Innovation Activity of Cities in the U.S

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Motivation

A region's innovation capabilities are dependent on three main factors: university R&D, industry structure and venture capital. To that end, our goal is to design a novel visualization application that can enable relevant stakeholders to visualize innovation activities across the U.S.

Preliminary Data Analysis

This project is based on the research of one of the group members who had previously analyzed federal and venture capital data to find that in 2019, 37 out of 384 metropolitan regions in the U.S received:

75%	67.1%	95%
Of the total federal research funding	Of the total SBIR/STTR commercialization funding	Of the total venture capital funding

These 37 regions became our regions of interest for this class project

Evaluation/Feedback

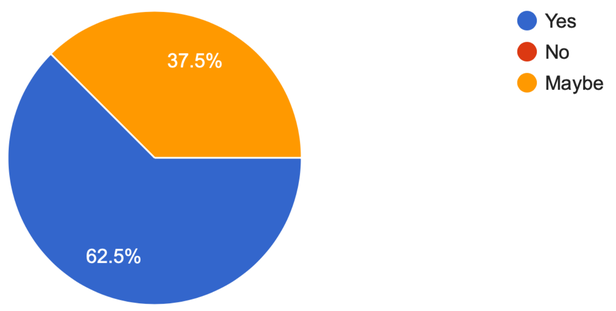
We created an anonymous survey with a snippet of our visualization to find out:

1. Who are our potential users?
2. Whether they find proposed dashboard useful?

8	62.5%	62.5%	5
total responses were received	Respondents said that they will benefit directly or indirectly from our interactive dashboard.	Respondents worked in university technology transfer	Respondents in the healthcare and life sciences sector

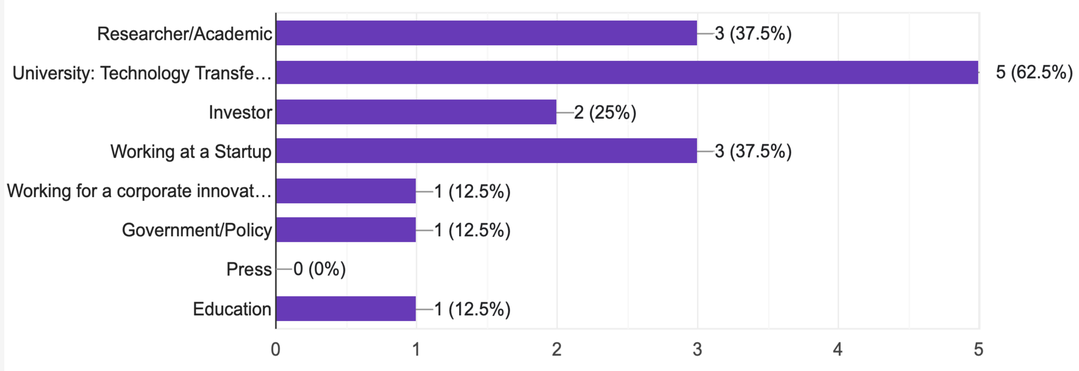
Do you think having an interactive dashboard providing insight on a region's university R&D, dominant industries and employment data will directly or indirectly help you?

8 responses



Which of the following settings do you work within?

8 responses



Design Goals

Objective

To design a cohesive, expressive dashboard that allows users to track, analyze, and leverage the data that interests them.

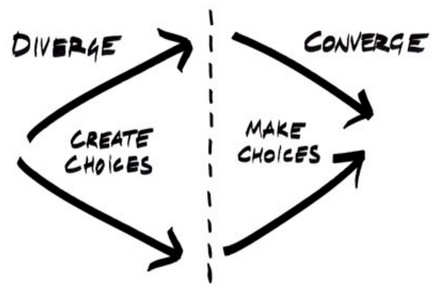
Key Questions

- ❑ How did university R&D expenditure vary across different metro cities in 2019?
- ❑ How did industry structure vary across different metro cities in 2019?
- ❑ How did venture capital funding vary across different metro cities in 2019?

Data Sources

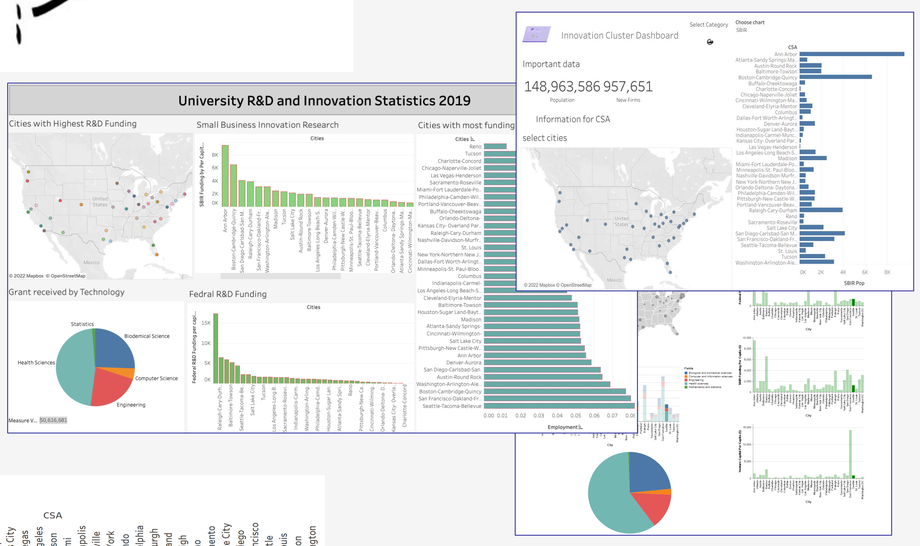
Federal R&D Data	Industry Data	Venture Capital Data
Grants.gov, National Science Foundation Databases	Bureau of Labor Statistics, Pitchbook	Pitchbook

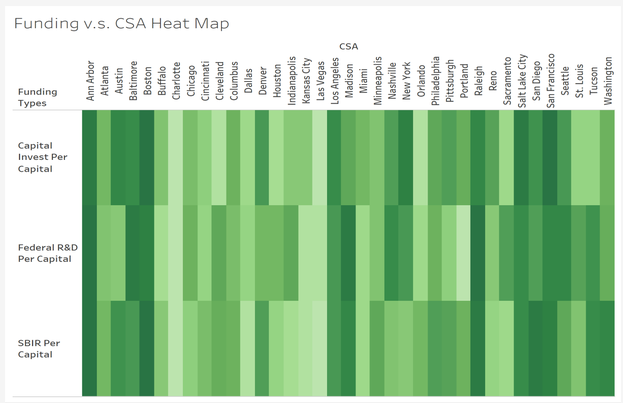
Approach

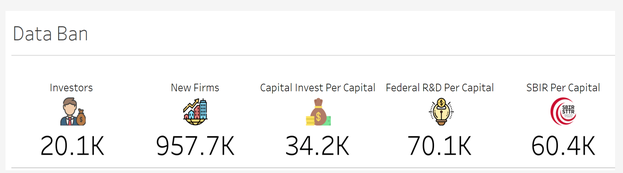


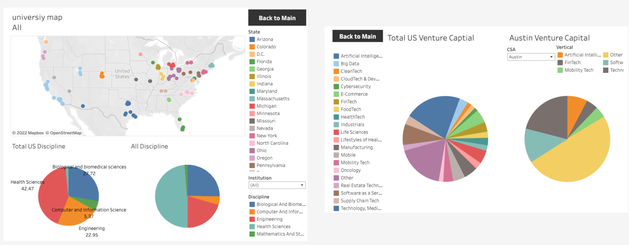
We first brainstormed multiple key questions before *converging* the above three key questions

We then brainstormed and produced multiple design solution alternatives and choices









We converged on a final design that was a mix of different ideas and had the following elements

- A heatmap that ranked each city for each source of funding and was used to make city selections
- A data ban with relevant statistics for the selected city
- Navigation options for further data exploration
  - ➢ Federal R&D information by discipline for main universities in a city
  - ➢ Pie charts that compared each city's industry structure and technology vertical to the total US statistics.

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