



THOMAS P. MILLER & ASSOCIATES

In Partnership with:



Recommendations Presentation

Missouri Defense Supply Chain Analysis

7/12/17

This study was prepared under contract with the St. Louis Economic Development Partnership, Missouri, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the St. Louis Economic Development Partnership and does not necessarily reflect the views of the Office of Economic Adjustment.

Introduction

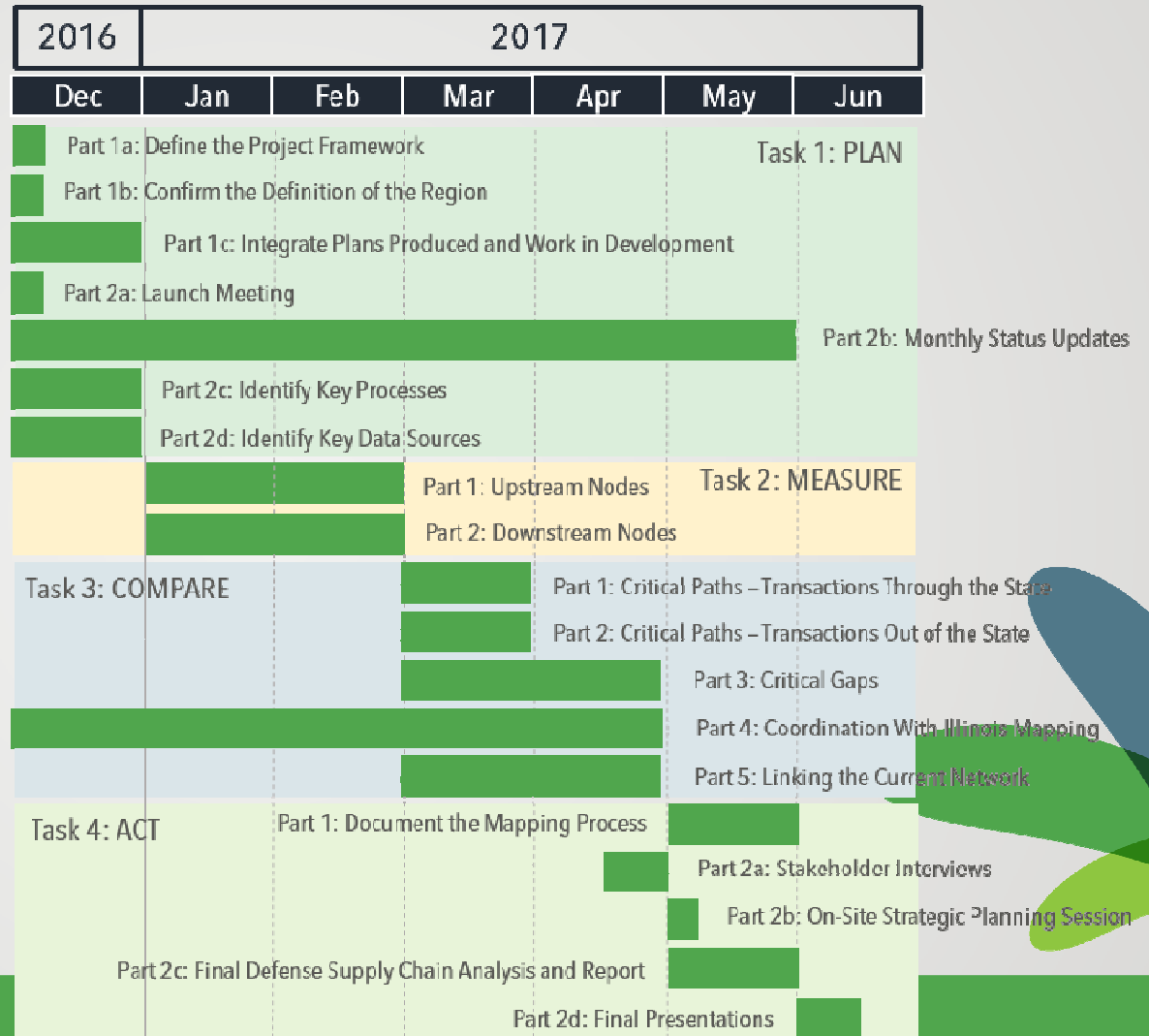


Defining Success

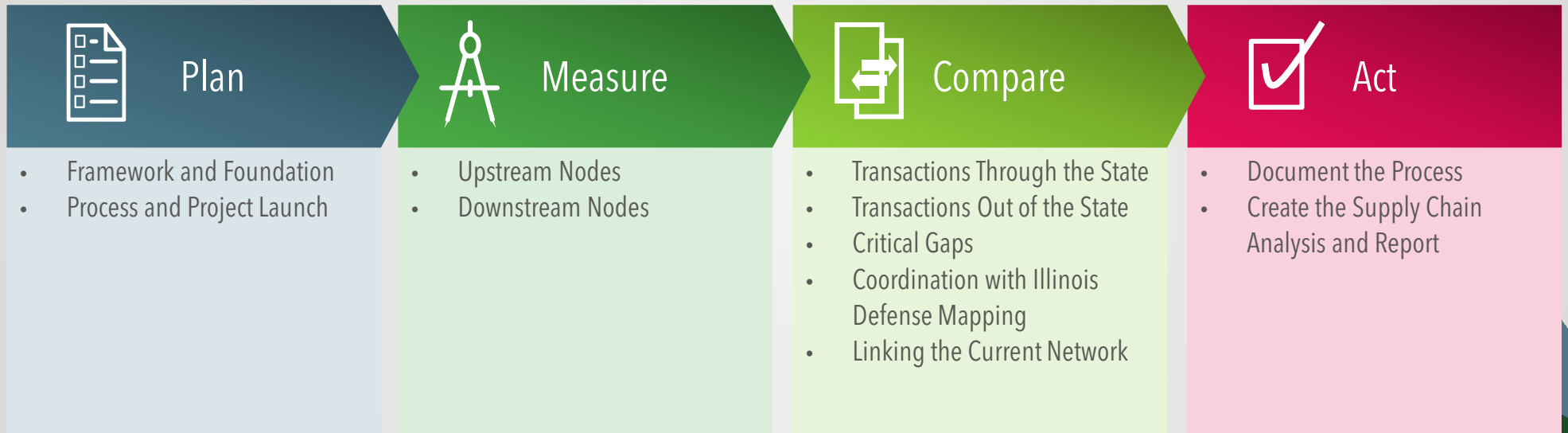
1. Provide information and recommendations to policy makers, relative to defense industry adjustment;
2. Assist Defense industry to diversify their business and find new customers



Initial Timeline Review



Progress Update



Deliverables

Missouri Defense Supply Chain Analysis

3. Missouri Defense Contracting Overview
Missouri Defense Supply Chain Mapping Project

However, as indicated in 1. Strategic Recommendations, there are significant opportunities to not only increase the defense supply chain's contribution to the state's economy, but also to create jobs for Missouri residents.

3. Missouri Defense Contracting Overview
Missouri Defense Supply Chain Mapping Project

Table 2.3: FY16 Spending in State vs. Current State Performance

Category	Current State Performance
Total State	22.5%
Defense	26.3%
Manufacturing	17.2%
Other	22.8%

Missouri Defense Supply Chain Analysis

Submitted to:
St. Louis Economic Development Partnership
June 30, 2017

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THOMAS P. MILLER & ASSOCIATES

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Regional Defense Economy Reports

Missouri Economic Development Council

Contractors and Contract Value DoD Top Defense Contractors

Missouri Economic Development Council District 5

District 5 ranks fourth of the seven Missouri districts in DoD contract performance. Aircraft manufacturing is the most defense dependent industry with more than \$4.5 billion in contracts in FY 2016. Of all DoD contractors, Boeing had the largest contract value in FY16 with nearly \$8 billion. For every job created by a DoD contract in District 5, 2.7 additional jobs are created or supported.

DoD Spending (\$B) \$30.4

% of Regional GDP 7.6%

% of State DoD Spending 85.8%

Region Rank 1

Spending Per Resident \$4,329

Department of Defense Funding & FY16 Contracts by County (\$M)

County	FY16 Contracts (\$M)
St. Louis	\$8,935.11
St. Louis City	\$161.90
St. Charles	\$153.76
Jackson	\$38.19
Franklin	\$30.00
Linn	\$21.00
Warren	\$0.00

Defense Spending by Industry Category

- Durable Goods Manufacturing
- Finance, Insurance, & Management
- Information, Professional, & Scientific
- Other Services & Trade
- Construction & Extractive
- Admin, Support, & Waste Management
- Non-durable Manufacturing
- Transportation, Warehousing, & Logistics
- Utilities

Most Defense Dependent Industries

Industry Title	FY16 Contracts (\$M)
Aircraft Manufacturing	\$4,540.7
Transportation Equipment Manufacturing	\$1,278.1
Other Aircraft Parts and Auxiliary Equipment Manufacturing	\$1,151.8
Direct Health and Medical Equipment	\$799.4
Food, Beverage, and Tobacco Manufacturing	\$222.8
Engineering Services	\$158.9
Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	\$117.6
South, Defense, Non-defense Ordnance, Ammunition, and Munition Systems and Instrument Manufacturing	\$108.0
Small Arms, Ordnance, and Defense Accessories Manufacturing	\$107.4
Other Computer Related Services	\$83.8

FY16 Value (\$M)

Other	\$35.9
Railroads	\$19.9
Other	\$5.0
Other	\$2.7
Other	\$1.6
Other	\$1.1
Other	\$0.9
Other	\$0.3
Other	\$0.2

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Defense Companies Spreadsheet

Contract #	Company Name	End User	State	City	Contract Value	Contract Start	Contract End	Contract Type	NAICS Description	Industry Group	
00029547	CSO Co. Co. Co.	Contract #	Independent	MO	64055	Jackson	31 0603	-04 4205	629999 Paint, Varnish, and Specialty Coatings	Other Services & Trade	
00073005	F&B Services	F&B Services	BC	Of Alln	MO	63366	St. Charles	38 8047	-00 1224	562999 Supermarket and Related Stores	Admin. Support & Waste Management
00030006	Old Matheson Chem. Co.	NCA	San Louis	MO	63105	St. Louis	38 6403	-00 3024	282999 Other Basic Inorganic Chemical Manufacturing	Non-Durable Manufacturing	
00055010	Lipha-Bioscience	Contract #	Purd	MO	65734	Barry	36 1733	-01 9522	283999 Pharmaceutical Preparation Manufacturing	Information, Professional, & Scientific	
00059737	Boeing Company, The	Boeing	Contract #	San Charles	MO	63201	St. Charles	36 8027	-00 4752	341212 Aircraft, Engine, and Light Vehicle (except Motor Vehicle) Manufacturing	Information, Professional, & Scientific
00074043	East M Johnson Co.	East Kansas City	Contract #	Kansas City	MO	64120	Jackson	33 1395	-00 5062	423510 Health Care Equipment and Supplies (except Hospital Equipment)	Other Services & Trade
00060463	Kiewit Johnson PHD	Contract #	Columbia	MO	65203	Boone	38 3541	-02 3721	621310 Offices of Medical Health Practitioners (except Physicians)	Other Services & Trade	
00000107	Grubbe Electric Company, Inc.	Contract #	San Louis	MO	63104	St. Louis	36 1072	-00 3028	423610 Electrical, Electronic and Communications Equipment and Apparatus Manufacturing	Other Services & Trade	
00000195	Grubbe Electric Company, Inc.	Contract #	Kansas City	MO	64100	Jackson	33 0273	-00 5603	561211 Textile Mill (except Cotton Textile Mill) Manufacturing	Admin. Support & Waste Management	
00000202	Grubbe Electric Company, Inc.	Contract #	San Louis	MO	63105	St. Louis	38 6500	-00 3003	423999 Other Miscellaneous Durable Goods Manufacturing	Other Services & Trade	
00040236	United Epps, Inc.	Contract #	San Louis	MO	63102	St. Louis City	38 6502	-00 3006	330911 Plastics Bag and Pouch Manufacturing	Non-Durable Manufacturing	
00050375	Phoenix Building Companies, Inc.	Contract #	San Louis	MO	63104	St. Louis	38 8174	-00 3641	236220 Commercial and Institutional Building Construction	Construction & Education	
00020102	Central Stone Company	Contract #	Harvard	MO	63401	Park	33 6567	-01 5715	232120 Cast and Blown Glass Window, Glass and Glazing	Construction & Education	
00079095	Land Technologies Inc.	Contract #	East Char	MO	63045	St. Louis	38 762	-00 4502	336110 Search, Detection, Navigation, Guidance, Aeronautics, and Related Systems and	Durable Goods Manufacturing	

Recommendations



Types of Recommendations

- *Connecting.* Joining public and private stakeholders from across the state
- *Enabling.* Encouraging greater industry diversification
- *Coaching.* Building capacity for future success
- *Programming.* Creating events and programs that can develop more sustainable and diverse defense contracting opportunities



1. Partner with Regional Organizations to Expand Defense Industry Associations (Connecting)

- Address need for a shared vision between key industry leaders and smaller businesses
- Incorporate many different types of contractors from different industries
- Provide many opportunities to members such as networking, lunch and learns, conferences, and a yearly summit



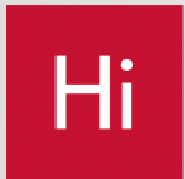
2. Connect with Existing Military Assets on Tech-Based Solutions (Connecting)

- Missouri's military assets include Whiteman AFB, Fort Leonard Wood, and the Marine Corps Mobilization Command
- Historically, there are many examples of military technologies that spin-off into commercial products
- "Smart Bases" are a new national trend
- Facilitate meetings between base leadership and EDOs to foster relationships with the private sector



3. Connect Private Sector and Higher Education Researchers Around Enabling Technologies (Connecting)

- Enabling technologies are any material or equipment that significantly advance user capabilities of a product
 - Biosciences; electronics, sensors and photonics; and information and communication technology (ICT)
- Strong R&D presence associated with local colleges and universities
 - Align programs with industry needs
- Consortium to connect local companies that produce enabling technologies with the appropriate defense companies



Harvard
innovation lab



4. Find Non-Defense Markets for Defense Suppliers (Enabling)

- The jobs multiplier for Region 5 defense contracts is 3.1
- Assist defense suppliers in finding new applications for their products
- Ten 6-digit NAICS sectors are the strongest candidates based on purchases from Tier II defense suppliers and job growth in the past five years



5. Educate State Economic Development Organizations on Best Practices (Enabling)

- It is important for EDOs to stay current on DoD regulations and requirements
 - Work with other EDOs throughout Missouri
- In-house DoD or government contracting consultants can further improve the skills of current or aspiring contractors
 - Help small businesses cope with these barriers during the contracting process



6. Develop a Training Program to Assist Companies with DoD Contracting (Coaching)

- There are more contractors capable of applying for defense contracts than actually apply
- Educate contractors on finding and applying for defense-contracting opportunities
- Procurement Technical Assistance Centers (PTACs)
 - Provide registration assistance
 - Business strategies for selling to federal, state, and local governments



7. Provide Contractors and Potential Contractors More Clarity on DoD Budgeting (Coaching)

- A DoD budget increase does not guarantee a business increased success procuring contracts
- In 2015, the Big 5's share of R&D DoD contracts was at its lowest percent in the 2000-2015 period, even though the defense budget has reached record highs
- Embrace the role of being a truthful and data-driven voice



8. Use and Maintain the Supply Chain Map (Programming)

- Help manufacturers understand future certification requirements/programs
- Help businesses develop supply chain metrics
- Must update the supply chain map to maintain a useful tool



9. Provide International Export Assistance (Programming)

- In 2015, global defense spending increased for the first time since 2010, to roughly \$1.68 trillion
- Statewide export programs that aim to help local small and medium sized businesses sell their products overseas are trending nationally
 - VALET
 - STEP



10. Create Programs Aimed at Helping Veterans Get Jobs (Programming)

- Retaining veterans in the state should be a major priority
- Increase efforts in assisting veterans with skill development, job placement, and especially entrepreneurship
- Could Hire a Veteran Employment Representative (VER)
- Veteran's Assistance Program
- Veteran's Apprenticeship Program



11. Develop a University-Housed Innovation Center (Programming)

- St. Louis has a strong presence of R&D universities, private businesses, and public partnerships
 - Opportunities for linking these assets
- Leverage partnerships with innovation centers
 - Advanced Manufacturing Innovation Center
 - STLventureWorks Centers
 - Cortex Innovation District



Supply Chain Analysis



Strategies for Contracting Categories

		Contract Location	
		In State	Out of State
Place of Performance	In State	Retain & Grow	Recruit additional manufacturing to Missouri
	Out of State	Draw more manufacturing into state	--



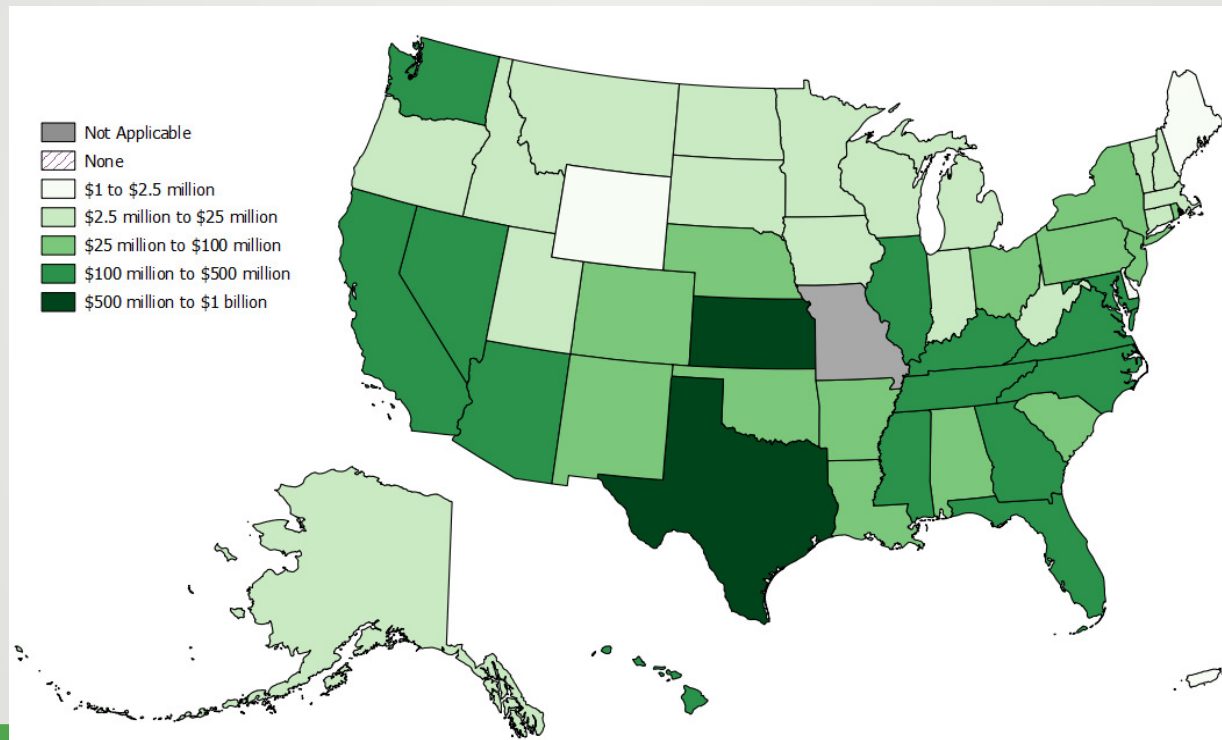
Contract Values: FY16

		Contract Location	
		In State	Out of State
Place of Performance	In State	\$10.16b	\$0.31b
	Out of State	\$1.23b	--



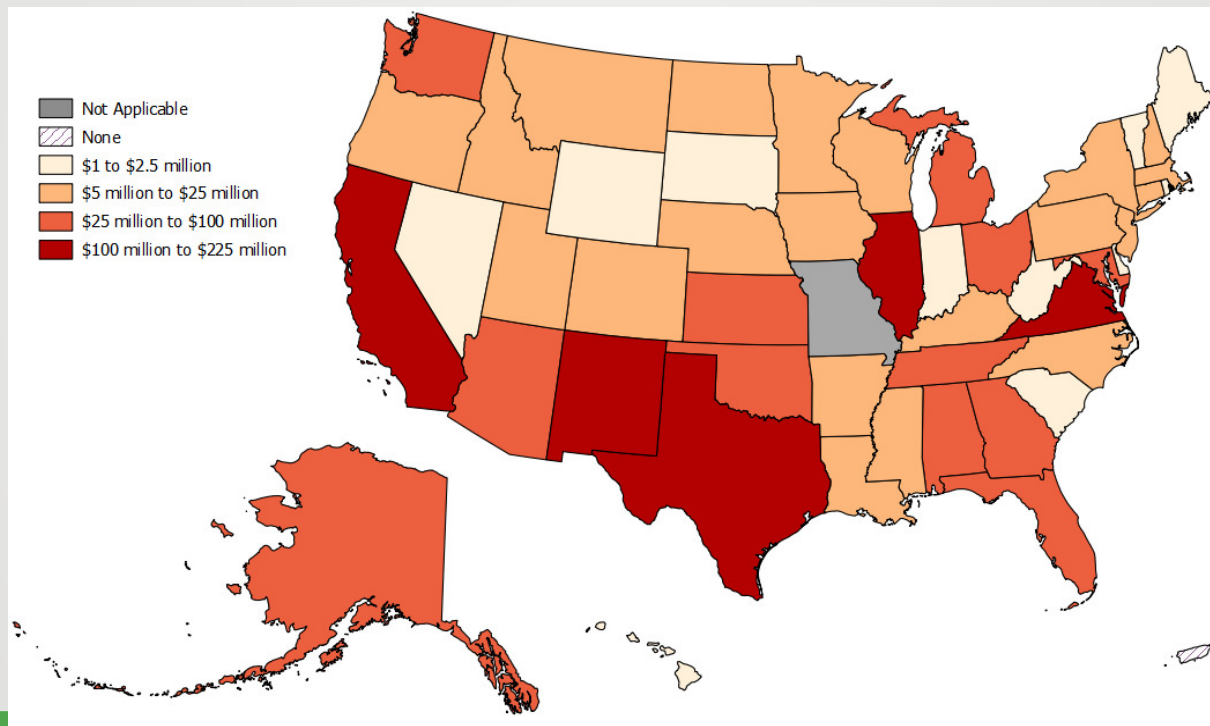
Missouri Companies Working Out-of-State

Missouri-based companies performed over \$500 million of DoD prime and subcontracts in **Kansas and Texas**



Out-of-State Companies Working in Missouri

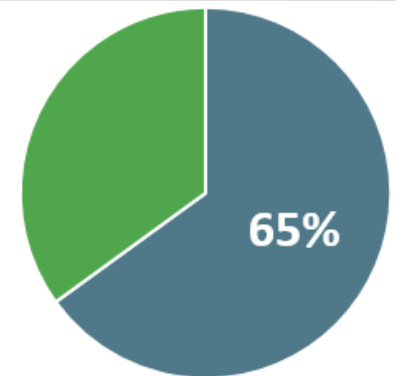
Large defense contractors in other states are not participating in Missouri's defense economy to the same degree as Missouri-based companies



Contracts by Industry Group

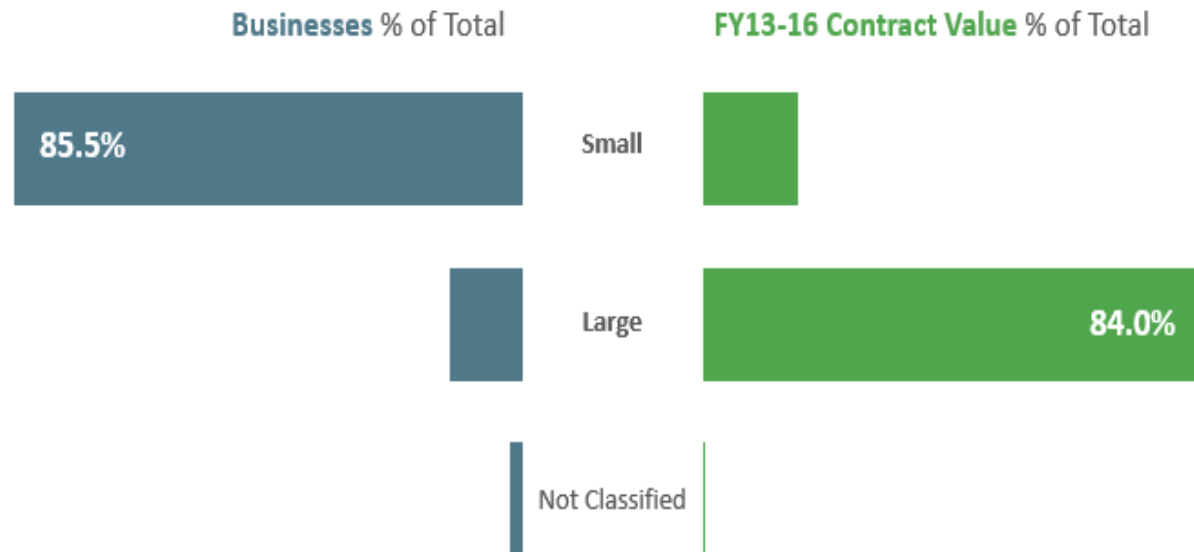
Industry Group	Total Contracting, FY13-16 (millions)	Number of Unique Industries Receiving Contracts
Durable Goods Manufacturing	\$27,310.4	202
Information, Professional, & Scientific	\$4,917.3	57
Construction & Extraction	\$4,721.3	46
Other Services & Trade	\$2,757.6	169
Finance, Insurance, & Management	\$1,087.5	2
Admin, Support, & Waste Management	\$548.7	43
Non-Durable Manufacturing	\$397.6	79
Transportation, Warehousing, & Utilities	\$267.1	33
Unclassified	-\$1.5	N/A
All Industry Groups	\$42,005.9	632

Durable Goods Manufacturing receives the majority of total contracting when compared to all other industry groups

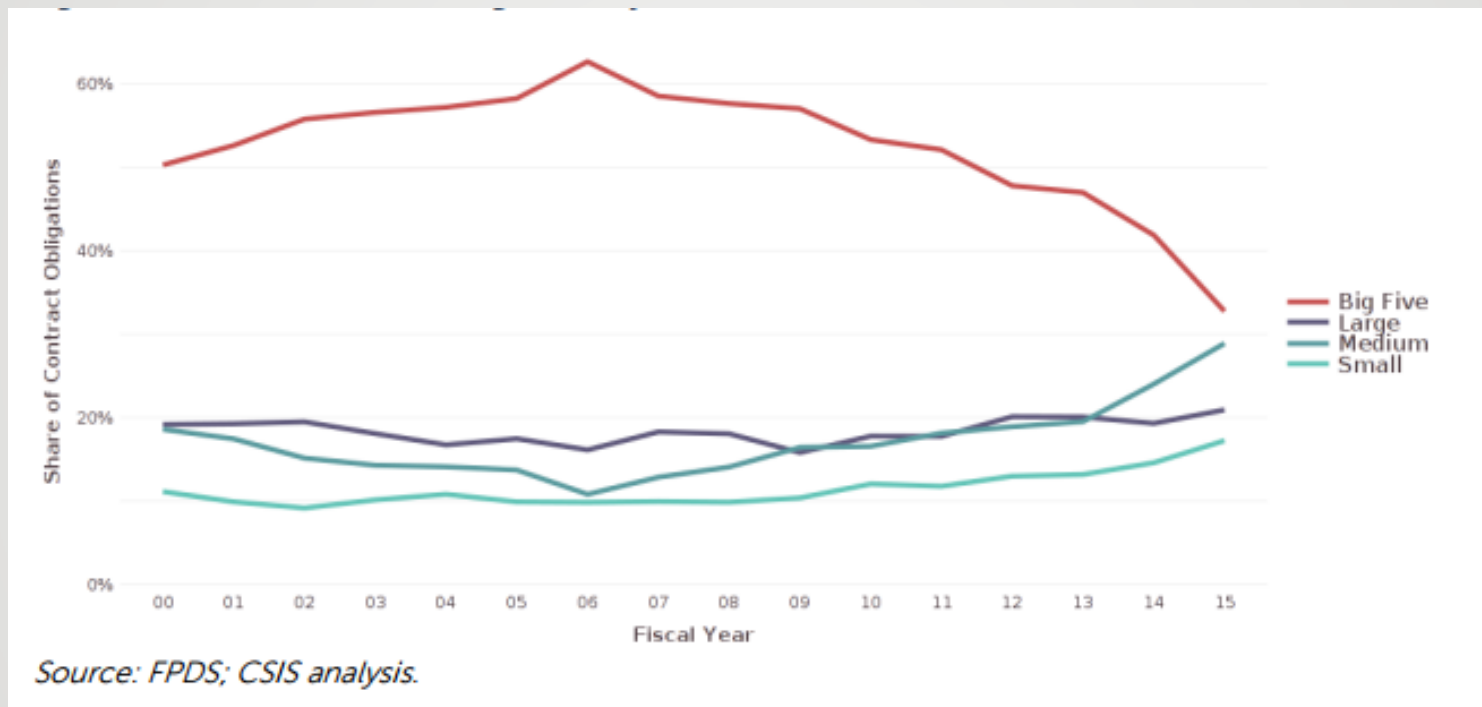


Opportunities for Small & Large Businesses

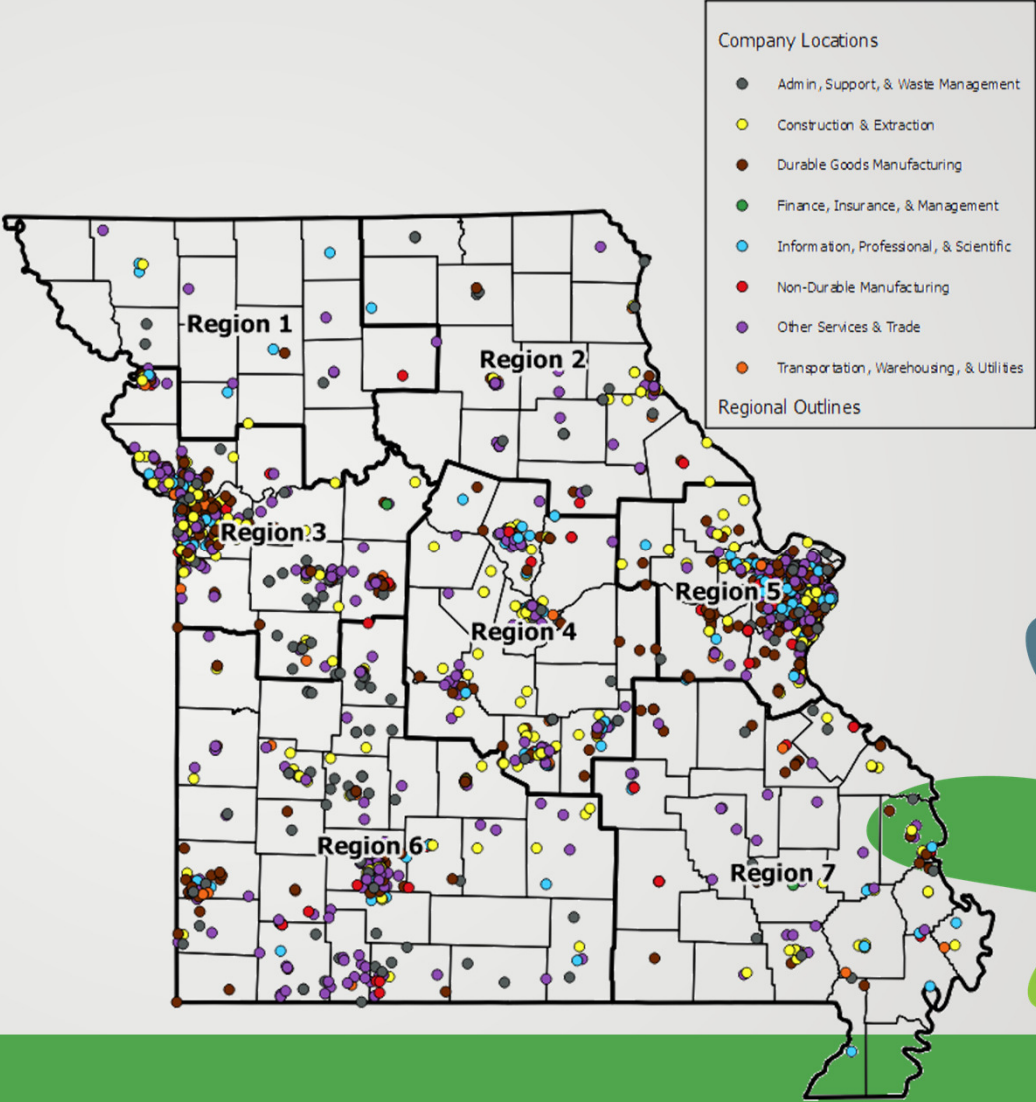
Defense contracts are mostly **awarded to small businesses** & **large businesses receive** the majority of defense funding



Opportunities for Small & Large Businesses



Defense Contractor Locations

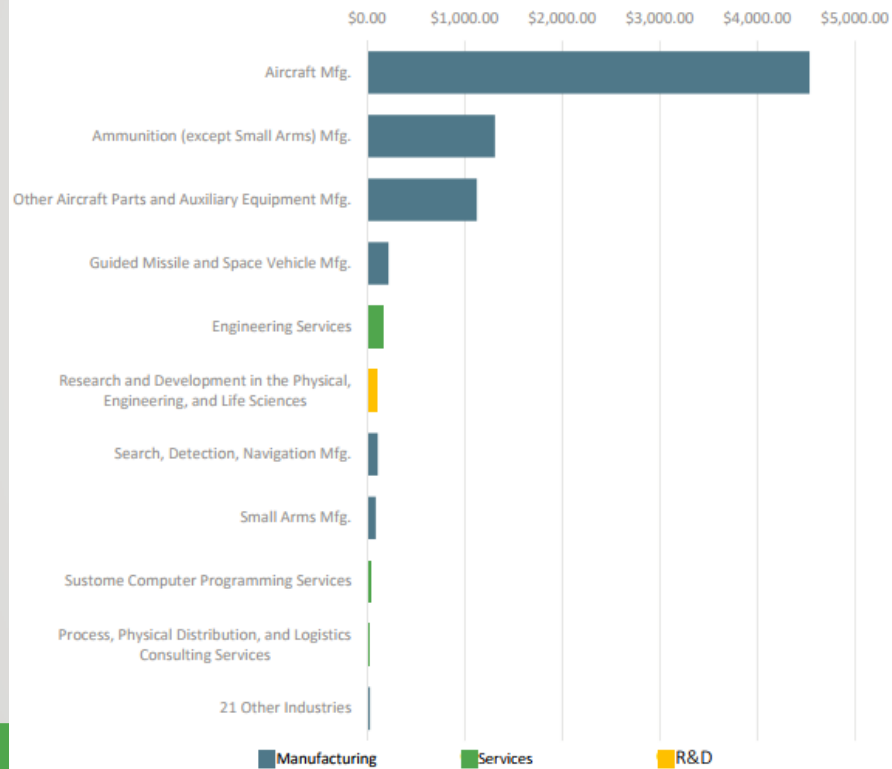


Top Missouri Contractors

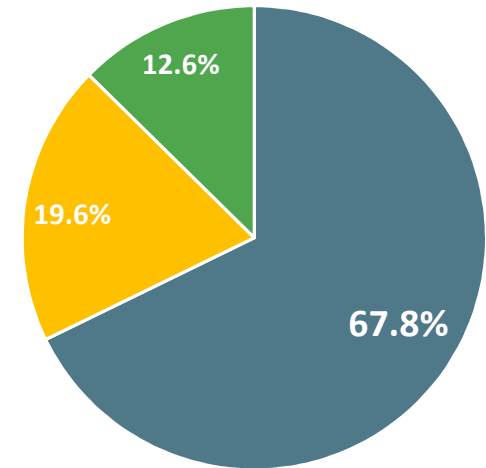
Company Name	City	Total Contracting, FY13-16 (millions)	Average Annual Prime Contracting (millions)	Average Annual Subcontracting (millions)
Boeing Company, The	St. Louis	\$23,616.6	\$5,901.7	\$2.4
DRS Sustainment Systems Inc	St. Louis	\$2,904.3	\$98.1	\$628.0
Express Scripts, Inc.	St. Louis	\$2,626.5	\$656.6	\$0
Alliant Techsystems Operations LLC	Independence	\$1,654.1	\$413.3	\$0.2
World Wide Technology Inc	Maryland Heights	\$1,437.6	\$342.6	\$16.7
Clark McCarthy Healthcare Partners II	St. Louis	\$666.3	\$166.6	\$0
Bart's Electric Company, Inc.	Liberty	\$560.2	\$0	\$140.0
Korte Construction Company	St. Louis	\$350.5	\$87.6	\$0
J.E. Dunn Construction Company	Kansas City	\$335.4	\$83.8	\$0
Kingston Environmental Services, Inc.	Kansas City	\$275.1	\$0	\$68.8

Boeing Contracts

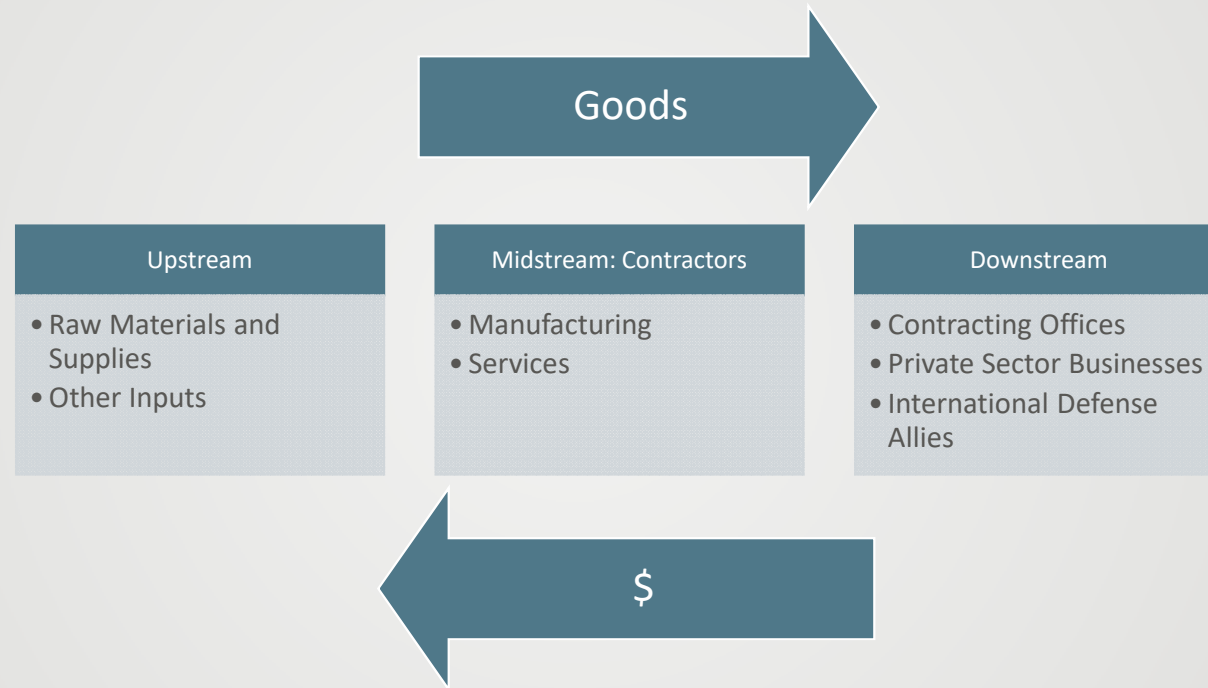
Most of Boeing's in-state contracting is for **manufacturing**



Most of Boeing's out-of-state contracting is for **manufacturing**, followed by **R&D** and then **Services**



Supply Chain Flows Model



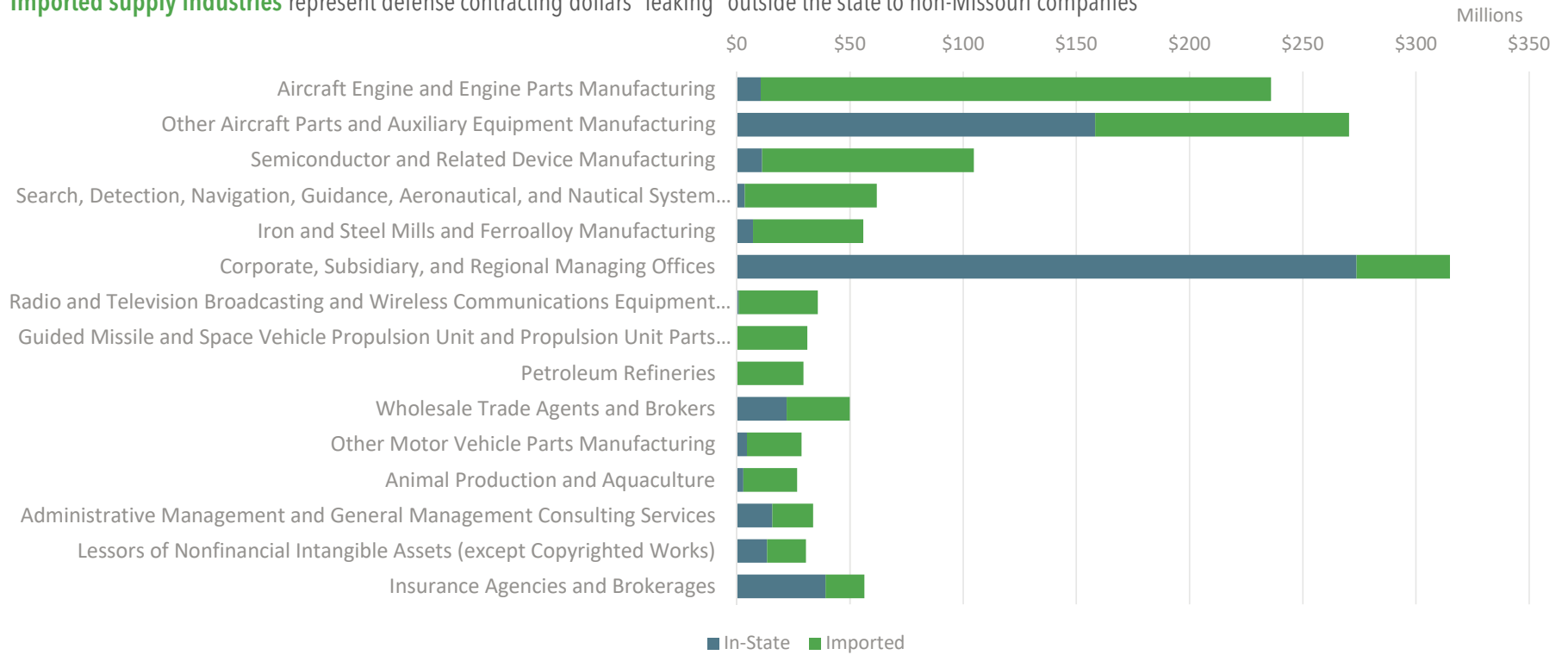
Defense Dependency by Industry

Dependency Category	Number of Industries
>80%	11
60-79.9%	1
40-59.9%	4
20-39.9%	8
10-19.9%	22
5-9.9%	16
2-4.9%	8
1-1.9%	1
<1%	2
All Selected Industries	73



Upstream Nodes

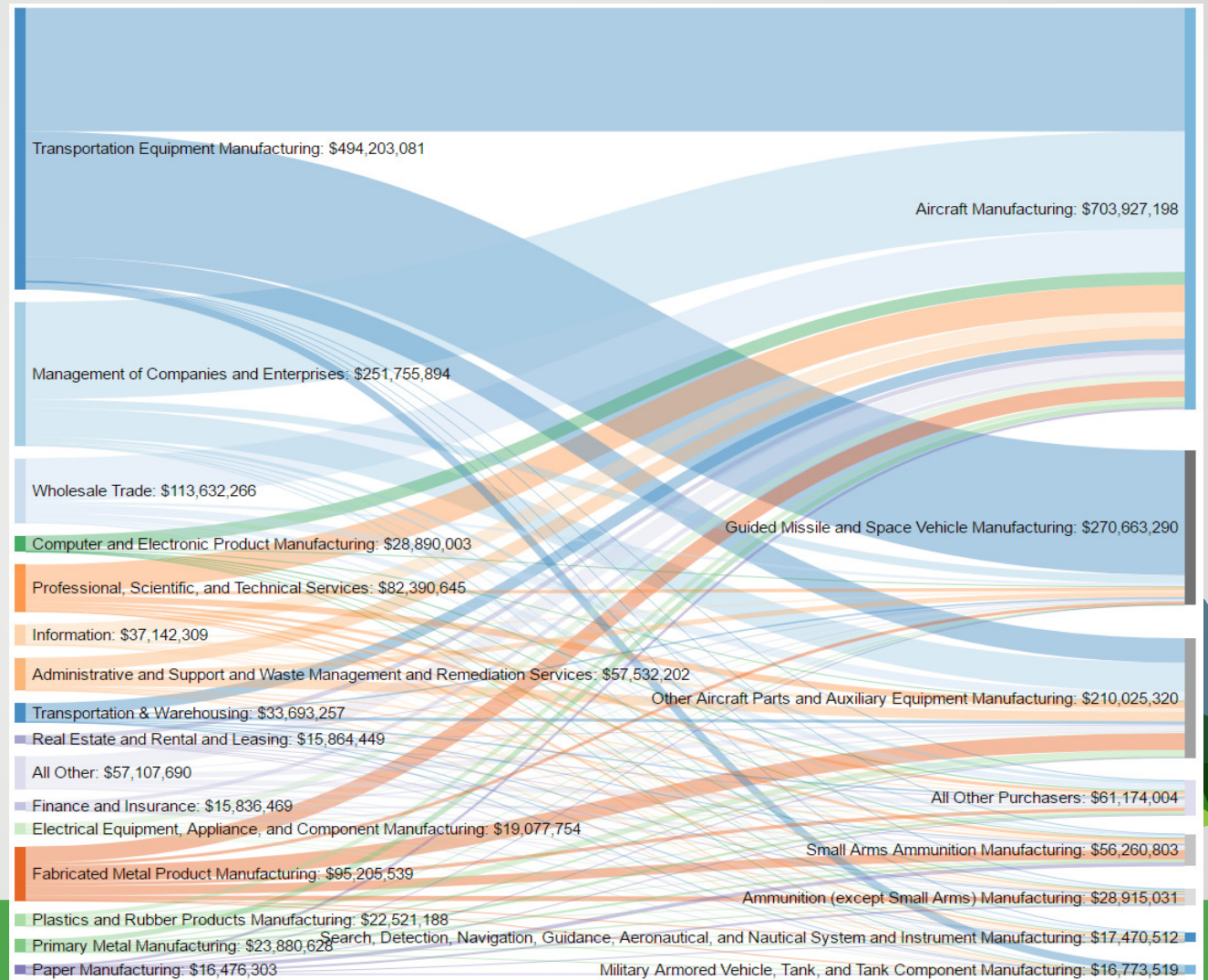
Imported supply industries represent defense contracting dollars “leaking” outside the state to non-Missouri companies



Durable Goods Manufacturing Supply Chain Flows

Suppliers

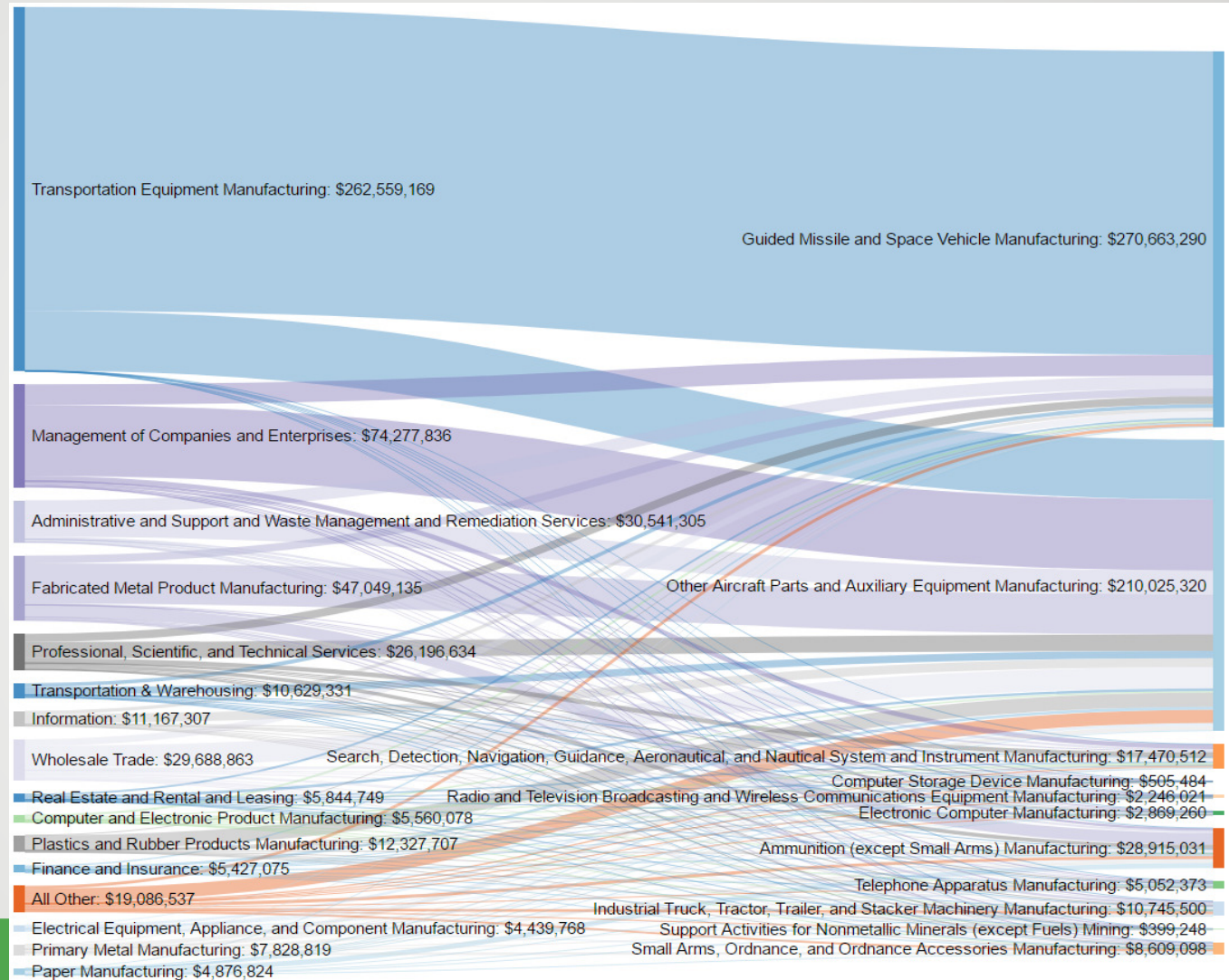
Contractors



>80% Defense Dependent Industry Supply Chain Flows

Suppliers

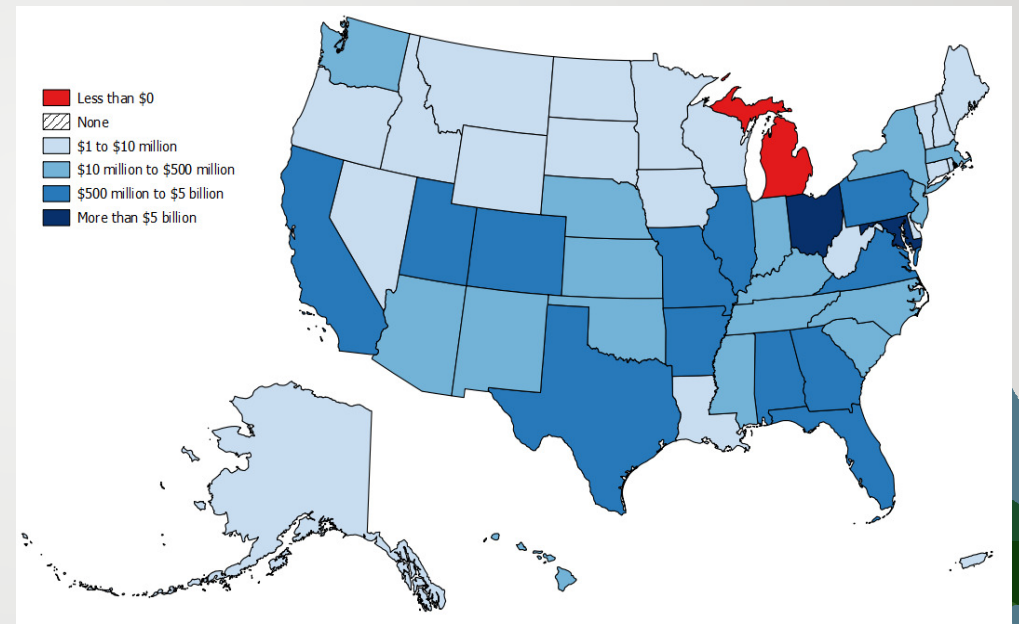
Contractors



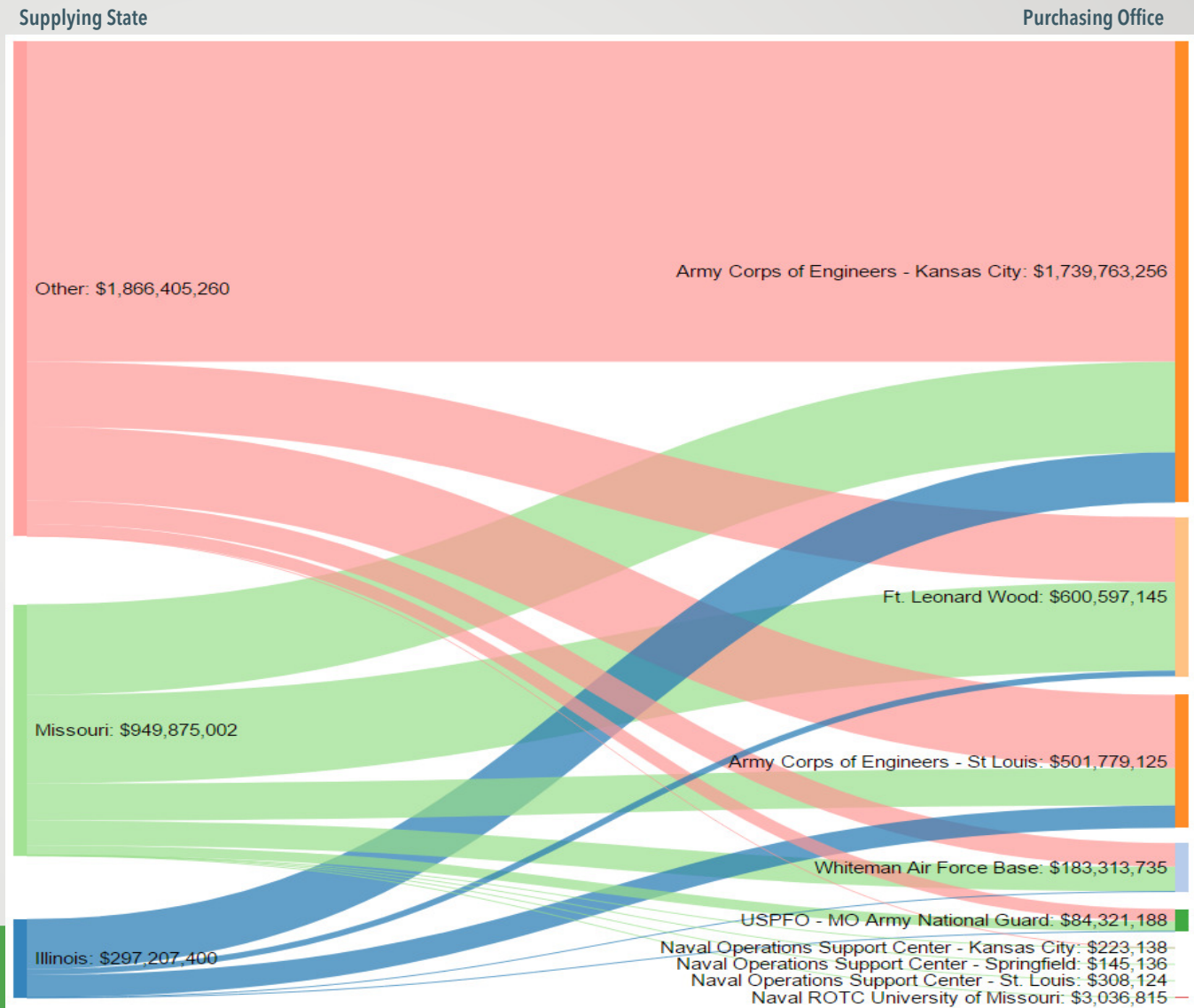
Downstream Nodes

Contracting Office State	FY13-16 Missouri DoD Activity (millions)	% of Total
Ohio	\$9,214.3	21.9%
Maryland	\$8,049.9	19.2%
Alabama	\$3,069.4	7.3%
Colorado	\$2,705.8	6.4%
Pennsylvania	\$2,158.5	5.1%
Missouri	\$2,101.3	5.0%
Illinois	\$2,045.6	4.9%
Virginia	\$2,040.6	4.9%
Florida	\$1,839.8	4.4%
Utah	\$1,719.2	4.1%
All Other	\$7,061.5	16.8%

The top office locations for prime-contractor DoD activity performed or located in Missouri are **Ohio, Maryland, Colorado, Alabama, and Pennsylvania**



Contracting Office Supply Chain Flows



Defense Exports from Missouri

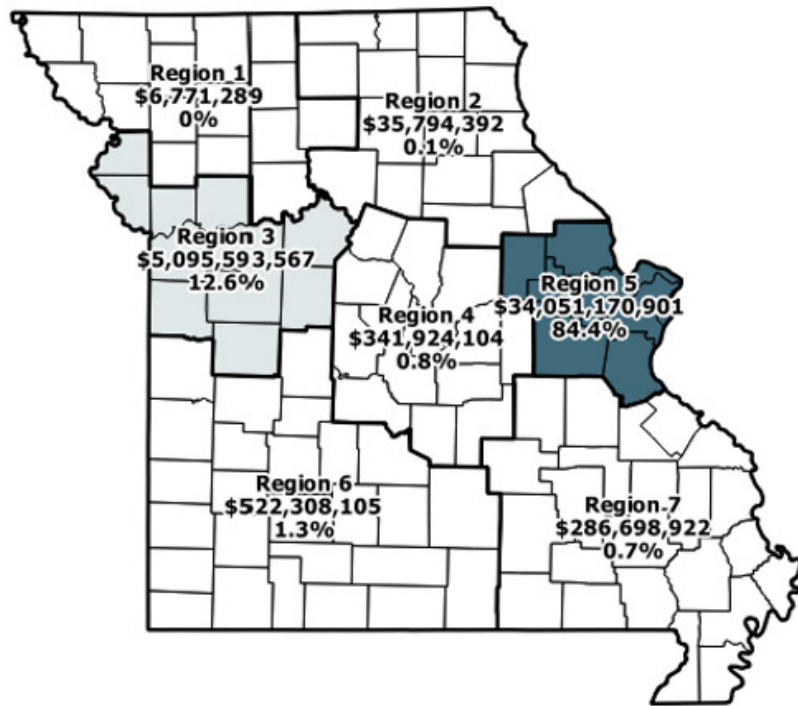
Almost 50% of Missouri's defense commodity exports go to **Canada**



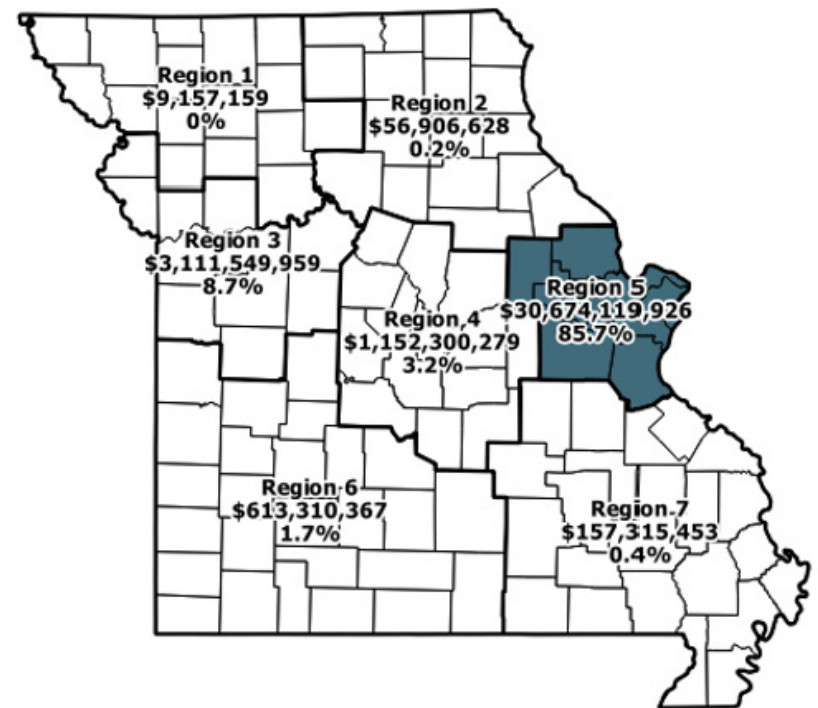
Region 5- Defense Activity

Over 80% of Missouri's total contract dollars go to **Region 5** - the greater St. Louis area

By Contract Location



By Place of Performance



Defense Supplier Diversification within Missouri

NAICS	Industry Description	Value of Annual Input Purchases by Missouri Companies (\$ M)	Industry Growth in Missouri
336112	Light Truck and Utility Vehicle Manufacturing	\$1,899.61	↑
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	\$366.47	↓
325199	All Other Basic Organic Chemical Manufacturing	\$292.21	↓
311111	Dog and Cat Food Manufacturing	\$235.65	↑
312120	Breweries	\$234.53	↑
326199	All Other Plastics Product Manufacturing	\$226.51	↔
518210	Data Processing, Hosting, and Related Services	\$219.42	↓
238220	Plumbing, Heating, and Air-Conditioning Contractors	\$203.67	↑
336360	Motor Vehicle Seating and Interior Trim Manufacturing	\$125.08	↑
325611	Soap and Other Detergent Manufacturing	\$122.07	↑
336390	Other Motor Vehicle Parts Manufacturing	\$117.18	↑
331420	Copper Rolling, Drawing, Extruding, and Alloying	\$100.66	↑
323111	Commercial Printing (except Screen and Books)	\$63.00	↓
332322	Sheet Metal Work Manufacturing	\$59.66	↑
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing	\$24.13	↓

Defense Supplier Diversification within United States

NAICS	Industry Description	Value of Annual Input Purchases by Missouri Companies (\$ M)	Industry Growth in Missouri
336112	Light Truck and Utility Vehicle Manufacturing	\$69,431.91	↑
511210	Software Publishers	\$44,543.13	↑
336111	Automobile Manufacturing	\$32,808.86	↑
326199	All Other Plastics Product Manufacturing	\$30,317.06	↑
517110	Wired Telecommunications Carriers	\$25,428.59	↔
336390	Other Motor Vehicle Parts Manufacturing	\$24,008.28	↑
331110	Iron and Steel Mills and Ferroalloy Manufacturing	\$17,895.57	↓
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	\$13,372.16	↑
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	\$12,005.96	↔
518210	Data Processing, Hosting, and Related Services	\$11,868.62	↑
332710	Machine Shops	\$10,786.25	↓
336370	Motor Vehicle Metal Stamping	\$10,564.05	↑
332312	Fabricated Structural Metal Manufacturing	\$8,615.27	↔
332322	Sheet Metal Work Manufacturing	\$8,398.03	↑
334111	Electronic Computer Manufacturing	\$5,593.28	↑

Input from Interviews

- The goal of the supply chain mapping 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
- The St. Louis region has a variety of industry groups working together towards this common goal.
- There is a mix of perspectives on the sense of urgency to diversify
- One identified asset in Missouri is collaboration
- Missouri's defense manufacturing workforce is robust with complex, technical skills, and experience.
- Regulations are burdensome, which adds to cost of doing business for defense companies.



Input from Interviews, continued

- Currently, the state and St. Louis region are placing a strong emphasis on entrepreneurship and technology across all sectors, including defense.
- Threats to growing the defense industry and diversification vary, but generally are focused on the size of the defense procurement budget, workforce, and product specialization.
- One prominently identified need is the connection of small businesses to other businesses.
- Resources utilized and/or needed include lack of awareness and skepticism of state resources
- Interests in diversification include commercial aircraft, medical, oil & gas, international markets, automotive, automation and driverless vehicles



Questions

