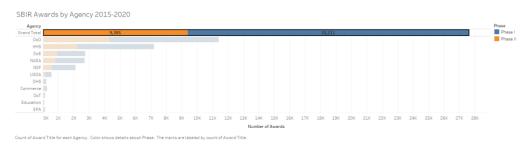
### Seeding the Heartland: Review of SBIR/STTR Award Patterns for Missouri, Iowa, Nebraska, and Kansas

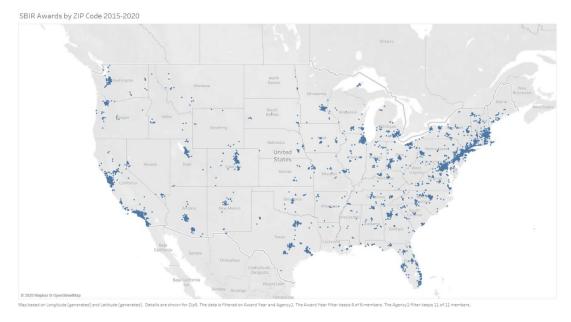
Ismael Rodriguez, Graduate Intern, Ewing Marion Kauffman Foundation, 13 July 2020

# **National Level Analysis**

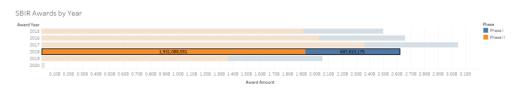
SBIR/STTR Data. The Small Business Administration maintains records of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards. Since 2015, small businesses have received over 27,569 awards, totaling 13.1 billion dollars, to expand upon the research and development efforts of the federal government. Of these awards, the Department of Health and Human Services and Department of Defense sponsor the bulk.



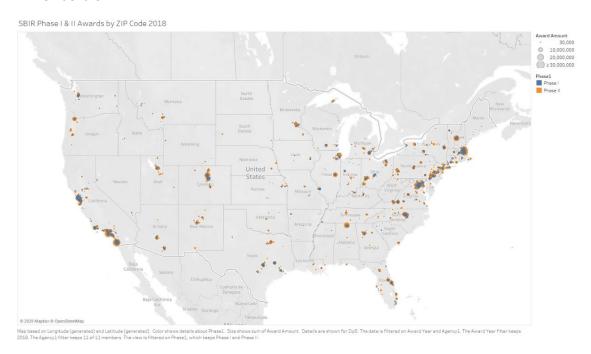
Across the United States, most awards go to locations along the coasts, primarily California, the Middle Atlantic, and New England. The Great Lakes region, northern Alabama, and front range of Colorado constitute other key clusters of activity.



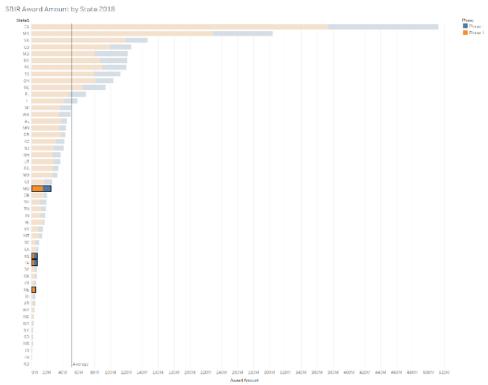
After a peak in 2017, there has been a steady decline in spending. Much less is spent on phase I than phase II awards. That said, 2018 is the last year with complete records.



Those places receiving the highest amounts of spending include a mix of university towns, government research hubs, and technology hot spots. In 2018, San Diego was at the top of the list, compiling 85.8 million dollars.

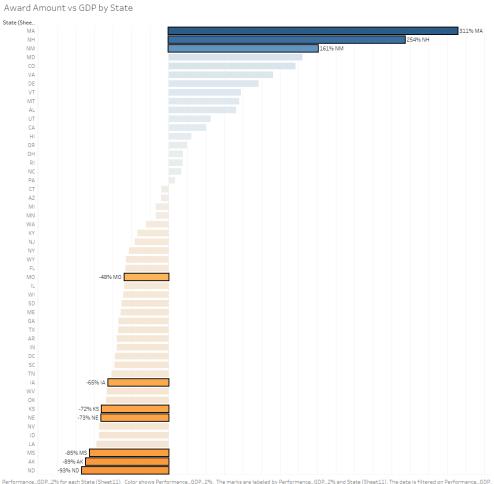


Measured by total awards in 2018, California and Massachusetts attracted for more than any other state. The Heartland states received far less than the average.



Sum of Amend Amount for each State 1. Color shows details about Phase. The data is filtered on Award Year, which keeps 2018. The view is filtered on State 1, which keeps multiple members are considered in State 1.

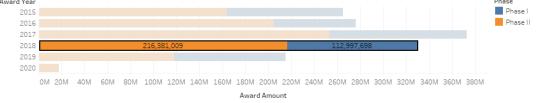
Using state-level GDP measurements to gauge the relative performance, clear inequalities emerge among the states. From 2015-2020, the top performing state was Massachusetts and the worst was North Dakota. Within the Heartland, Missouri fared best, with the other three states clustered near the bottom of the rankings.



Performance\_Sup-\_2% for each state (sheet11). Color shows Performance\_Sup-\_2%. The marks are labeled by Performance\_Sup-\_2% and state (sheet11). The data is nitered on Performance\_Sup-, which excludes Null. Percents are based on each column of each pane of the table.

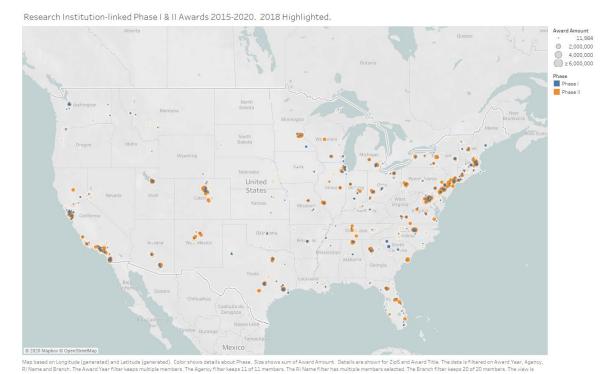
STTR awards form a much smaller subset of overall spending, totaling 12.6 percent of spending in 2018. However, STTR data contains the only direct linkages to research institutions.





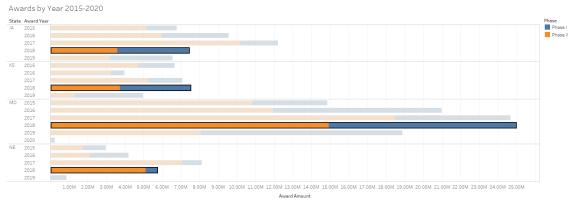
Award Amount for each Award Year. Color shows details about Phase. The marks are labeled by count of Award Title and Award Amount. Details are shown for Award Amount. The data is filtered on State1, Program and RI Name. The State1 filter keeps 52 of 52 members. The Program filter keeps SBIR and STTR. The RI Name filter excludes Null and stub.

In 2018, STTR awards clustered primarily along the coasts. However, significant spending did occur in the Mountain West and Midwest, with Washington University, Saint Louis, ranking in the top five.



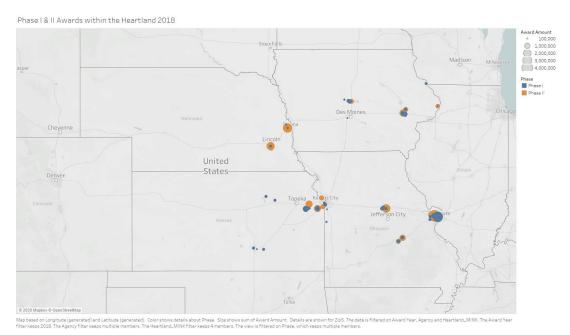
# **Heartland Analysis**

Within the heartland, Missouri stands out as the top recipient of SBIR/STTR funding, winning, for 2018, more than the combined total of Iowa, Kansas, and Nebraska. Of these states, only Kansas saw an irregular fluctuation in spending levels in the previous years.

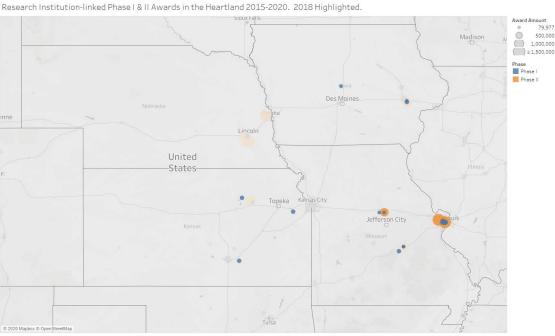


Sum of Award Amount for each Award Year broken down by State. Color shows details about Phase

There is a notable clustering of SBIR/STTR funds to Heartland cities with major research institutions. Saint Louis, MO, home of Washington University, is clearly the top recipient, with the university cities of Lawrence, KS, Lincoln, NE, and Ames, IA also doing quite well. As for the other large metropolitan areas, Kansas City and Omaha fared much better than Wichita or Des Moines.

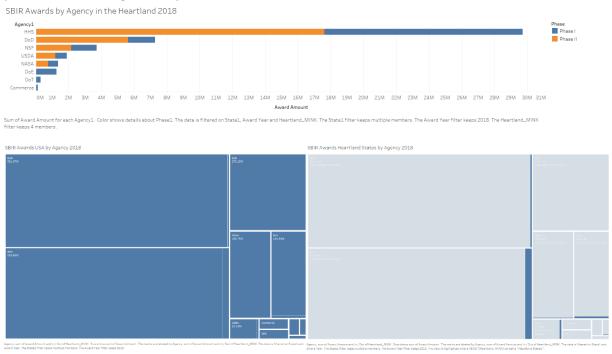


Outside of Missouri, STTR awards were sparse for 2018. Although there had been significant activity in other years for Iowa, Nebraska, and Kansas, 2018 had little to show for these states.



Map based on Longitude (generated) and Latitude (generated). Color shows details about Phase. Size shows sum of Award Amount. Details are shown for Zip5 and Award Title. The data is filtered on Agency, RI Name, Branch, Heartland\_MINK and Award Year Year. The Agency filter keeps 12 of 11 members. The RI Name filter has multiple members research year of Year Year (Service). The Agency Filter Reps 12 of 12 of 12 members. The Award Year Year (Her Keeps 20 of 20 members. The Heartland\_MINK filter keeps 4 members. The Award Year Year filter keeps 20 of 20 members. The Award Year Year filter keeps 20 of 20 members. The Award Year Year filter keeps 20 of 20 members. The Award Year Year filter is "11/2/018".

Of the federal agencies spending in the Heartland, the Department of Health and Human Services spent the largest sum in 2018, a 3.08 percent share of department award spending for the year. However, by that measure, the Department of Agriculture had the greatest share, 6.65 percent, channeled to the region. Conversely, the Department of Defense, at 0.74 percent, and the Department of Energy, at 0.46 percent, diverted significantly less.



#### **Challenges and Opportunities**

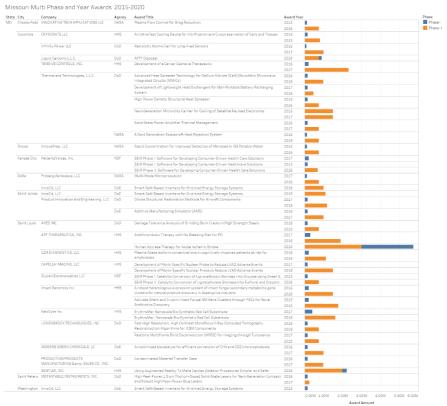
Emphasis on regional strength. Given the existing relationships with USDA and HHS to the region, connecting experts from these agencies with new entrepreneurs, research university-associated entrepreneurship support organizations, and demonstrably successful firms could foster expanded growth across the region.

Emphasis on regional potential. Given the prevalence of DoD activities in Nebraska (Headquarters of US Strategic Command), Kansas (Fort Riley, Fort Leavenworth, McConnell AFB), and Missouri(National Geospatial Intelligence Agency-Saint Louis, Fort Leonard Wood, Whitman AFB), state policymakers should consider a deliberate coordinated effort to redirect the flow of DoD SBIR/STTR awards to the region. Numerous firms already have DoD experience and could inform future growth.

Emphasis on untapped potential. Given the small footprint of the Department of Energy relative to its overall activity across the nation, there is ample room to grow activity across the Heartland. However, with so few awards from DoE, it would be imperative to connect entrepreneurship support organizations with agency experts, experienced research institutions, and successful firms from outside the region.

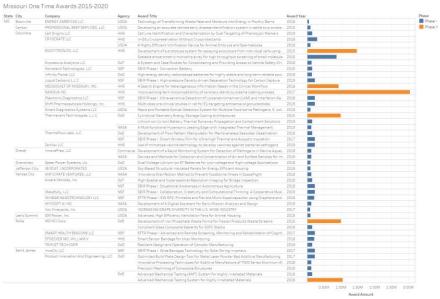
### In Depth City Level Analysis-Missouri. (See one time award and multi-year award reports.)

Missouri had a large share of multi-year awards. Notably successful companies included Thermavent Technologies of Columbia, and APT Therapeutics of Saint Louis.



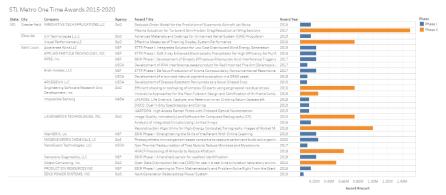
Sum of Award Amount for each Award Year broken down by State, City, Company, Agency and Award Title. Color shows details about Phase. The data is filtered on in / Out of MO Multi Phase, which keeps in. The view is filtered on State and Agenc

## Missouri also received one-time awards from a diverse set of agencies.



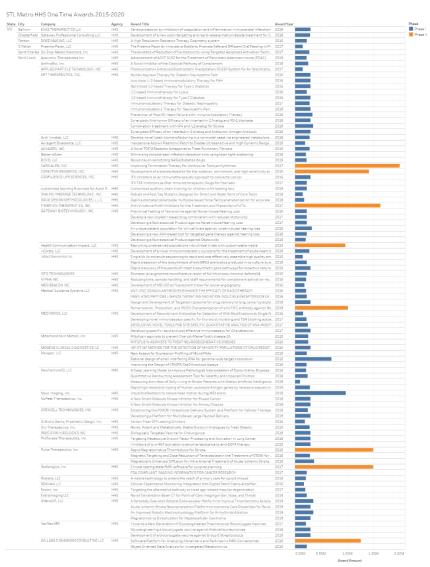
Sum of Award Amount for each Award Year broken down by State, City, Company, Agency and Award Title. Color shows details about Phase. The data is filtered on in / Out of MO Multi Phase, which keeps Out. The view is filtered on State, Agency and City. The State filter keeps MO. The Apency Affect Report of the Phase in the City of the Apency Agency and Award Title.

### However, Saint Louis stood out in both the overall quantity of one-time awards,



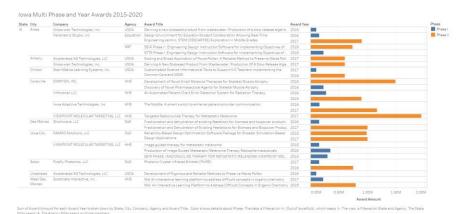
Sum of Award Armount for each Award Year broken down by State, City, Company, Agency and Award Title. Color shows details about Phase. The data is filtered on in / Out of MO Multi Phase, which keeps Dut. The view is filtered on State, Agency and Color State, Agency and Color State, Agency and Color State, Agency Agency Agency State Agency State A

#### and the vast number of HHS-associated one-time awards.

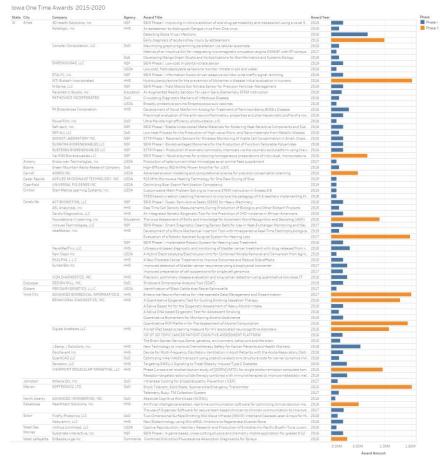


## In Depth City Analysis-Iowa

Iowa City and nearby Coralville stand out for their volume of HHS-related multi-year awards. Parametric Studio, Inc. of Ames emerged as a top performer with large awards from Department of Education and the National Science Foundation.



Ames, Coralville, and Iowa City dominate in the number and size of one-time awards.

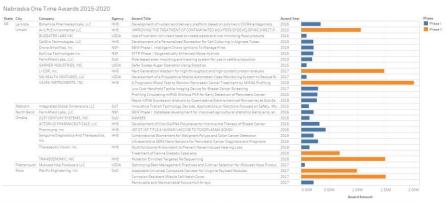


### In Depth City Analysis-Nebraska

Nebraska has the smallest set of multi-year awards. While Omaha receives the largest amount of funding, Lincoln and the nearby town of Roca attract the most awards. Sanguine Diagnostics and Therapeutics of Omaha accounts for both the largest number and size of awards. It is also the only recipient of a multi-year HHS award.



Nebraska also has the smallest set of one-time awards. Vajra Instruments of Lincoln, and Pacific Engineering of Roca dominate these awards. Despite two large awards in 2017, DoD has a notably small footprint in the State.



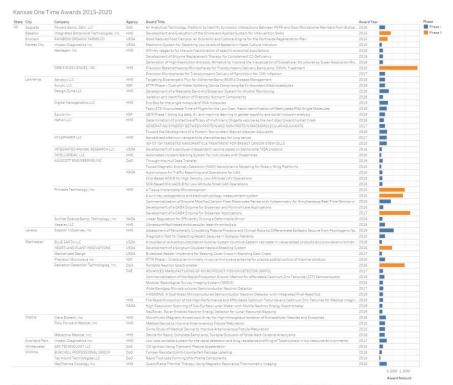
Sum of Austral Amount for each Austral Tear broken down by State, City, Company, Agency and Austral Ticle. Color shows details about Phase. The data is filtered on in / Out of NE\_MultiPhase, which keeps Out. The view is filtered on State and Agency. The State filter Aspects (Filter St. The Agency, filter access multiple memory) and access multiple memory.

### In Depth City Analysis-Kansas

Kansas has a small but diverse set of multi-year awards. Lawrence outperforms all other cities, receiving funds from NASA, HHS, and DoD. Radiation Detection Technologies of Manhattan stands out for its performance with DoD awards.



Lawrence, Kansas City, and Manhattan dominate one-time awards. Lawrence and Kansas City do especially well with HHS awards. Radiation Detection Technologies remains the clear standout with awards from NASA, DoD, HHS, and the Department of Energy.



ium of Award Amount for each Award Year broken down by State, City, Company, Agency and Award Title. Color shows details about Phase. The data is filtered on in / Out of KS\_MultiPhase, which keeps Out. The view is filtered on State and Agen has State filter keeps KS. The Agency filter keeps multiple members.

### **Data Sources**

Tableau. Mapbox Map Data, 2020.

Tableau. Openstreetmap Map Data, 2020.

US Department of Commerce. Bureau of Economic Analysis, Regional Data GDP and Income, 2018, <a href="https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1">https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1</a>, accessed 07/02/2020

US Small Business Administration. SBIR STTR Award Data, 2015-2020, https://www.sbir.gov/sbirsearch/award/all, accessed 06/08/2020