



Defense Industry Manufacturer's
INNOVATION CHECKLIST

Seven steps to initiate and plan innovation projects to become a more successful defense supplier.

Published January 2016

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Presented by

Indiana Office of Defense Development (IODD)

Indiana Department of Administration (IDOA)

Indiana Small Business Development Center (ISBDC)

Indiana Office of Small Business and Entrepreneurship (OSBE)

Indiana Procurement Technical Assistance Center (Indiana PTAC)



INTRODUCTION

Innovation is an essential element of the U.S. Department of Defense's (DoD) Innovation Initiative. The program represents an important paradigm shift in that it outsources research and innovation activities to the supply chain, a change that is being embraced and implemented not only by the DoD, but by government laboratories and prime contractors as well.

The critical importance of innovation was evidenced at the 2015 Aviation & Aerospace held in Indianapolis, Indiana. Prime defense contractors taking part in the conference stated that the principal qualifying parameters for being part of their supply chain were as follows: price, quality, delivery and innovation. While Indiana manufacturers were aware of the importance of price, quality and delivery, they were less clear of how to become an innovative supplier.

This document is intended to provide clarity on the specific actions a manufacturer can undertake to qualify as an innovative supplier. Specifically, The Defense Industry Manufacturer's Innovation Checklist provides a clear and concise roadmap of the steps Indiana suppliers can take to not only identify, but also initiate research and innovation opportunities. By familiarizing themselves with these steps, companies can be better positioned to succeed under the Defense Innovation Initiative, something that would bring key benefits to Indiana manufacturers, the DoD and the nation's Warfighters.

Indiana manufacturers are asking

"I understand price, quality and delivery, but what do I have to do to become an innovative supplier?"

It is important to state from the outset that suppliers do not need to have Ph.Ds on staff or work in a laboratory to become researchers or innovators. A researcher creates ideas and is a problem solver. Innovation is about transforming those ideas into practice, or more simply, developing and implementing ideas. A seemingly simple idea can have a major impact. Ask yourself these questions: Can you and your team help improve functionality, value, process, quality and/or delivery up and/or downstream to your supply chain? Would these changes improve your supply chain's product or service for the DoD and our Warfighters? If these activities entail generating ideas and implementing them, then your company has, by definition, fulfilled the "innovation" requirement.

It is recommended you get started by gathering your team together to prepare your own supplier research and innovation program. Next, you should carefully review and discuss the following seven steps, which will help you better articulate your company's capacity to meet the four requisite elements of price, quality, delivery and innovation.



1. Understand Your Position in the Supply Chain
2. Seek Guiding Requirements
3. Collaborate With Cluster Partners
4. Implement Innovation Best Practices
5. Enhance Your Public Profile
6. Consult Your Local Indiana Procurement Technical Assistance Center (Indiana PTAC)
7. Explore Research and Development Contract and Grant Opportunities

Understand Your Position in the Supply Chain

Ask questions and understand your position in the supply chain.

- Identify and reach out to suppliers in your supply chain, both upstream and downstream.
- Document what products or services you receive from your suppliers, and where your product or service fits into the downstream component or product.
- Gain insight on high-level requirements from your Prime or Tier 1. Attend supply chain conferences and industry meetings and participate in breakout innovation groups to ask, discuss and learn more about how you contribute to specific subassemblies or finished products or systems and how you can add value. (Primes and Tier 1, see Attachment A, page 7, for suggested actions to assist your suppliers with their innovation programs.)

Seek Guiding Requirements

Determine the high-level guiding requirements and specifications to your supply chain's finished product.

- Seek this type of information from your product or services government issuer, prime or downstream supplier, or search online in your product or technology space.

For example, if your company supplies parts or components for military vehicles, go to www.army.mil/TARDEC. On its homepage, you will find a link in the left column called "Opportunities" that will lead you to usarmy.vo.llnwd.net/e2/c/downloads/405983.pdf. This document provides industries with a list of the variety of opportunities available and the guiding requirements associated with these activities. It details explicit opportunities regarding requirements for weight reduction, something you should be aware of if you are a supplier to military vehicles.

Do you have ideas to attain guiding requirements in your product or the components either up or downstream of your product? Share your ideas with your supply chain and prime.

Collaborate With Your Local Cluster Partners

Meet with and communicate your thoughts, ideas, expertise and goals with your geographical or technology cluster partners

- Attend meetings and events hosted by your local defense industry association, Indiana Small Business Development Center (ISBDC) or Indiana Procurement Technical Assistance Center (PTAC) regional office and technology association (These organizations can assist suppliers by suggested actions presented at the bottom of Attachment A, page 7). For technology partnerships, it is important to participate in your trade or professional associations.
- Communicate your thoughts, ideas, expertise and goals with your partners and the membership of your associations. Contact information is located on Attachment B, page 8.
- Consider the STIMS Institute's New Solutions as areas for improvement, as presented in Attachment C, page 9. It offers ideas to improve your existing supply chain activities and develop innovative ideas and opportunities.

Note: Given your team has an understanding of Basics to Enterprise Management (grey), and Replications Solutions (orange), consider ideas to improve Product, Process, Use Application or Technology Application (green), as presented in the chart on page 9.



Collaborate With Your Local Cluster Partners

continued

Additionally, voice your interest and needs for innovation, collaboration, and resources to/with your local and regional association organizations:

- Ask the association to invite and include formal research entities into the associations. These might include a local or aligned research university or lab.
- Communicate your problems, ideas and capabilities with the research entities.
- Investigate technology-transfer collaboration with universities or labs.

For research and innovation project opportunities outside your existing supply-chain activities, or for those who want to break into the defense market, be aware and consider DoD innovation requirements and opportunities. Discuss these requirements with your internal team and at meetings with your partners. Take time to investigate the following opportunities:

- Examine the DoD Defense Innovation Marketplace link for IR&D relationships and ideas: <http://www.defenseinnovationmarketplace.mil>
- Contact your Indiana federal lab, located at NSWC Crane, to inquire about DoD technology transfer opportunities. The DoD's 60+ federal labs invent, patent and often build prototypes of technology, yet they need business partners to help them commercialize the technology so the DoD can procure them. To create an innovation and supplier relationship with the DoD, contact NSWC Crane, Federal Laboratories, page 10, to help you identify a technology that may fit your business and capabilities.
- These and other research and innovation projects may qualify for SBIR/STTR grants (see VII).

IV

Implement Innovation Best Practices

As you identify potential innovation projects, either within existing supply chain activities, or new opportunities, use resources to guide and assist your planning process.

- Internally, or with cluster partners, follow the eight innovation best practices (See Attachment D, page 10).
- Consider standardized project management principals as offered by the Project Management Institute. The institute publishes a comprehensive guide entitled Principles of Project Management, which is available for purchase at the following link: <http://marketplace.pmi.org/Pages/ProductDetail.aspx?GMProduct=00100001001>
- For technical assistance, contact your Manufacturing Extension Partnership; the university or government laboratory Offices of Engagement; or local PTAC office.
- The following are some of the programs and services available through these technical assistance providers:
 - Research partnerships
 - Technology adoption
 - Digital manufacturing
 - Technology commercialization
 - Gap analysis
 - Licensing and collaborative arrangements
 - Procurement technical assistance
 - Employment of graduates, interns, co-ops, and use of senior capstone projects
 - Import substitution



Communicate your ideas, expertise, problem solving experience and current work throughout your company website and online presence. This will enable research and government entities, OEMs/ primes, supply chain and cluster partners to find you.

- Innovation culture: Consider the following questions: Was your company founded on a new technology or production method? Does your company have a history of problem solving? Have you developed or created unique solutions for your customers? If this is the case, state this clearly on your website.

- R&D Workbench – List your activities and ideas by project. Under your technology or solutions page, you may want to simply add R&D WORKBENCH ([below](#)) followed by project examples.
 1. Project with customer to improve...
 2. Project with customer to increase throughput...
 3. Researching lighter weight materials to meet customer’s requirements...
 4. Project to identify root cause analysis...*Later, add the outcome results to announce successes/accomplishments.*

After you enhance your website with these indicators of research and innovation, make sure your website is readily searchable by potential collaborators/partners by including the following:

- Testimonials – Ask those with whom you have jointly problem-solved to give you a statement regarding the work you did together (ideally with company and officer name) to post on your website.

- Website search words – Add search words to your website content and meta-data that identify your technologies, capabilities and expertise. Consider contacting and subscribing to a Search Engine Optimization service provider.

- Certifications – If applicable, identify and obtain your appropriate state and federal small business certifications, such as Woman Owned Small Business (WOSB), Veteran Owned Small Business (VOSB), 8(a), HUBZone, etc.

For instructions on how to apply for state small business certifications, visit the Indiana Department of Administration (IDOA) at <http://www.in.gov/idoa/mwbe/2489.htm>. For information on how to apply for federal small business certifications, visit the Small Business Administration (SBA) at <https://www.sba.gov/offices/headquarters/obd/resources/4210>.

Indiana PTAC counselors are available to work with your business and the certifying agencies to determine which certifications apply, as well as to assist your business in pursuing these certifications.

- Downloadable Capabilities Document – Draft a one-page capabilities document and post it as a downloadable file on your website. Make sure it includes your company’s quality certifications, digital manufacturing capabilities, CAGE code and primary industry NAIC codes.

- Register in SAM – Register and maintain your profile in the “System for Award Management: (SAM). The federal government uses this information, which needs to be updated annually, to find potential vendors and to process contract payments electronically.

- Register in the SBA DSBS – Complete and maintain a profile in the Small Business Administration’s (SBA) Dynamic Small Business Search (DSBS) database, which is searchable for contracting officers and members of the general public alike. You can enter a capabilities statement, keywords, references, and much more to market your business. Unlike SAM, this database is only for small businesses.

Such registrations/certifications will enable research and government entities, OEMs/primes, and supply chain and cluster partners to find you, thus creating opportunities for business, collaboration and research.

VI

Consult Your Local Indiana Procurement Technical Assistance Center

The Indiana Procurement Technical Assistance Center (Indiana PTAC) offers confidential counseling, at no cost to assist you, in the selling of your products and/or services to the appropriate local, state and federal agency.



Reach out your Indiana PTAC local office for consultation. This office works with hundreds of Indiana manufacturers across the state and can help you identify strategic partnerships, joint ventures and subcontracting opportunities. The Indiana PTAC's services include:

- **One-on-One Counseling** – Staff will work with you to identify and target appropriate local, state and federal agencies, and to develop marketing strategies.
- **Bid-Matching Service** – The Indiana PTAC can automatically match your company's product and/or service with daily bid notices that show you exactly what the government is buying or planning to buy.
- **Subcontracting Assistance** – The Indiana PTAC can help identify subcontracting opportunities with major prime contractors, particularly those located here in Indiana.
- **Assistance with Certifications and Registrations** – Staff can help you through the complex maze of registrations that are essential to doing business with the government. They also can assist in determining if you are eligible for any set-aside programs as well as assist you in the certification process.
- **Proposal Preparation** – While the Indiana PTAC will not write your proposal for you, the group will assist you in understanding the solicitation and its requirements. They will review it as it evolves and offer recommendations to make it stronger and more accurate.
- **Workshops and Events** – The Indiana PTAC holds numerous training events and workshops throughout the year to help you better understand the contracting process. For a complete schedule of all upcoming workshops visit: <http://www.indianaptac.com>.

VII

Explore R&D Opportunities Via the

*Small Business Innovation
Research (SBIR)*

*Small Business Technology
Transfer (STTR)*

Programs

Indiana PTAC can match your business with DOD procurement and subcontracting opportunities, as well as provide counsel to make your proposal stronger.

Ask your accountant or tax professional about R&D tax credits.

Solve novel, sought-after federal interests and requirements that are funded with federal research and development (R&D) contracts and grants and with matching state Phase I SBIR/STTR grants.

The Indiana PTAC offers professional services to assist you with exploring your potential for the federal SBIR/STTR R&D contract and grant programs. If your company is Indiana-based (75 percent assets or 50 percent employees), it may qualify for assistance with investigating and applying for federal contracts and grants to conduct research to solve government and national problems and requirements.



Contact an Indiana PTAC SBIR/STTR Program Specialist for assistance with contract or grant matching and applications. The Indiana PTAC's services specific to the SBIR/STTR Program include:

- **One-on-One Counseling** – SBIR/STTR Program Specialists will meet with you to understand your small business innovation and will then help familiarize you with the various SBIR/STTR participating federal agencies and aid you in finding matching solicitations for your technology at no cost.
- **Phase 1 & Phase 2 Proposal Aid** – SBIR/STTR Program Specialists will help you understand the solicitation and its requirements, provide guidance and review it as it evolves, and connect you with the right resources to strengthen your proposal submission.
- **Phase 1 Matching Funds** – Through Indiana PTAC's partnership with the Indiana Economic Development Corporation (IEDC) and Elevate Ventures, Indiana companies interested in Phase I matching awards from the State of Indiana can access an additional 50 cents for every federal dollar up to \$50,000 per award. Note: Additional investment opportunities for select Phase II recipients also may be available.
- **Workshops and Events** – Indiana PTAC holds numerous training events and workshops throughout the year to help you better understand the SBIR/STTR process, including specifics on how to apply to each agency.

Visit this link to contact the PTAC for SBIR/STTR assistance:
<http://isbdc.ecenterdirect.com/ClientPresignup.action?centerID=20>.

For more information on applying for state matching funds visit:
<http://www.elevateventures.com>

By reviewing and implementing the seven-section checklist, you will find the answers to become a more innovative supplier. In so doing, you will benefit the supply chain, the DoD and our Warfighters. See Attachment B, page 8, for a contact list of state and local organizations that will provide innovation resources and support.

Action items for supply chain primes, tier 1, and manufacturer support organizations

Action Items for Primes and Tier 1

Primes or Tier 1s can assist their suppliers by creating and providing the security classification appropriate information, as follows:

Action Item 1

- Create and distribute high level supply chain flow charts, as possible. This will help supplier understand and visualize where and how they fit into the supply chain (See Checklist I.)

Action Item 2

- Create and distribute guiding requirements to your supply chains (see Checklist II).

Action Item 3

- Invite all suppliers to supply chain conferences, and organize break out innovation brain storming sessions.

Action Items for Defense Industry Associations, Economic Development Office, Indiana Procurement Technical Assistance Center (PTAC), and Trade or Professional Associations

Action item 1

- Facilitate supplier meetings so they can communicate their problems, ideas, expertise and goals with other partners and members.

Action Item 2

- Ask the association to invite and include formal research entities into the associations. This might be a local or aligned research university or lab (Purdue, Crane, others...)

Action Item 3

- Communicate with the research entities your problems, ideas and capabilities.

Action Item 4

- Investigate technology transfer collaboration with the research entities.

Organizations and their contact information, via link

State Offices

Indiana Office of Defense Development
<http://www.in.gov/iodd/>

Indiana Procurement Technical Assistance Center
<http://www.indianaptac.com/>

Indiana Small Business Development Center
<http://www.isbdc.org/>

Indiana Department of Administration
<http://www.in.gov/idoa/>

Conexus
<http://www.conexusindiana.com/>

Indiana Economic Development Corporation (IEDC), by county
<http://iedc.in.gov/assets/files/Docs/2015%20downloads/LEDO%20list%204-28-2015.pdf>

Defense Industry Associations – Indiana Chapters

National Defense Industry Association
Carl Boss, Central Indiana President
cboss@garritytoolcompany.com (email)

Northeast Indiana Defense Industry Association
<http://nidiaonline.org/>

Regional Offices

Local Economic Development Corporations (LEDO)
<http://cms.bsu.edu/About/AdministrativeOffices/BBC/Resources/-/media/WWW/DepartmentalContent/BBC/PDFs/resource/indianalocaldevorgs.aspx>

Indiana Economic Development Association (LEDA), interactive map of all service providers:
<http://ieda.org/wp/resources/map/>

University Outreach and Engagement Offices

Purdue University Technical Assistance Program
<https://tap.purdue.edu/>

Manufacturing Extension Partnership at Purdue University
<http://mep.purdue.edu/>

Indiana University-Purdue University Fort Wayne (IUPFW)
<https://www.ipfw.edu/engagement/>

University of Notre Dame
<http://www.innovationparknd.com/>

Indiana University
<http://engagement.iu.edu/> <http://innovateindiana.iu.edu/about/engagement.shtml>

Rose-Hulman Institute of Technology
<http://www.rose-hulman.edu/offices-and-services/office-of-innovation-engagement.aspx>

Vincennes University
<http://www.vinu.edu>

Southern Indiana University
<https://www.usi.edu/outreach>

Ivy Tech Community College of Indiana
<http://www.ivytech.edu/>

Federal Laboratories

NSWC Crane Office of Engagement and Technology Transfer
<http://www.navsea.navy.mil/nswc/crane/working/Pages/Technology%20Transfer.aspx?PageView=Shared>

Brook Pyne, Technology Transfer Manager, NSWC Crane
(812) 854-4823 (office); elizabeth.b.pyne@navy.mil (email)

Attachment C

Research and Innovate New Solutions



Basics to Enterprise Management	Replication Solutions	New Solutions			
		Product	Process	Use Application	Technology Application
<ul style="list-style-type: none"> *Planning *Leadership *Sales *Marketing *Development *People *Operations *Finance *Legal 	Cost Reduction and Continuous Improvement solutions to processes already in place. <ul style="list-style-type: none"> * Lean * Six Sigma * Supply Chain 	Redesign& innovation	Innovate + Material + Machine	New uses for current customer & attain new customers	Data manage + Cust. relation. + Enterprise Automation
		Growth in adjacencies			
		Radical cost, quality & capability enhancement for current customers & market		New revenue stream & new markets	Machine & systems automation
Leverage Core Capabilities for New Product / Process / Application Solutions					
Eco-system solutions that combine many companies to focus on industry-wide "Solutions" for all customers.					

Modified from: Dr. K (Subbu) Subramanian
 STIMS Institute (Science Based Technology Innovation and Management Solutions.)
www.stimsinstitute.com

Article link below.

Presented by the American Society for Engineering Education, 2012

Kline, William A., Mason, Thomas W., and Dougherty, Brian Charles, "AC 2012-4189: Being Innovative – Lessons Learned from the Practice of Technology Commercialization." American Society for Engineering Education. 2012.

<https://www.pcrd.purdue.edu/files/ASEE-2012-4189-Final.pdf>

For additional information or facilitated workshop assistance, contact:

William A. Kline, Ph.D.

Dean of Innovation and Engagement, Rose-Hulman Institute of Technology
Director, InsideOut Innovations

<http://ww.rose-hulman.edu/offices-and-services/office-of-innovation-engagement.aspx>
<http://www.insideoutinnovations.com>

Acknowledgments

This article benefited from the advice and suggestions of

Ron Arnold, Executive Director, Daviess County Economic Development Corporation

David Augustine, President, Northeast Indiana Defense Industry Association

Lionel "Bo" Beaulieu, PhD, Director, Purdue Center for Regional Development

Brian Blackwell, Director of Engagement, NSWC Crane

Carl Boss, President, Central Indiana of the National Defense Industry Association

Terrie Daniel, Deputy Commissioner, Indiana Department of Administration

Susan B. Davis, Regional Director, Indiana Small Business Development Center

John Dement, Director of Technology Commercialization, Indiana Office of Defense Development

Duane Embree, Executive Director, Indiana Office of Defense Development

Lisa Hoverman, PhD, SBIR/STTR Program Specialist, Indiana PTAC

Brandi Hughes, Director of Communications, Indiana Office of Defense Development

William Kline, PhD, Dean of Innovation and Engagement, Rose-Hulman Institute of Technology

David McKinnis, PhD, Special Advisor to Purdue Office of Corporate and Global Partnerships

Ryan Metzging, Project Director, Aerospace and Defense Initiative, Conexus Indiana

Elizabeth Brooke Pyne, Technology Transfer Manager, NSWC Crane

Sean Ryan, Director, Office of Engagement, Indiana University- Purdue University Fort Wayne

Jacob Schpok, Executive Director, Indiana Office of Small Business and Entrepreneurship

Becky Skillman, President/CEO, Radius Indiana

Sue G. Smith, Vice President for Technology & Applied Science Division, Ivy Tech Community College

L. David Snow, Executive Director, Purdue Manufacturing Extension Partnership

Shane Springer, State Director, Indiana Procurement Technical Assistance Program

Bruce Stach, Program Manager, Whitley County Economic Development Corporation

Brook Steed, Director, Northeast Region, Indiana Economic Development Corporation

Special thanks to

Dr. K. Subramanian, STIMS Institute for use and inclusion of his New Solutions chart (Attachment C).

Dr. William Kline, Rose-Hulman for use and inclusion of his ASEE published article, "Being Innovative – Lessons Learned From The Practice Of Technology Commercialization" (Attachment D).

Tyler Wright, Web Developer & Designer, Purdue Center for Regional Development for designing this publication.

Community Outreach

Financial support for this article was partially funded by a grant from the United States Department of Defense, Office of Economic Adjustment.

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