and to other industry sectors. For other industry sectors, consider both those already being served by your company and those not currently being served that you would like to serve. A starting place has been provided below for your consideration.

<table>
<thead>
<tr>
<th>Capabilities and Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to scale up/down quickly</td>
</tr>
<tr>
<td>Basic core competencies related to defense</td>
</tr>
<tr>
<td>Product/Service type and mix</td>
</tr>
<tr>
<td>Strategic flexibility</td>
</tr>
<tr>
<td>Current workforce skills</td>
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<tr>
<td>Workforce retention rate</td>
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<tr>
<td>Financial stability</td>
</tr>
<tr>
<td>Export profile</td>
</tr>
<tr>
<td>Sustainability practices</td>
</tr>
<tr>
<td>Cyber security</td>
</tr>
<tr>
<td>Certifications</td>
</tr>
<tr>
<td>References from other defense companies</td>
</tr>
<tr>
<td>Intellectual property with defense applications</td>
</tr>
</tbody>
</table>

**Visioning and Goals**
Based on your unique assets, articulate what your goals are for both defense- and non-defense-based business. Consider the following questions to help develop your goals:

- Where do you want to be in regards to the defense industry in one year, five years, and ten years?
  - Consider market share, category share, revenue percent increase, share of total revenues, market position, and other key performance indicators.
- Where do you want to be in regards to other industry sectors in one year, five years, and ten years?
- What are the biggest opportunities that you would like to take advantage of?
- What are the biggest challenges you will need to overcome?
- What leading indicators would shed light on whether you are or are not meeting your goals?
- How are competitors preparing and positioning themselves for the future? What can you learn from this?
- How are your customers and potential customers preparing for the future? Which customers do you want to focus on going forward?

**Gap Analysis**
After you map your current assets (where you are) and conduct the visioning and goals exercise (where you want to be), identify the gaps between the two. After that, prioritize the gaps to a manageable and impactful number. One helpful way to prioritize which gaps you should focus on is to consider those which you can control (such as your company’s R&D focus) and those you cannot (overall levels of defense spending).

**Action Plan**
The fourth and final step is to develop the plan for how you are going to get from where you are to where you want to be. Consider some of the strategies outlined in this Playbook for helping achieve your goals, as well as other strategic planning means. Keep in mind that each strategy you decide to pursue should support one or more of your goals, as determined in the second step. If it does not, you either need to add to your goals or eliminate the strategy.
Diversification Strategies - Overview

The overall goals for most manufacturers and service providers are to be profitable, grow their business, build efficiencies, evolve as needed to be sustainable, and be a top performing business in their industry sector. For existing defense contractors, this may mean looking for opportunities to move up or down the defense industry supply chain or entering into other growth industries. Though the recommendations outlined below provide guidance for defense manufacturers and service providers to obtain these goals - and others that may have been defined during the initial exercise - each company should take into account its own unique assets and goals in determining which strategies it will pursue and how these should be adapted to its own unique situation.

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

1. **Conduct an Internal Analysis of Diversification Opportunities within the Defense Industry and in Other Sectors:** Conduct an internal analysis of your current core competencies and position within the defense industry supply chain and others to help identify potential areas of opportunity.

2. **Conduct and Support Supply Chain Mapping and Supplier Directories in Your Area:** Support economic development led efforts for area supply chain mapping and supplier directories that are mutually beneficial initiatives.

3. **Participate in a National Supplier Database:** Participate in online supplier databases, many of which are no cost, to help discover new opportunities, customers, and markets to serve. See page 15 for examples.

4. **Engage in Collaboration Opportunities:** Engage and collaborate with strategic or product partners in the defense industry at the state-level as a means of diversification problem-solving and to garner more strength and attention from federal agencies and policymakers.

5. **Participate in Talent Development and Attraction:** Support a concerted effort with industry, government, and education institutions to create a state-wide, industry-specific strategic plan to attract, retain, and develop talent.

6. **Embrace Innovation and Technology:** Amplify partnerships with universities to respond to changes in the industry, including through innovation and advances in technology, to be sustainable.
Strategy 1: Conduct an Internal Analysis of Diversification Opportunities within the Defense Industry and in Other Sectors

The first step for a company will be to conduct an internal analysis of its product/service offerings as well as current position(s) within the defense industry supply chain to identify areas of opportunity.

Diversification strategies can take on different formats:

1. Within current industry sector and customer base, seek new opportunities to develop and produce new products/services to serve this same market.
   *i.e. What new or complementary products/services can we offer our current customer base?*

2. Using current products/services, seek new opportunities in other industry sectors or markets for interest in these same products/services.
   *i.e. What other customers/industries may be interested in our current product/service offerings?*

3. Developing new products/services to serve new markets or industries.
   *i.e. What new or complementary products/services can we offer to new customers/industries?*

The table below illustrates these concepts:

<table>
<thead>
<tr>
<th>DIVERSIFICATION STRATEGIES MATRIX</th>
<th>MARKETS/INDUSTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CURRENT</td>
</tr>
<tr>
<td>Current Offerings</td>
<td>Current Business Model</td>
</tr>
<tr>
<td>New Offerings</td>
<td>Diversification Strategy #1</td>
</tr>
</tbody>
</table>

An evaluation of each of these strategies will help a company determine opportunities that hold the most potential for their particular situation. There are many resources available to assist companies with gathering the information they need to uncover opportunities. Each state has a local Manufacturing Extension Partnership (MEP) which provides a multitude of tools and technical guidance. For example, the Wisconsin Center for Manufacturing and Productivity collaborates with the Wisconsin Manufacturing Extension Partnership and UW-Stout Manufacturing Outreach Center, for Wisconsin manufacturers to access. In addition, each state has a Procurement Technical Assistance Center (PTAC) (such as the Wisconsin Procurement Institute [https://www.wispro.org/]) that can assist companies within the defense supply chain looking to grow their business.
Resources such as the MEP Supply Chain Optimization Program (http://www.mepsupplychain.org/) are also available to help manufacturers “create a competitive advantage through stronger, more collaborative supply chains.”

Each state has a local Manufacturing Extension Partnership (MEP) (the Wisconsin Center for Manufacturing and Productivity, for example, which collaborates with the Wisconsin Manufacturing Extension Partnership and UW-Stout Manufacturing Outreach Center). Search for your local MEP here: http://ws680.nist.gov/mepmeis/FindYourLocalCenter.aspx. In addition, your state’s Procurement Technical Assistance Center (PTAC) (such as the Wisconsin Procurement Institute (https://www.wispro.org/)) can assist companies within the defense supply chain that are looking to grow their business. You can search for your local PTAC here: http://www.aptac-us.org/find-a-ptac/.

Resources such as the MEP Supply Chain Optimization Program (http://www.mepsupplychain.org/) are also available to help manufacturers “create a competitive advantage through stronger, more collaborative supply chains.”

It is prudent for all companies to perform self-analysis to ensure long-term stability and growth, especially companies serving traditional and long-standing industry sectors, such as defense.

Deloitte recently published a whitepaper titled The Next Era of Aerospace and Defense which provides an analysis of the industry and the impact of innovation. The piece suggests that aerospace and defense (A&D) companies who “stay the course” with the same strategies and business models they have been following for years and don’t look for ways to evolve, will not be successful. The whitepaper provides some thought provoking ideas for evaluating a company’s current business model and identifying strategies to retool business and operating plans to best meet current and future market needs of the A&D industry. Based on different scenarios of financial stability and strategic flexibility, the report looks at seven different types of A&D companies and suggests potential new strategies to be considered – including expansion, consolidation, restructuring, diversifying, and others.
**Action Steps**

An evaluation of your company’s diversification strategies is needed to help determine opportunities. The following describes an approach to this analysis:

**Stage 1:**
*Determine your current position in the defense industry.*

Conduct an internal analysis with your company’s executives, employees, customers, and suppliers to identify your position (i.e., level or tier) in the defense supply chain to understand opportunities for diversification. Pinpointing how much your company is selling to defense companies, identifying whether the relationship has been advantageous for your company, and determining the internal or opportunity costs to being a defense supplier are key to helping you understand your current conditions.

**Stage 2:**
*Determine a list of potential opportunities for your company.*

Using the Asset Mapping process explained earlier in the Playbook, consider your strengths and abilities as it relates to the defense industry, as well as potential similar industries. To recap, capabilities and assets could include:

- Ability to scale up/down quickly
- Basic core competencies related to defense
- Product/Service type and mix
- Strategic flexibility
- Current workforce skills
- Workforce retention rate
- Financial stability
- Export profile
- Sustainability practices
- Cyber security
- Certifications
- References from other defense companies
- Intellectual property with defense applications

Once your strengths and abilities have been identified, select one or more diversification strategies to pursue. Consider conferring with other defense contractors, EDOs, industry consultants, and supply chain managers to identify opportunities for increased supply chain contracts - both within the defense sector and outside of it. Strategies could include new product development and/or new market development, based on your specific strengths. Success in any market segment is more likely when you are focused on the opportunities and requirements of the segment itself.

**Stage 3:**
*Implement a diversification plan for the best-fit strategy.*

Once your diversification strategy is defined within and/or outside the defense industry, shift into action mode. Utilize the resources identified in Appendix B to help build corporate sustainability and long-term growth.
Strategy 2: Conduct and Support Supply Chain Mapping and Supplier Directories in Your Area

State, regional, and local EDOs are constantly seeking ways to support the companies and industry sectors (including defense) within their areas, as thriving companies mean thriving communities. Their efforts help to ensure that risk factors for companies related to customer base and industry sector focus are balanced and minimized as best as possible. With these objectives in mind, two strategies that EDOs across the country are seeking to pursue include supply chain mapping and supplier directory programs - both of which are typically led by a state, regional, or local EDO, but require the support and participation of companies to be successful. Manufacturers can map their own supply chains as well as participate in regional- or state-led supply chain initiatives. If manufacturers wish to create their own supply chain maps, they should include the information provided below.

Supply Chain Mapping for Companies

A simple way for a company to better understand its supply chain and uncover opportunities for improvement is through an exercise called supply chain mapping. This exercise can be done independently or with the assistance of a logistics consultant, Manufacturing Extension Partnership (MEP), or other third party specialist. In this exercise, the entire supply chain for a company is mapped out on paper (or a whiteboard) for a visual representation of the movement of goods (and services). The entire supply chain for a company will include everything from suppliers to manufacturing to distribution to customers, and even returns, if applicable. It should include all steps and people involved with every stage of the operation, and the costs associated with each. A company can take this process one step further and also include the visual mapping of its internal processes (i.e., inside the manufacturing plant) for handling goods and information. This can help identify areas for improvement and ways to be more efficient and cost effective.

**Basic Company Supply Chain**

![Basic Company Supply Chain Diagram]

If a manufacturer wishes to initiate their own projects, supply chain maps should include, at a minimum:

- All supply chain transaction flows.
- Costs associated with every stage of the operation.
- Critical economic data – including sales, earnings, and purchasing levels and changes over time.
- Critical nodes within supply chain and transaction flow relationships.
Supply Chain Mapping by Industry Sector

State, regional, and local EDOs are also pursuing initiatives to conduct supply chain mapping exercises for the defense (and other) industry sectors within their areas. One simple definition of a supply chain map for an industry sector is a graphical representation of a supplier network, such as in the examples below. Looking deeper, when a supply chain map is robust with detailed information on the types of products companies supply and what materials/products companies source, it can be a very valuable tool. A complete supply chain map can help provide more visibility into an industry in a particular area and help with understanding potential risks, as well as opportunities. Both EDOs and companies share an interest in mitigating risks and disruptions to an industry or company that may, in turn, also affect the community in which the company is located.

For example, a basic supply chain map for the defense industry might look like this:

![Supply Chain Map Example 1](image1)

Looking a little deeper, a basic supply chain map for a Tier I Supplier might look like this:

![Supply Chain Map Example 2](image2)
The reasons for EDO-led supply chain mapping initiatives are to:

- Help identify suppliers and industry sectors at risk in the event of a sudden industry impact or plant closure.
- Help identify potential new markets for suppliers.
- Help identify local gaps in the supply chain and identify opportunities for local suppliers to fill those gaps.
- Help identify issues to be addressed by state/local policymakers.
- Help identify issues and better align local assets and resources to meet those needs.

However, the success of these supply chain mapping initiatives depend on participation from area companies and their willingness to provide pertinent information on their specific activity within an industry sector. The benefit to a company for participating in the supply chain mapping exercise would be a robust industry supply chain map that includes the following:

- Better visibility into the company's position within an industry supply chain.
- Reduced risk of position within an industry supply chain.
- Identification of new opportunities to supply current and/or new products/services within an industry supply chain.
- Ability to garner support through policy and resources in support of the company's activity.

Supplier Directory

A supplier directory of defense companies and service providers is another helpful tool to identify target opportunities with prime contractors, OEMs, and other customers.

While many large OEMs have their own internal supplier directories, there also lie opportunities with other companies seeking suppliers for their production operations, including operations new to the U.S. Many state and regional EDOs are leading and/or supporting initiatives to develop supplier directories in their respective area(s) in an effort to help existing companies find opportunities, as well as to be able to offer helpful resources to prospective companies considering their area(s). It is critical, however, for supplier companies to provide accurate and recent information about their firms and services in order for these directories to be useful.

An example of a supplier directory created in Wisconsin is New North’s Defense Industry Supply Chain Marketplace. It is a voluntary directory where companies can create their own profiles with contact information, capabilities, existing and potential markets, import/export info, and more. 2

See Appendix C for images of the New North directory.

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2 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.
**Action Steps**

To better understand the defense supply chain and make strategic plans for your company, the following action items will guide your company’s next steps:

**Stage 1:**  
*Conduct your own internal supply chain mapping exercise.*

Map out your company’s specific supply chain and look for areas for improvement to become more efficient and cost effective. The exercise may also help uncover areas of opportunity to produce new products/services. There are a variety of models and methodologies that can be used in supply chain mapping; however, all should include the information listed previously in this section. If you have not conducted a supply chain exercise in the past or are unsure of where to start, it is recommended that you reach out to a supply chain specialist, such as a local Manufacturing Extension Partnership (MEP).

**Stage 2:**  
*Reach out to state, regional, and local economic development organizations regarding your interest in a state or regional defense industry supply chain mapping and/or supplier directory initiative.*

These organizations will advise if one of these types of initiatives is already underway and if not, manufacturers should encourage them to do so.

**Stage 3:**  
*Supply accurate information.*

Once these initiatives are underway and your company is contacted with a request for information, be sure to respond with accurate and up-to-date information about your company, your products and services, and your customers. An industry supply chain database is only as good as the information contained in it. Also be sure to keep your profile up-to-date with accurate and complete information, as a more robust listing in a directory will only increase your opportunities.

**Stage 4:**  
*Evaluate the results.*

Once the supply chain map has been completed, review your position along with the results of your internal supply chain map exercise, and use the information in your strategic planning process. Where do you fit and where are there other opportunities to grow your business through new products or service offerings?
Strategy 3: Participate in a National Supplier Database

Supplier databases also exist on a national level and can be good tools for both buyers and suppliers to help discover new opportunities, customers, and markets to serve in various industry sectors across the U.S. Many are available at no cost. Below are two examples:

IBM – Supplier Connection

The IBM—Supplier Connection is a recommended database platform for manufacturers and service providers in the defense industry and others to utilize. 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-sized companies free of charge. Buyers currently partnering with IBM on the directory include:

![BUYING MEMBERS Table]
Additionally, between 2,400 and 3,000 suppliers are registered in the database. The range here is large 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 commodity needs. These needs are as follows:

**CURRENTLY ACCEPTED COMMODITIES**

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

**ThomasNet**

ThomasNet ([www.thomasnet.com](http://www.thomasnet.com)) is an online supplier discovery and buyer platform that is free for suppliers to list their profile and free for buyers to search. It allows buyers to search for suppliers that meet certain qualifications, diversity goals, geography, and other requirements. Walmart is currently promoting this tool as part of its U.S. Manufacturing initiative that encourages its supplier manufacturers to make their products in the U.S. As many consider U.S. operations for the first time, this is a helpful tool for them to find qualified suppliers for their new “reshored” operations.

**Action Steps**

To utilize these National Supplier Database tools:

**Stage 1:**

**Research the available tools.**

Assess the various types of national supplier databases available and determine which one(s) will be the most beneficial to your company’s strategic vision. Consider that each tool takes time and a certain amount of investment for it to be useful to your company. It is best to first participate in one and commit to doing it well before participating in additional tools and initiatives.
**Stage 2:**
Create a profile and promote your company’s capabilities and competencies.

Building from your company’s internal analysis of products, services, and core competencies, create a profile. Spend time filling out your profile as completely as possible at the beginning, and dedicate time going forward to maintaining it. Furthermore, understand that in some systems, such as IBM’s, not all input fields are required. It will be important to provide enough information in order to get good matches with contracting opportunities.

**Stage 3:**
Benchmark your company and strive to be an industry leader.

Utilize the supplier database to help gauge your level of competencies among peers in the industry. Identify ways to boost your proficiencies and industry recognition, such as identifying any certifications relevant to experts in the industry. Determine value-added, IP-protected, differentiating products and services and continue to update your competencies within the portal.
Strategy 4: Engage in Collaboration Opportunities

Collaboration on a state or regional level with other companies in the defense sector can be a great way to pursue diversification problem-solving and garnering 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 business and your area.

A collaborative group, such as a hypothetical “Defense Industry Council” consisting of participants such as OEMs, Tier I suppliers, high-level government officials (e.g., state and federal), and higher education and workforce leaders could be a great way to share challenges and ideas, as well as obtain resources and support for common themes. At a more local level, sub-groups of the Council could also be developed and include small business representatives, entrepreneurship thought leaders, and local public officials to address the same types of issues and challenges at the local and/or regional level. This type of collaboration can provide a platform for state EDOs, Procurement Technical Assistance Centers, and state-level Manufacturing Extension Partnership locations, in particular, to better offer their services, be more responsive, and supply the needed support for your business’ needs.

Distinctly, recommended areas of focus for the “Council” to focus on could include talent development, innovation, public policy, marketing, supply chain, and other topics as deemed appropriate by the group. One key benefit to the Council for manufacturers and suppliers is the ability to establish partnerships with federal policymakers and advocates guiding effective and appropriate legislation as needed to help support their businesses and industry sector growth, both related to defense industry and others. Additional areas of resources and support may include international market entry.

Additionally, the Council could provide a reciprocal platform where industry experts disperse current information and data on U.S. Department of Defense requirements (e.g., certifications, sustainability requirements, the Quadrennial Defense Review, etc.). It could also support 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.

On a national level, the National Defense Industry Association is a good example of such a collaborative group, although it can be more challenging to collaborate on such a large scale. On a state level, a great example of an industry collaboration that is working well is the Indiana Aerospace and Defense Council. See below for more information on this group and its objectives.

### Case Study: Indiana Aerospace and Defense Council

Launched in 2011, the Indiana Aerospace and Defense Council (IADC) 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.

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3 [http://www.conexusindiana.com/aerospace-overview](http://www.conexusindiana.com/aerospace-overview)
**Pillars of Focus**

1. **Workforce:** To encourage careers in defense and aerospace manufacturing by providing training and job opportunities.

2. **Supply Chain:** To establish that companies get help to improve the value chain of their supplier network.
   - Procurement Technical Assistance Center – Established a statewide resource center.
   - 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.

**Action Steps**

Connecting with decision-makers in the public and private realms is key to successfully enhancing your company’s diversification within the defense industry and into other sectors. The following describes an approach for collaboration:

**Stage 1:**
Reach out to state, regional, and local economic development groups regarding your interest in a collaboration group or “Council.”

If a collaboration group already exists, EDOs will be able to point you to the appropriate group to get involved in. If one does not exist, express your interest in the benefits of such a group and ask the EDOs to consider organizing one for your state or area.

**Stage 2:**
Get engaged.

Once the opportunity is there, take advantage and get involved by attending meetings and voicing your challenges, ideas, and needs.
Strategy 5: Participate in Talent Development and Attraction

Talent and workforce have become paramount to a company’s ability to be successful in today’s economy. State organizations and supply chain supporters should conduct a thorough assessment of the existing defense sector’s talent, as well as the pipeline of workers expected to enter the workforce to help discern the impediments and future landscape of skills available and required for defense and related industries. Within the assessment, the 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. To be successful in this initiative, a strong partnership among manufacturers and service providers with state, regional, and local EDOs; state workforce development organizations; workforce investment boards (WIBS); education institutions; and training providers will be required.

To support talent availability for manufacturers, supply chain organizations could identify the most used individual trade certifications within the defense industry and promote the certifications within those trades. The goal would be to have available talent in the state defense industry regions for quick ramp ups as needed. Because the large pool of specific certifications would also draw non-defense related industries that also utilize the talent, there would be other businesses to absorb the talent during ramp downs.

However, initial steps must include stronger collaboration amongst K-12 and postsecondary education institutions, industry, and government to establish an effective talent pipeline and training programs for incumbent workers. This collaboration would need to be informed by current and projected business needs through direct input from the business community. States should consider creating or strengthening avenues for businesses to provide input more directly to K-12 curriculum decision-makers. Through these avenues, businesses should also be able to view trends in workforce readiness and pre-high school graduation certifications.

The goal is to have existing businesses affect the talent development process to ensure the future workforce will have the skills needed for businesses to stay competitive. Additionally, the state and EDOs would be able to market future talent pools to potential new businesses.

Action Steps

A full 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 to different supply chain tiers. An approach to this initiative is as follows:

Stage 1:
Conduct a thorough assessment of your existing and future workforce needs.

Identifying the talent pool’s strengths and gaps in your region is critical to being competitive in your industry and is foundational for diversifying into different levels of supply chains. The talent assessment should also include an evaluation of existing conditions and projected future needs. Furthermore, the identification of existing partnerships among businesses, K-12 educators, and government, as well as opportunities for increased engagement, should be included in the assessment.
**Stage 2:**
*Exchange the results of the talent assessment with economic developers and decision-makers.*

Informing talent gaps and needs to local, regional, and state EDOs will help mobilize decision-makers and enable increased competitiveness and diversification within the industry. Furthermore, your company’s talent assessment can provide valuable data for policymakers to support a more competitive regional workforce, thus enabling successful industry growth overall. Network connections to educational institutions, programs, and certifications in which economic developers can connect you is another benefit that will help you address talent gaps.

**Stage 3:**
*Implement a strategic plan to address talent gaps.*

Develop an internal strategic plan for your company to solve talent issues. In particular, consider whether the right approach will be centered on talent development, talent retention, and/or talent recruitment, or some combination of the three. These talent strategies at times require working with other manufacturers or service providers in your region, as well as EDOs, workforce development organizations, educational institutions, and others.
Strategy 6: Embrace Innovation and Technology

The future state of the defense industry and its requirements are constantly evolving. Manufacturers and service providers will need to be able to respond to changes in the industry, including innovation and advances in technology, to be sustainable. Ultimately, increasing intellectual property development will help mitigate risk for defense companies 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). Furthermore, 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. 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.

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.

One example of an initiative that showcases a successful format for companies to establish a formidable innovation ecosystem is The Water Council in Wisconsin.

Case Study: The Water Council – Milwaukee, Wisconsin

The Water Council supports all stages of water technology companies in the Great Lakes Region, throughout the United States, and around the world. With the core focus on freshwater research, innovation, education, and business development, the Water Council understands that all levels of organizations within the water technology industry have specific needs. The density of their programs reflect those needs, and with the guidance of the leadership’s vision, these programs will continue to evolve as they collectively grow.

The Water Council was established as a 501(c)(3) organization in 2009 by Milwaukee-area businesses, education institutions, and government leaders. With a mission to align the regional freshwater research community with water-related industries, the organization coalesced the leading water technology cluster in the United States to one of the most powerful in the world.

With over 200 water technology businesses in the region, as well as academic programs and economic development organizations dedicated to the advancement of freshwater technologies, Milwaukee is a textbook case study on the profound impact of a comprehensive cluster development approach. The Water Council has nearly 200 members representing 24 water technology specialties. Currently, they have 22 partners, including international organizations, and have eight universities that are members.

The Water Council has wide-ranging funding sources, from federal grants and contracts and state grants and contracts to foundation grants, membership dues, corporate contributions, event sponsorship registration, and facility income.

Grounded in Milwaukee’s historic brewing industry and large water-user manufacturers, many of Milwaukee’s water technology businesses can proudly proclaim decades of being open for business and have a product reach that extends to all parts of the world. Equally as important are the higher
education institutions, which also have decades of experience, global reputations in water research, and train professionals in a wide-range of professions including science, engineering, law, and business. The third asset is world-renowned utilities that have gone through great adversities only to emerge as acclaimed water innovators.

Opened in September 2013, the Global Water Center (GWC) is a 98,000 square foot facility housing water-centric research for universities, existing water-related companies, and accelerator space for emerging water technology companies. With over 40 tenant organizations, GWC continues to be a magnet for foreign dignitaries, water technology businesses, economic development organizations, and students from all levels. The development of GWC, which is completely full, was an important milestone as it established a highly visible headquarter base for The Water Council and a platform to grow Wisconsin’s water technology cluster.

Reed Street Yards (RSY) is one of Wisconsin’s first Eco-Industrial Parks, a concept that seeks to balance natural resources and economic development. RSY is a former brownfield transformed into a 17 acre (6.9 hectares) global water technology business park that will become a mixed-use urban office, educational, research, and technology zone focused on the international water industry.

Current initiatives include:

• The Water Council’s ICE (Innovation Commercialization Exchange) Institute aggregates, evaluates, and connects emerging technologies addressing water issues across industries
• BREW Accelerator is a global water seed accelerator with 17 start-ups that raised more than $2.5 million since 2013.
• Small Business Channel provides mentoring, export assistance, and a national network of partners to help small businesses grow.
• Pilot Program offers support, funding, and demonstration sites to help develop and validate new, cutting-edge products.
• Water Leaders’ Summit and Technology Showcase is an annual convening in Milwaukee of water leaders from around the world looking for new technology, talent, business growth opportunities, and inspiration.

**Action Steps**

Manufacturers and service providers can boost their innovation by using the following process:

**Stage 1:**
**Link with formative local, regional, and national initiatives.**

Get plugged into the defense industry - or similar supply chains - to understand current requirements for competitiveness, and likely future requirements for entering into and staying attractive in the supply chain. Associations such as the National Defense Industry Association (NDIA), for example, have work groups on relatively narrow sectors of the defense industry. Your state Procurement Technical Assistance Center (PTAC) can also help in identifying future needs and innovative avenues to explore.
Stage 2:
Engage with Centers of Excellence offered within your state and region.

The value of Centers of Excellence (CoEs) is having a centralized skills-based competency center. CoEs have highly successful stakeholders supporting projects involving universities, the private sector, government, and private citizens. Access to these stakeholders provides linkages to capabilities and human capital beyond what could be supported by internal company budgets.

Stage 3:
Be intentional about your value and differentiation.

Continuously look for ways to differentiate and add value to your service offerings to the defense industry and other supply chains. Programs such as the Manufacturing Extension Partnership’s (MEP) Supplier Scouting program and Technology-Driven Market Intelligence can shed light on opportunities specific to your company.
Conclusion

In summary, the Defense Supply Chain Playbook for Manufacturers and Service Providers presents recommended strategies for helping companies diversify their customer base, increase market share, gain innovation, promote collaboration, and develop talent. Companies can utilize the strategies below that best fit your specific organization, your goals, needs, and strategic planning for the future.

1. **Conduct an Internal Analysis of Diversification Opportunities within the Defense Industry and in Other Sectors:** Conduct an internal analysis of your current core competencies and position within the defense industry supply chain and others to help identify potential areas of opportunity.

2. **Conduct and Support Supply Chain Mapping and Supplier Directories in Your Area:** Support economic development led efforts for area supply chain mapping and supplier directories that are mutually beneficial initiatives.

3. **Participate in a National Supplier Database:** Participate in online supplier databases, many of which are no cost, to help discover new opportunities, customers, and markets to serve.

4. **Engage in Collaboration Opportunities:** Engage and collaborate with strategic or product partners in the defense industry at the state-level as a means of diversification problem-solving and to garner more strength and attention from federal agencies and policymakers.

5. **Participate in Talent Development and Attraction:** Support a concerted effort with industry, government, and education institutions to create a state-wide, industry-specific strategic plan to attract, retain, and develop talent.

6. **Embrace Innovation and Technology:** Amplify partnerships with universities to respond to changes in the industry, including through innovation and advances in technology, to be sustainable.
Appendix A: 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 B: Resource Guide

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

ExporTech: ExporTech is an export acceleration program delivered in partnership with the Wisconsin Economic Development Corporation (WEDC) and the Wisconsin Center for Manufacturing and Productivity (WCMP). It helps Wisconsin companies expand their global market reach through targeted export strategy development and execution. Participating companies receive access to experts, individualized coaching and consulting, customized support, and guided development of an international growth plan. ExporTech provides a unique focus on CEO/top management success factors and aims to provide companies with early export success at a reduced risk. Each ExporTech session consists of three intense events scheduled one month apart. Coaching and assistance is provided between events. http://inwisconsin.com/export/assistance/exportech/

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): NDIA, comprised of 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 (SEA): Established in 2003, SEA is an aerospace & defense (A&D) nonprofit 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. The alliance provides a lean management system and a voluntary supplier certification program for enhanced performance, collaboration and visibility. It is funded by supplier memberships and sponsorships. http://www.seaonline.org/newtosea.html

U.S. Commercial Service Aerospace and Defense Technology: As the industry’s primary export resource, U.S. Commercial Service Aerospace and Defense Technology is a team of domestic and international trade specialists, located at Export Assistance Centers throughout the U.S. and at U.S. Embassies overseas. They are 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- to medium-sized manufacturers within their service territory. http://www.wmep.org/http://www.uwstout.edu/moc/

Wisconsin Procurement Institute (WISPRO dba WPI): WPI is the state’s Procurement Technical Assistance Center (PTAC) which provides services and resources at low- to no-cost to help companies sell their products and services to the federal government. https://www.wispro.org/
**ThomasNet**: ThomasNet ([www.thomasnet.com](http://www.thomasnet.com)) is a national online tool for supplier discovery and sourcing for both products (including components, capital equipment, and custom products) and services. It is free to set up a supplier company profile and free to use the system as a buyer including uploading RFPs and spec sheets. Suppliers can also list their quality certifications to show prospects that they can meet specific quality standards, as required.

Walmart recently partnered with ThomasNet to give free access to its suppliers who are interested in participating in their U.S. Manufacturing initiative. As suppliers consider U.S. operations for the first time, one of the initial challenges is identifying how to source parts and services for their particular product. The ThomasNet tool is being promoted as a solution to assist them with this endeavor, which is also helping to provide U.S. companies with new customer opportunities.

**Deloitte Aerospace & Defense**: Deloitte recently published a whitepaper titled *The Next Era of Aerospace and Defense* which provides an analysis of the industry and the impact of innovation. The piece suggests that aerospace and defense (A&D) companies who “stay the course” with the same strategies and business models they have been following for years and don’t look for ways to evolve, will not be successful. The whitepaper provides some thought provoking ideas for evaluating a company’s current business model and identifying strategies to retool business and operating plans to best meet current and future market needs of the A&D industry. Based on different scenarios of financial stability and strategic flexibility, the report looks at seven different types of A&D companies and suggests potential new strategies to be considered - including expansion, consolidation, restructuring, diversifying, and others.

**Quality Certifications for Industry**: Quality certifications show prospects that a potential supplier can meet their specific quality requirements, including for defense-related contracts and other types of sourcing opportunities. Some examples include:

- **ISO** - ISO is an independent, non-government international organization that brings together experts to share knowledge and develop market-relevant International Standards that give world class specifications for products, services, and systems to ensure quality, safety, and efficiency. The ISO standards are key in international trade. ISO develops the standards, but certification is performed by external bodies. Common certifications include ISO 9000 and ISO 9001 for quality management. ISO also has a list of certifications for globally accepted standards for products for the aerospace industry. [www.iso.org](http://www.iso.org)

- **U.S. General Services Administration (GSA)** - GSA is a government agency created to help federal agencies buy smarter, reduce their real estate footprint, provide efficient, cost saving technology, and create a better, faster federal government. Vendors can be pre-approved by GSA for faster approvals process for federal government contracts, and others who look for the GSA pre-approved status as a measure of quality. [www.gsa.gov](http://www.gsa.gov)

- **Restrictions of Hazardous Substances (RoHS compliant)** - RoHS compliance can be required, particularly for international market opportunities. RoHS refers to restrictions on lead and other hazardous materials found in electrical and electronic products, which is now a regulation in the European Union. It is possible that other countries, or companies, may also require (or prefer) compliance with this regulation for electronic goods in the near future. [www.rohsguide.com](http://www.rohsguide.com)
Appendix C: Supplier Directory Example

The following are screen shots from the New North Supply Chain Marketplace, an online defense industry search engine published by the New North regional economic development organization.
### 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**
**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

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you able to provide U.S. Export Control Classification Numbers for your equipment, software, and technology?</td>
<td>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?</td>
</tr>
<tr>
<td>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?</td>
<td>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?</td>
</tr>
<tr>
<td>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?</td>
<td>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?</td>
</tr>
</tbody>
</table>

### Data Security

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the last twelve months, has your company suffered a Security Breach?</td>
<td>Does your company have an insurance policy that would cover the costs associated with a Security Breach?</td>
</tr>
<tr>
<td>Does your company have an insurance policy that would cover the costs associated with a Security Breach?</td>
<td>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?</td>
</tr>
<tr>
<td>Does your company encrypt the Personal Data loaded on laptop computers and portable storage media?</td>
<td>Does your company encrypt Personal Data sent over the Internet or other unsecured networks?</td>
</tr>
<tr>
<td>Does your company encrypt Personal Data sent over the Internet or other unsecured networks?</td>
<td>Does your company have a data incident reporting process?</td>
</tr>
<tr>
<td>Does your company have a data incident reporting process?</td>
<td>Does your company have an information or data security program to protect Personal Data?</td>
</tr>
<tr>
<td>Does your company have an information or data security program to protect Personal Data?</td>
<td>How does your company transport Personal Data?</td>
</tr>
<tr>
<td>How does your company transport Personal Data?</td>
<td>Does your company provide education and training to its employees regarding proper use of the company’s information or data security program?</td>
</tr>
</tbody>
</table>

### Independent Contractors

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you an Independent Contractor?</td>
<td>Do you maintain a commercial office for the purpose of conducting business?</td>
</tr>
<tr>
<td>Do you maintain a commercial office for the purpose of conducting business?</td>
<td>Do you have others in your direct employ?</td>
</tr>
<tr>
<td>Do you have others in your direct employ?</td>
<td>Are you incorporated as a corporation or organized as a limited liability company?</td>
</tr>
<tr>
<td>Are you incorporated as a corporation or organized as a limited liability company?</td>
<td>Provide an estimate of the net investment of your business:</td>
</tr>
<tr>
<td>Provide an estimate of the net investment of your business:</td>
<td>Provide an estimate of the size of your client base:</td>
</tr>
<tr>
<td>Provide an estimate of the size of your client base:</td>
<td>Number of clients for whom you have performed services in the last 12 months:</td>
</tr>
<tr>
<td>Number of clients for whom you have performed services in the last 12 months:</td>
<td>Do you advertise your business in mass media, trade publications or other media?</td>
</tr>
<tr>
<td>Do you advertise your business in mass media, trade publications or other media?</td>
<td>Have you ever been employed by any Supplier Connection member company? (can search by whether or not confirmed supplier of Buying Members)</td>
</tr>
</tbody>
</table>

### SAM Data

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAM (System for Award Management) data below is pulled from Federal procurement systems and the Catalog of Federal Domestic Assistance.</td>
<td>SAM data is a combination of data from CCR, FedReg, ORCA, and EPLS. (can search by market served - federal versus commercial)</td>
</tr>
</tbody>
</table>