

Supply Chain Insights Platform (SCIP): Synthesizing Economic Data

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U.S. Census Bureau

Federal Committee on Statistical Methodology (FCSM)

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Recent supply chain crises

- During the pandemic
 - Toilet paper, pressure treated lumber, semiconductors...
- Around the world
 - French drug shortages, Spanish wine, Norwegian eggs...
- Geographic variation
 - Key Bridge collapse, hurricane season, labor strikes at ports...
- Impact
 - Real GDP decline and an unemployment increase ([NBER 2024](#))
 - Increase in morbidity and mortality ([HHS 2021](#))

Stakeholders demand insight



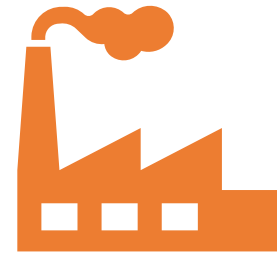
Public

White House

Private sector

U.S. Congress

Academia



United States[®]
Census
Bureau

Census Bureau supply chain data

Foreign trade

- Foreign trade import/export data
- Profile of importing/exporting firms
- Manufacturing and International Trade Report (MITR)
- Longitudinal Firm Trade Transactions Database (LFTTD)
- Business Dynamics Statistics of U.S. Goods Traders (BDS-Goods Traders)

Manufacturing

- Quarterly Survey of Plant Capacity Utilization (QPC)
- Annual Integrated Economic Survey (AIES)
- Annual Survey of Manufacturers (ASM)
- Manufacturing and International Trade Report (MITR)

Domestic movement of goods

- Commodity Flow Survey (CFS)
- Vehicle Inventory and Use Survey (VIUS)

Sale of goods

- Economic Census
- Annual Integrated Economic Survey (AIES)
- Annual Wholesale Trade Survey (AWTS)
- Annual Retail Trade Survey (ARTS)
- Services Annual Survey (SAS)

Economic programs

- County Business Patterns (CBP)
- Business Dynamics Statistics (BDS)
- Business Trends and Outlook Survey (BTOS)
- Longitudinal Employer-Household Dynamics (LEHD)
- LEHD Origin-Destination Employ. Statistics (LODES)
- Economic Indicators

Labor supply

- Current Population Survey (CPS)
- Longitudinal Employer-Household Dynamics (LEHD)

Vision

1. Comprehensive supply chain data infrastructure
2. Interactive data visualization platform

Supply Chain Insights Platform (SCIP)

Today's presentation: how we engaged with stakeholders to develop SCIP

Version 1:
High fidelity
prototype

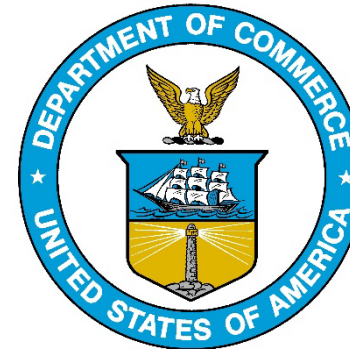
Version 2:
Beta launch to
federal testers

Version 3:
Proposed public
launch

Federal supply chain stakeholders



FEMA



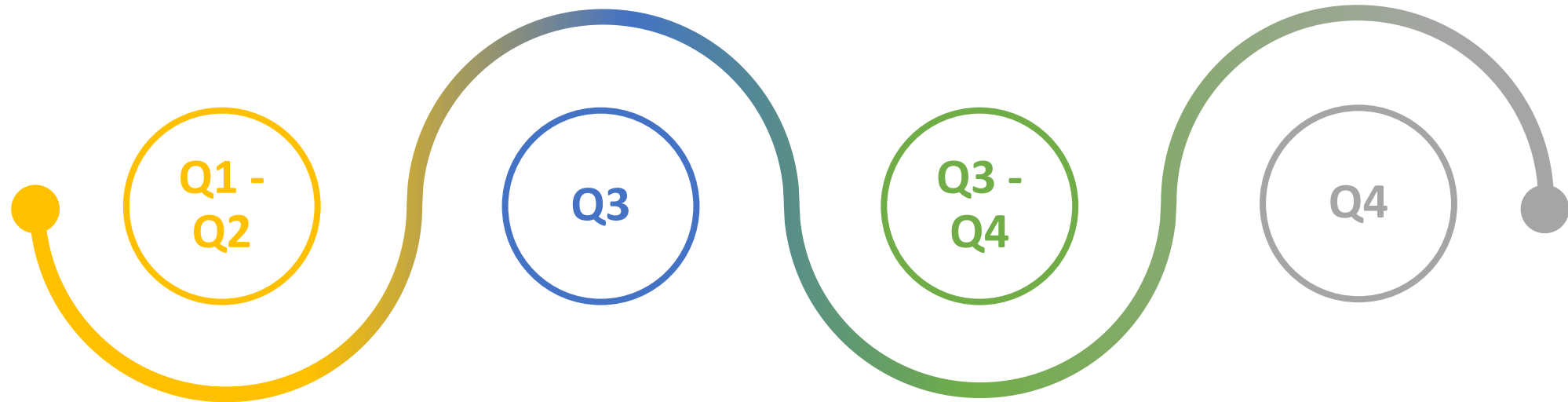
United States[®]
Census
Bureau

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



USDA

Path to V1



PLANNING AND
WIREFRAME

LOW FIDELITY
PROTOTYPE
WITH MOCK
DATA

EXTERNAL USER
INTERVIEWS

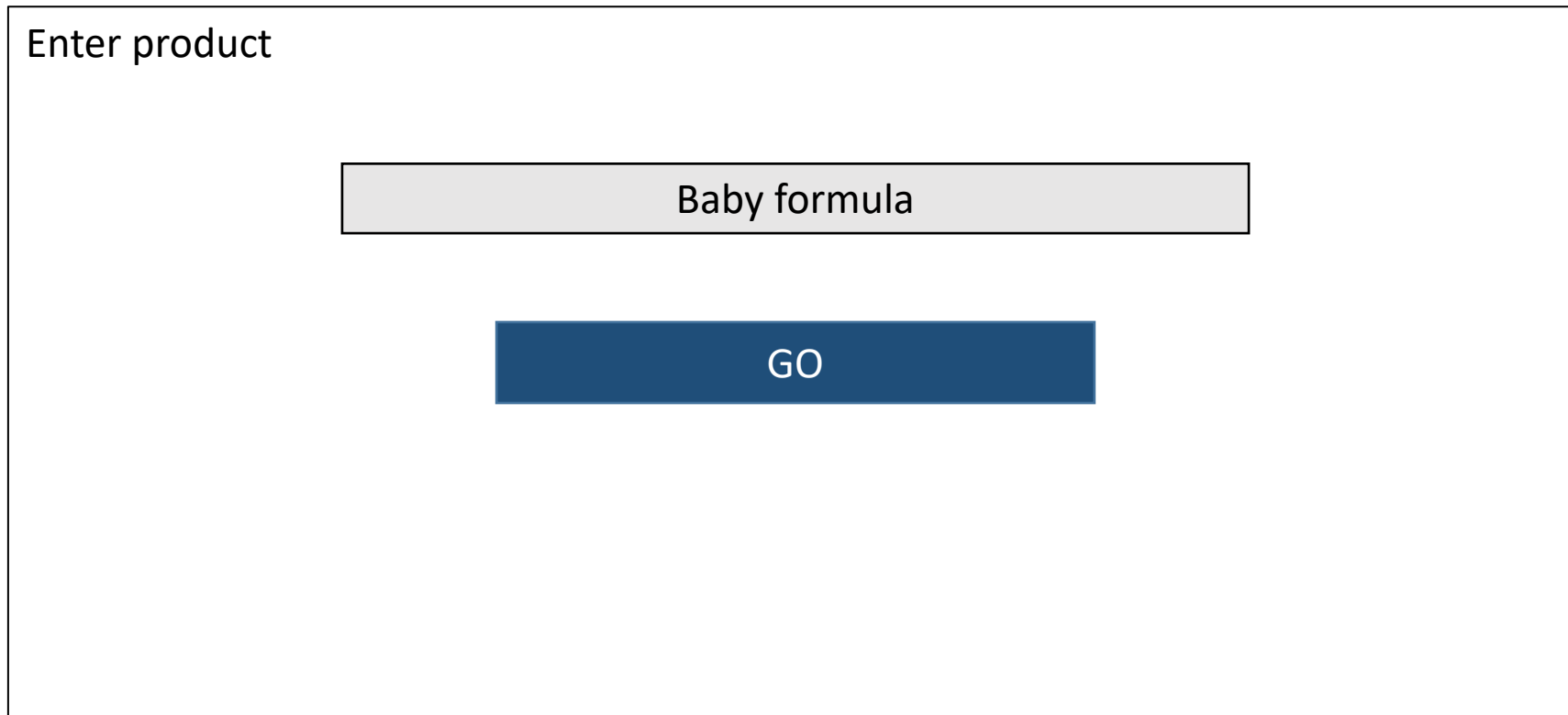
HIGH FIDELITY
PROTOTYPE
WITH REAL
DATA

Wireframe

Enter product

Baby formula

GO



Baby formula

By industry

By Product

NAICS 311514: manufacturing dry, condensed, and evaporated milk and dairy substitute

Number of firms: 127*

Number of establishments: 179*

Industry concentration: 708 (not that high?)*

Domestic mfg. capacity: 85%***

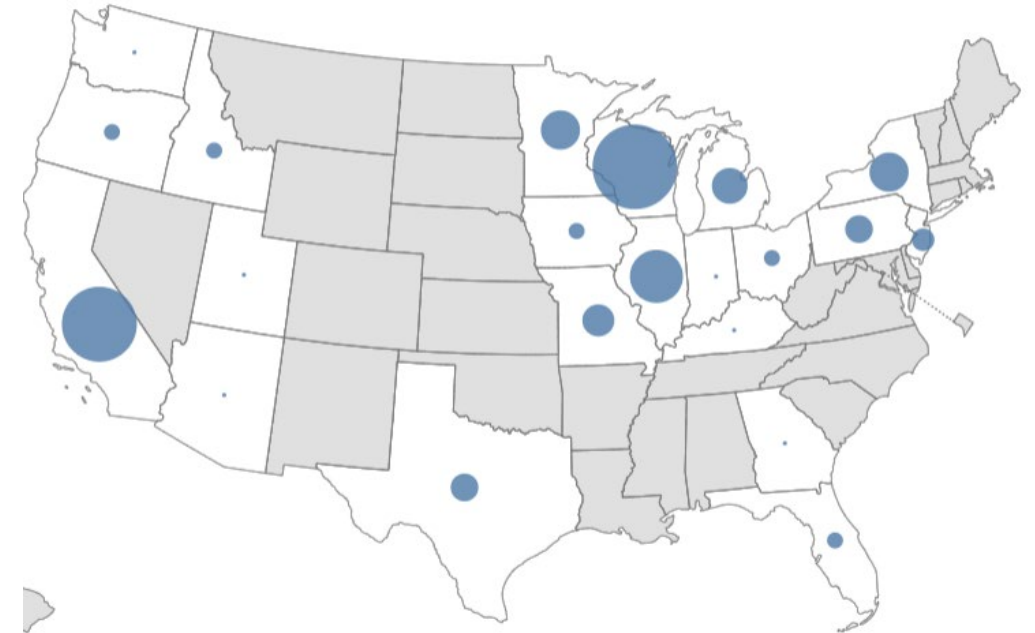
Percentage of total value produced domestically: 90%**

NAICS 3114222: Canned baby foods (excluding cereal and biscuits...)

NAICS 311230: Breakfast cereal manufacturing

NAICS 424410: General Line Grocery Merchant Wholesalers

NAICS 311514: number of establishments by state****



* Source: 2017 economic census

** Source: 2016 Manufacturing and International Trade Report (MITR)

*** Source: 2022 Q1 QPC

**** Source: 2019 CBP

Baby formula

By industry

By Product

Supply information

Imports

Total value imported: \$45,003,498 ([more](#))

Number of firms importing: XX*

NAICS of importing firms (end-use): XX*

Domestic production and exports

Total value produced domestically: \$1,607,929,000

Total value exported: \$20,151,315

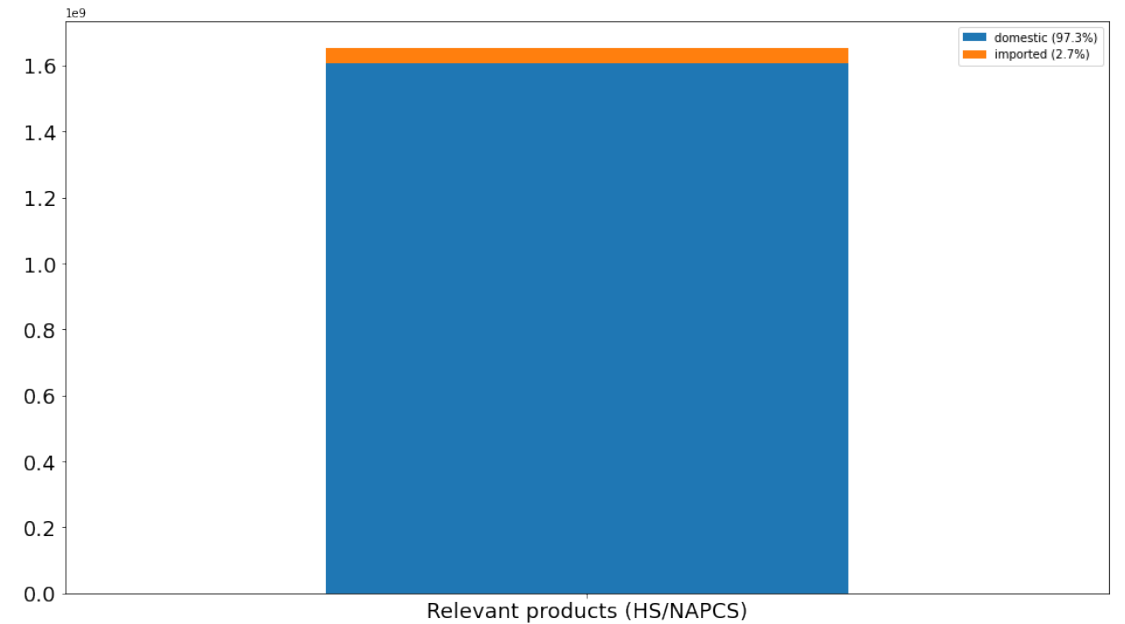
Relevant manufacturing NAICS: **311511**, **311514**, **325412**

Relevant product codes

HS 190110: Food Preparations for Infant Use

NAPCS 2001300000: dry and/or canned dairy product substitutes

Baby formula: total value imported vs. manufactured***



* POTENTIAL Source: Profile of importing/exporting firms

Low fidelity prototype

- Interactive tool
- Mock data
- Usability testing with external stakeholders
 - Collaboration with Census Open Innovation Labs (COIL)

Version 1: high fidelity prototype

Supply Chain Insights Platform

This dashboard presents Census information relevant to product supply chains. It includes information from economic surveys about the manufacture, supply, and use of products. [Less ▲](#)

- **Search for a product.** Type a product (e.g. lumber, pharmaceuticals, baby formula) into the search bar to view information about its supply chain.
- **View industry information.** In the "Industry" tab, view information about the top industries that manufacture that product, such as where the product is produced.
- **View product information.** In the "Product" tab, view information about the product itself, including its balance of imports and exports.

For more information, hover over the ⓘ icon. Raw data tables are accessible via the "Full data" links beneath each data point.

Supply Chain Insights Platform

This dashboard presents Census information relevant to product supply chains. It includes information from economic surveys about the manufacture, supply, and use of products. [More](#) ▾

Pharmaceuticals

By Industry

By Product

Industry codes

The North American Industry Classification System ([NAICS](#)) is a system for classifying business establishments.

Below are the top 3 industries which manufacture pharmaceuticals by revenue.

Pharmaceutical Preparation Manufacturing (NAICS 325412) ^

Firms ⊖

Rank in subsector ⊖

1033

#2 of 29 industries

Source: [2017 Economic Census \(Full data\)](#)

Concentration score ⊖

Rank in subsector

662: (Low)

#10 of 29

Source: [2017 Economic Census \(Full data\)](#)

Establishments ⊖

Rank in subsector

1297

#1 of 29

Manufacturing capacity ⊖

72.6%

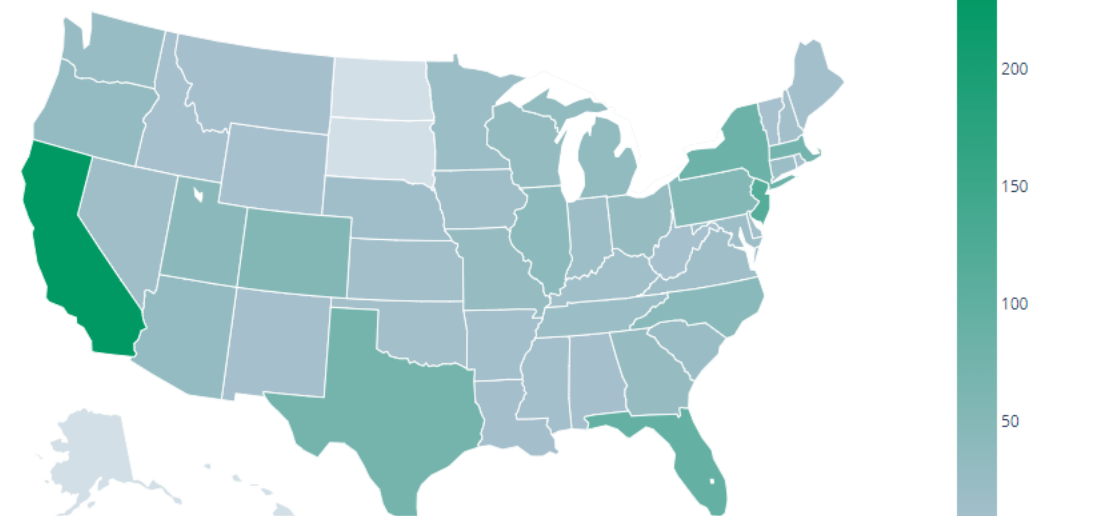
Source: [2023 Quarterly Survey of Plant Capacity Utilization \(Full data\)](#)

Biological Product (except Diagnostic) Manufacturing (NAICS 325414) ▾

Medicinal and Botanical Manufacturing (NAICS 325411) ▾



Pharmaceutical Preparation Manufacturing (NAICS 325412) establishments by state



Source: [2021 County Business Patterns \(Full data\)](#)

Note: publicly available data

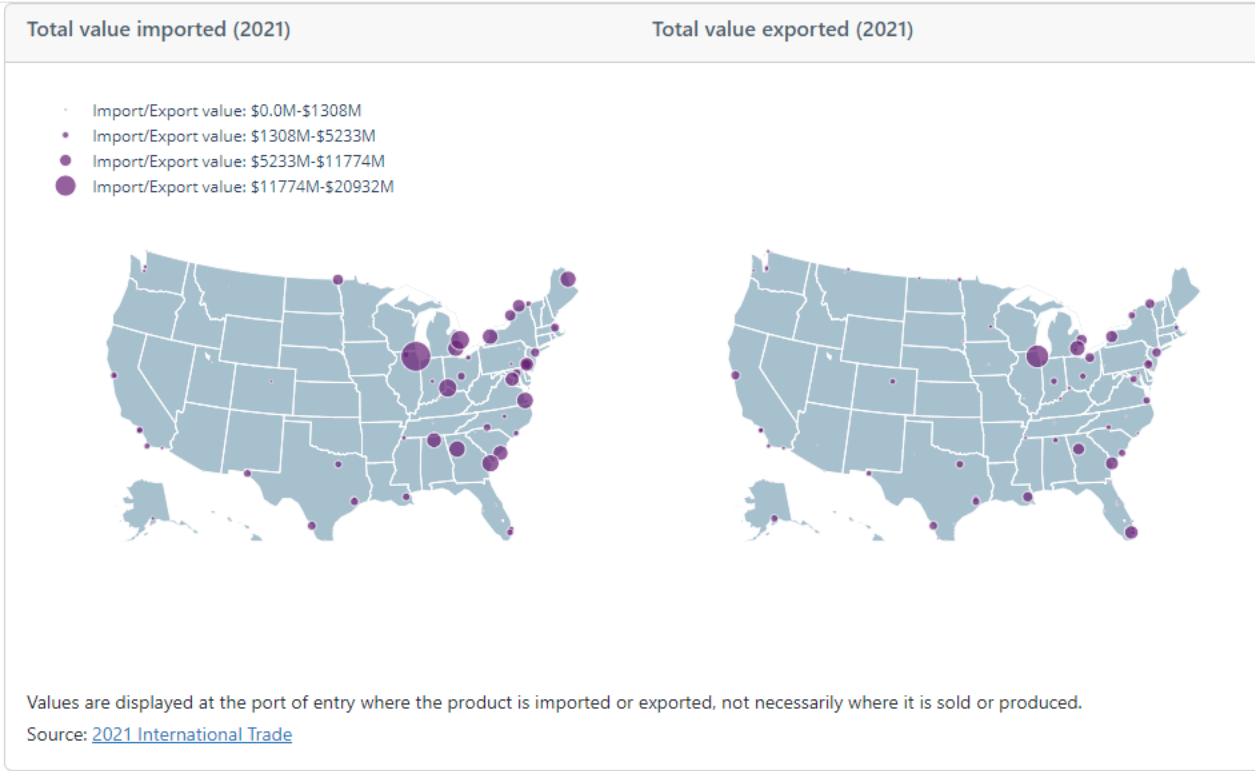
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Pharmaceuticals

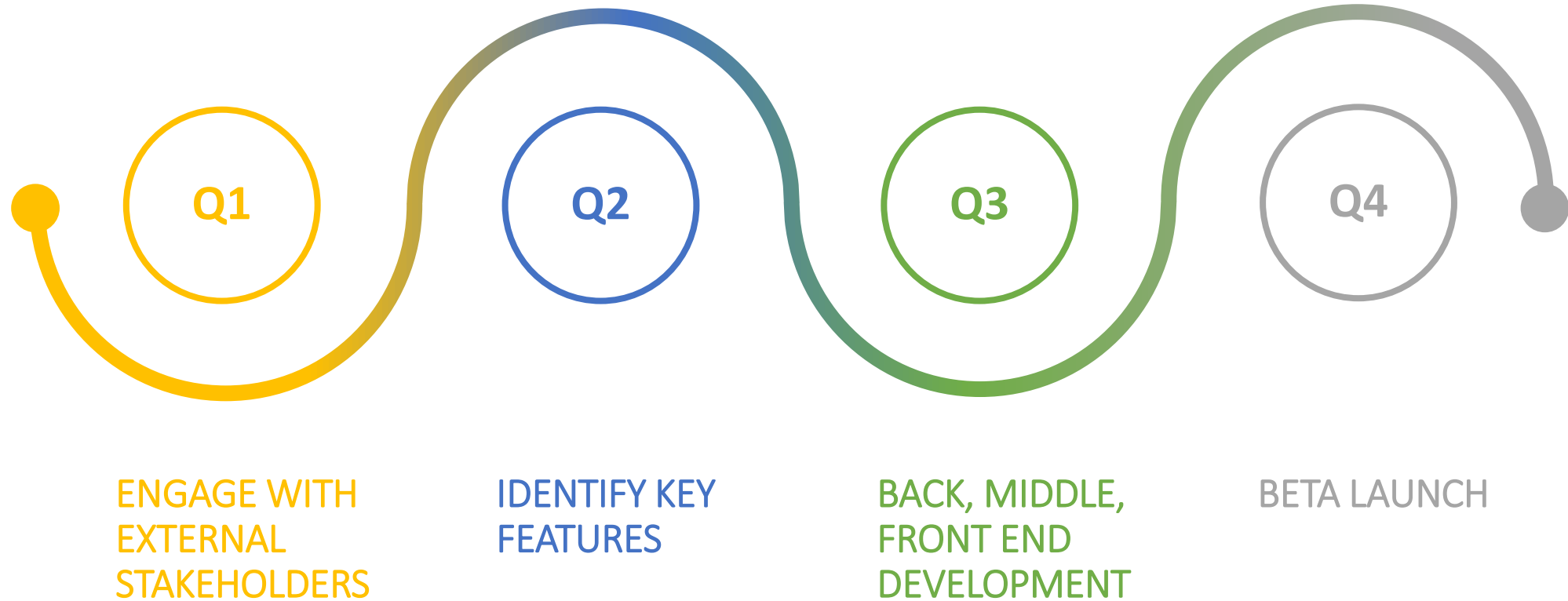
By Industry

Product codes	
⊖ HS 300490: MEDICAMENTS NESOI, MEASURED DOSES, RETAIL PK NESOI	
⊖ NAPCS Collection Code 2010325000: Manufacturing of pharmaceutical preparations, affecting parasitic and infective diseases, for human use (excluding diagnostics)	
Annual value of domestic manufacturing ⊖	Percent of supply produced domestically ⊖
\$29.5M	0.073%
Source: 2021 Annual Survey of Manufactures (Full data)	
Annual imports	Annual exports
\$65169M	\$25057M
Source: 2021 International Trade	
Domestic supply ⊖	
\$40142M	



Note: publicly available data

Path to V2



Conduct interviews, engage with stakeholders

How do you define supply chain for the purposes of your work?

Which supply chain topics do you focus on?

What supply chain data do you wish you had?

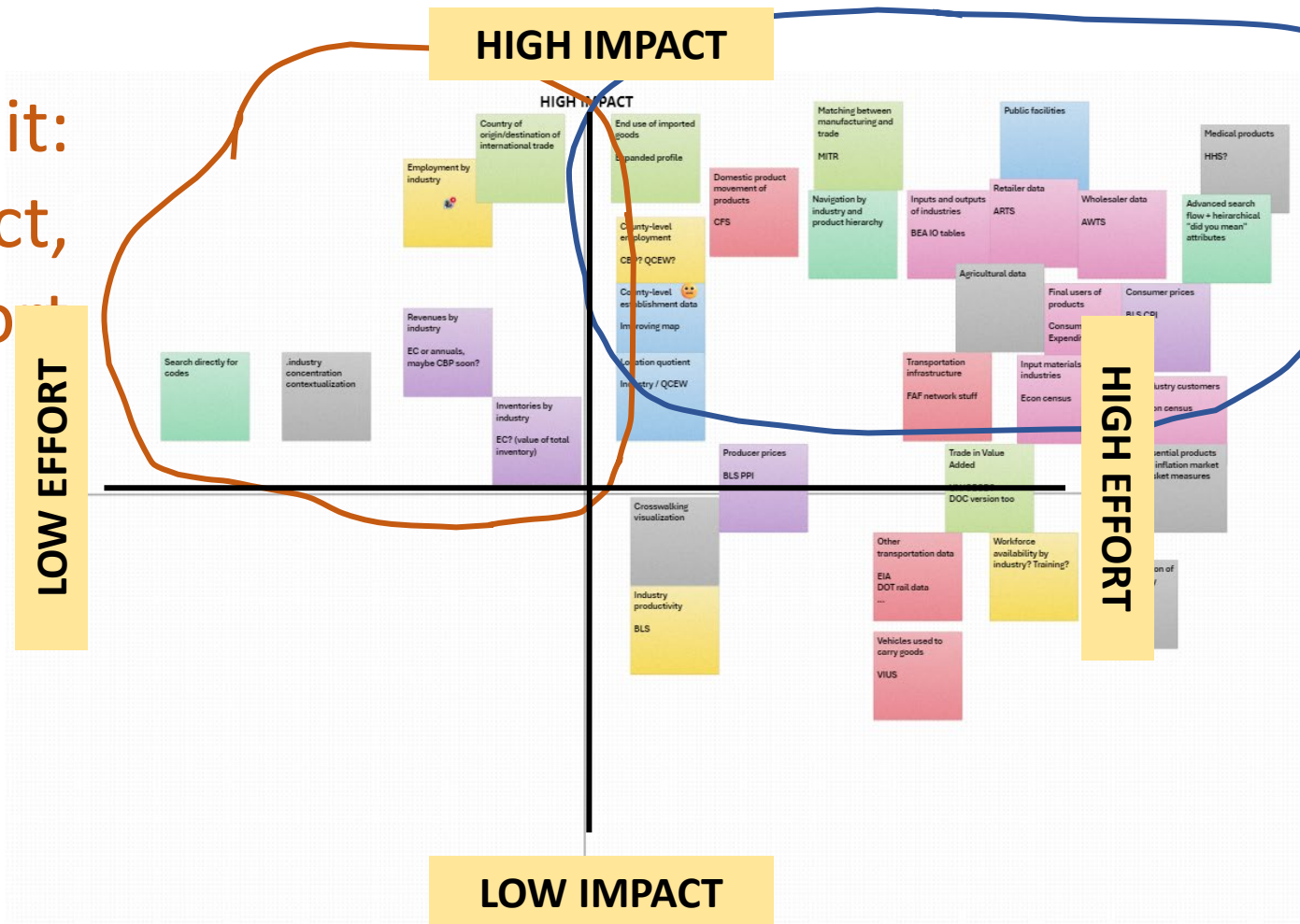
What are the key datasets you currently use to complete your work?

Which Census supply chain data are you familiar with?

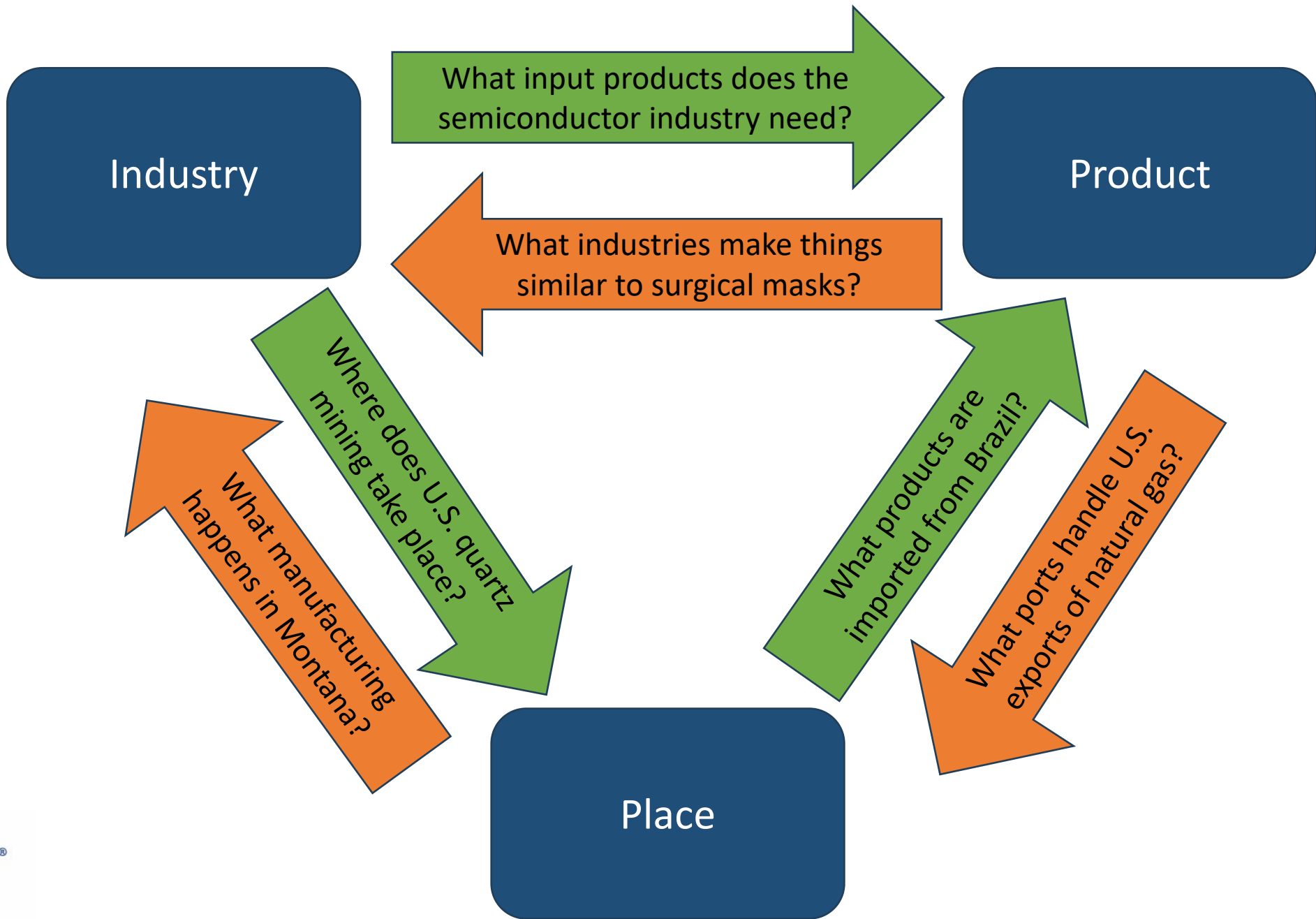
What are some use cases of supply chain issues in your work?

Identify important features

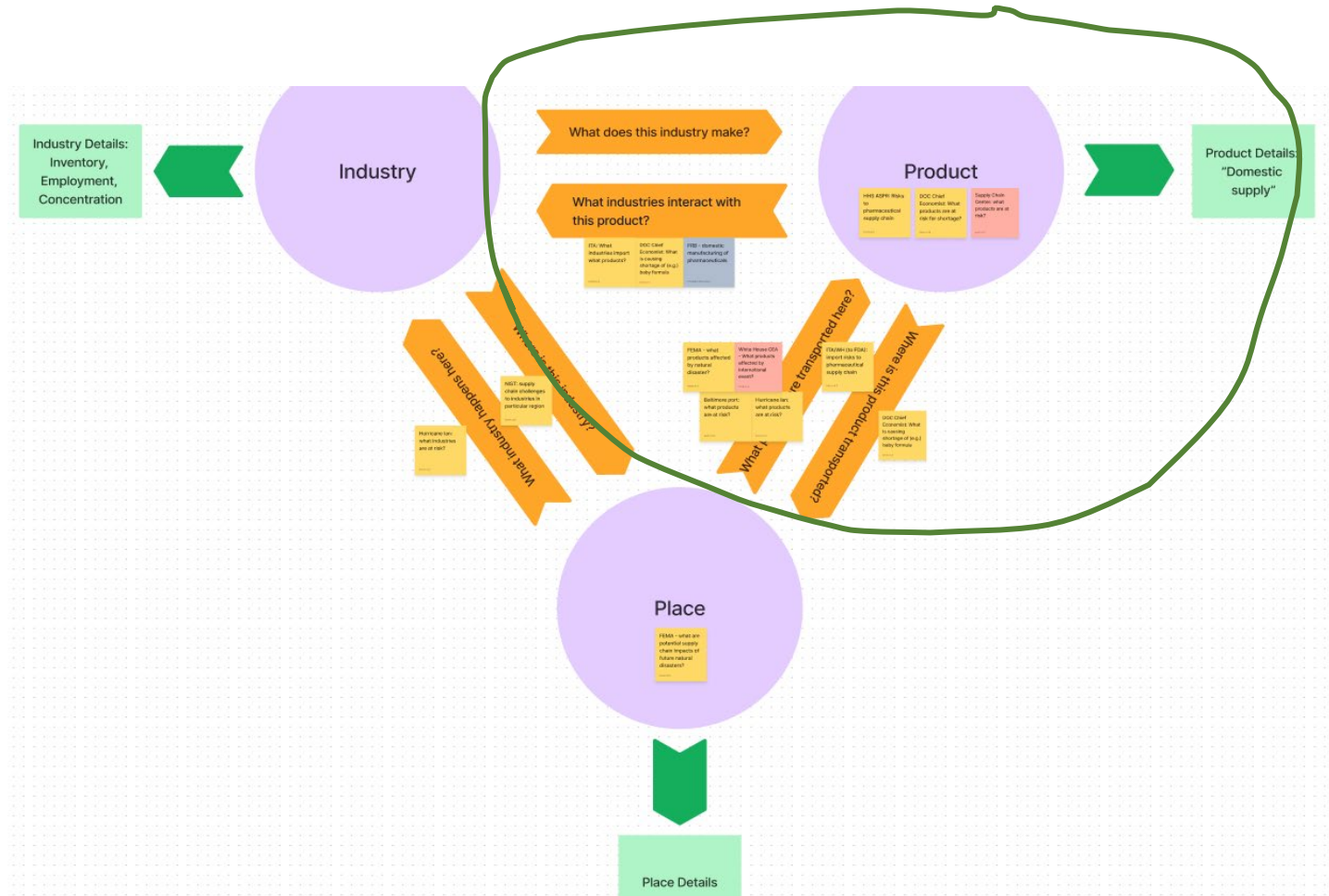
Just do it:
high impact,
low effort



Candidates for implementation:
high impact, high effort



Identify where to focus for V2



Questions that begin with product

Early v2 mockup

Supply Chain Insights Platform



Search for a product...

Reset filters

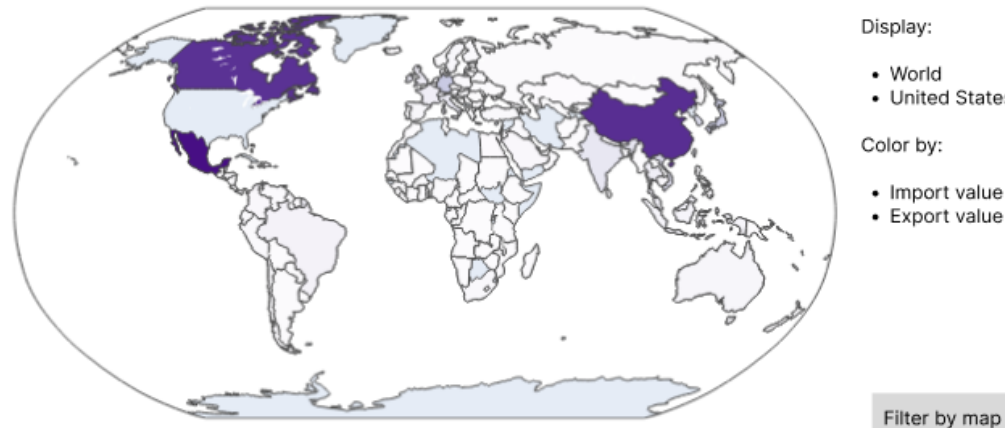
All products by import value



Industry that manufacture all products by revenue

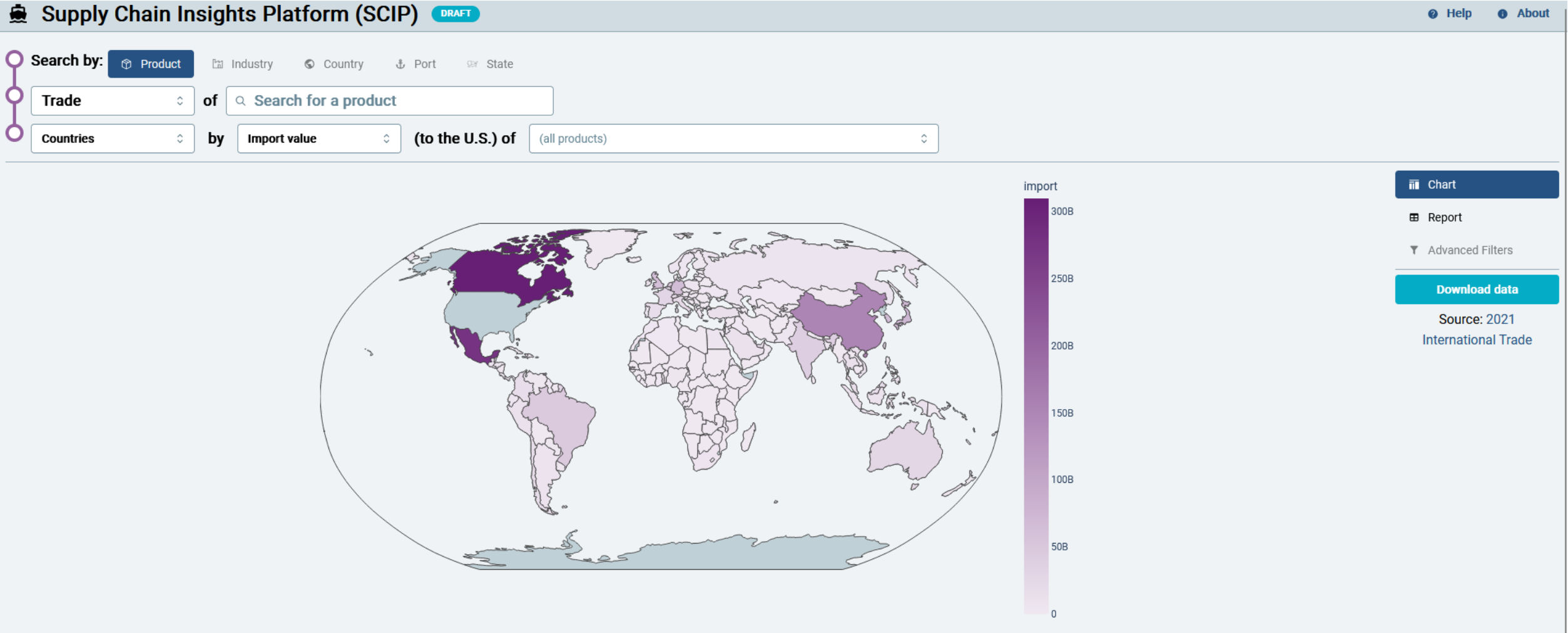


World by import value of all products



Note: mockup from publicly available data from [2021 International Trade](#) and [2017 Economic Census](#)

Version 2:



Note: publicly available data from [2021 International Trade](#)

Which industries manufacture quartz?



Supply Chain Insights Platform (SCIP) **DRAFT**



Search by:



Product



Industry



Country



Port



State

Manufacturing

of

quartz

Industries that manufacture

(all quartz products)


by

Total revenue



Note: publicly available data from [2017 Economic Census](#)

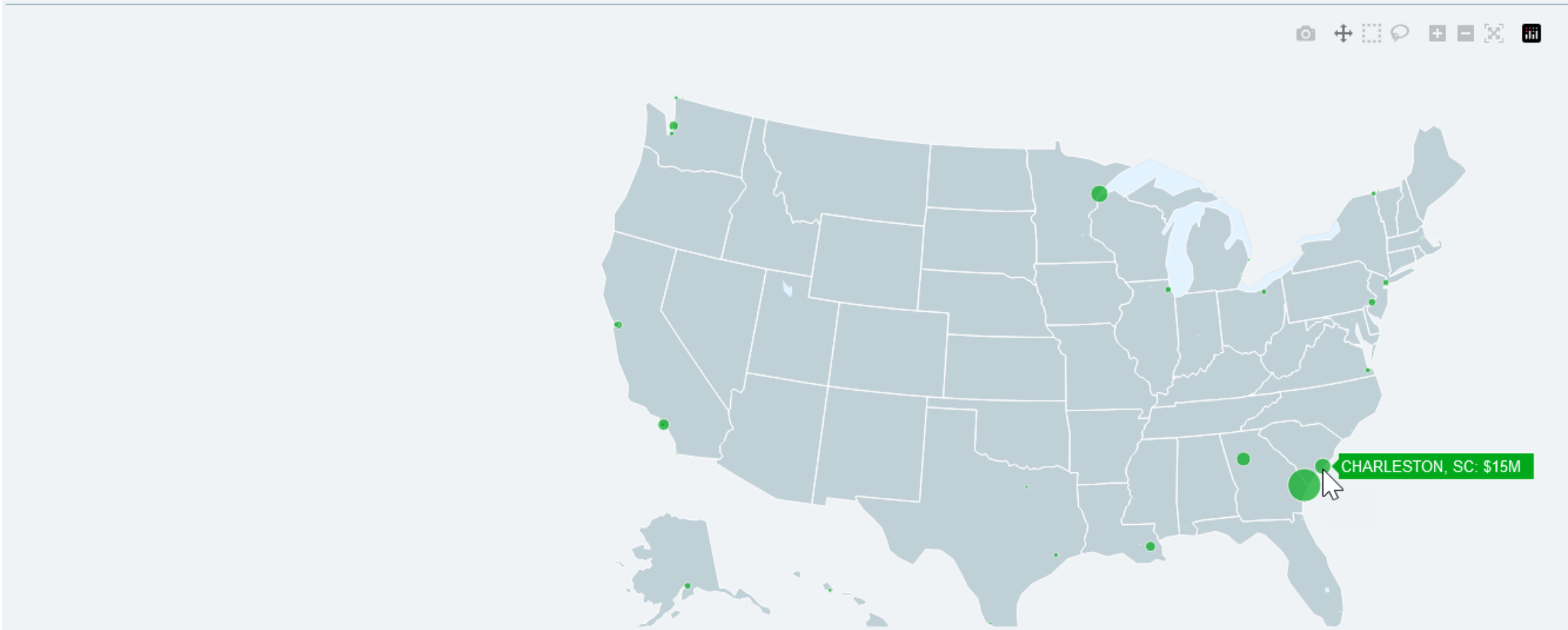
Which U.S. ports export the most quartz?

 Supply Chain Insights Platform (SCIP) DRAFT

Search by: Product Industry Country Port State

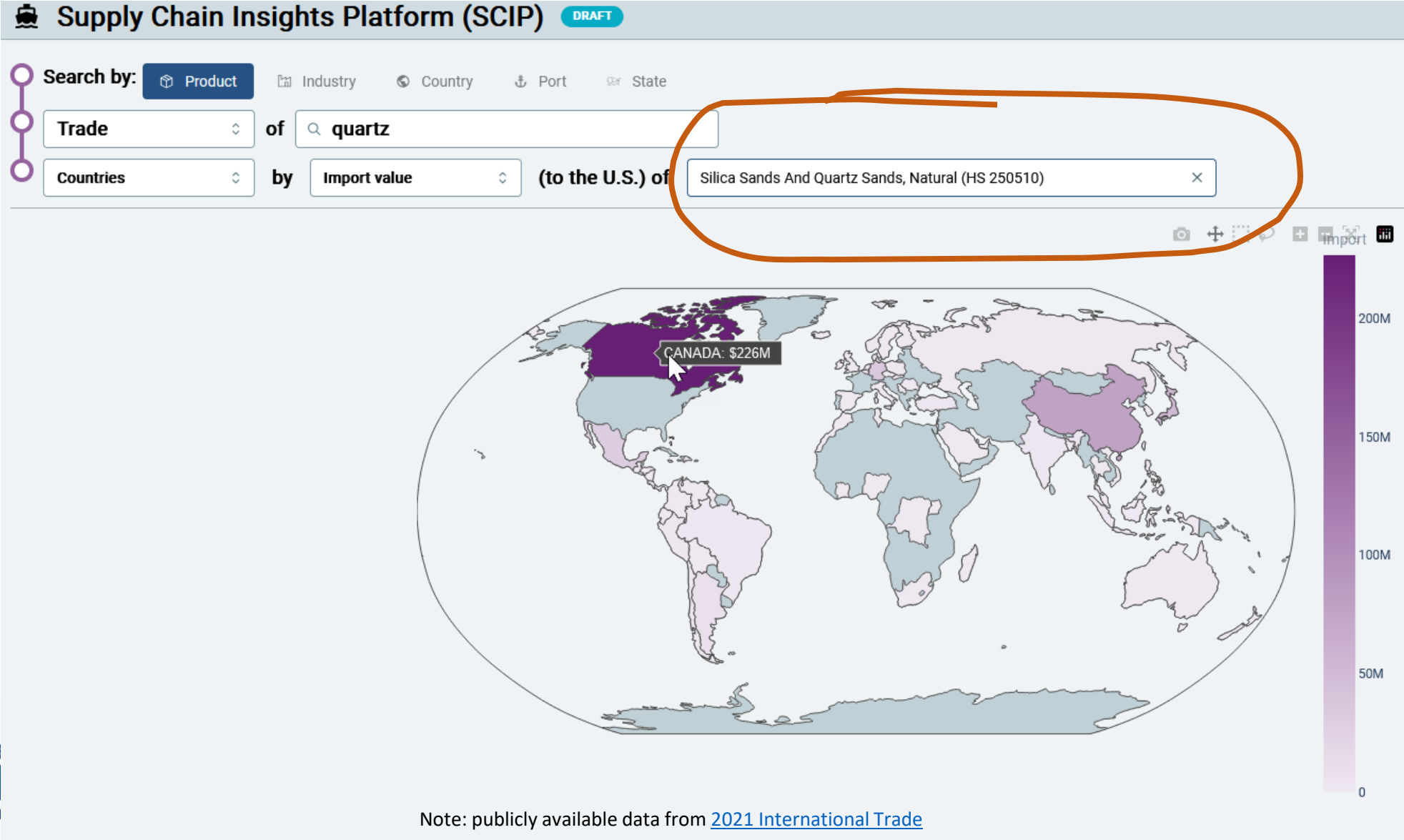
Trade of quartz

Ports by Export value of (all quartz products)



Note: publicly available data from [2021 International Trade](#)

Which countries send the U.S. the most quartz?



Note: publicly available data from [2021 International Trade](#)

Table format for all data products

Supply Chain Insights Platform (SCIP) DRAFT [Help](#) [About](#)

Search by: Product Industry Country Port State

Trade of
 Countries by Import value (to the U.S.) of

Country	Import value	Export value
CANADA	\$226,567,597	\$8,619,830
KOREA, SOUTH	\$650,785	\$3,405,536
BRAZIL	\$2,391,308	\$3,334,696
TAIWAN	\$622,165	\$3,130,678
AUSTRALIA	\$384,308	\$2,213,905
BELGIUM	\$804,557	\$1,710,170
GERMANY	\$34,717,238	\$1,160,655
CHINA	\$78,991,339	\$636,175

Chart
 Report
 Advanced Filters
 Download data
 Source: 2021 International Trade

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Planned path to V3



Lessons learned

- Talk to people: Engage stakeholders early and often
- Understand people: Diagramming stakeholder requirements; Data needs and UI are separate but related
- Accommodate all people: 508 compliance earlier in process
- Be flexible for future people: Design flexible backend databases to enable changes to front end

Please reach out!

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