

A large, abstract graphic on the left side of the slide. It is a lightbulb shape constructed from a network of white lines and dots, with some triangular facets filled with a light blue color. The background is dark blue with faint, curved lines and small white dots.

# **Supply Chain and Obsolescence Concept – Fleet Readiness and Safety**

Technical Exchange Workshop

July 2022

Illuminating the Supply Chain enables the CAD/PAD Enterprise to **identify and mitigate logistic and obsolescence risks to maintain a high level of Fleet Readiness and Safety.**

- A recent study by the Defense Contract Management Agency (DCMA) analyzed the CAD/PAD Industrial Base (IB). The study identified the risk and challenges to the CAD/PAD IB. **Two major risks identified are the CAD/PAD IB supply chain and obsolescence.**
- With over **2,700 items** in the CAD/PAD portfolio, the number and complexity of items have resulted in a complex and intricate supply chain.
- Obsolescence, the availability of energetic materials and their ingredients – pyrotechnics, explosives, and propellants – is a major readiness issue for the CAD/PAD Enterprise and the Department of Defense as a whole. **Foreign dependency, fragile supply chains, diminishing domestic suppliers, increasing environmental regulations** all increase the risk of procurement and sustainment of these critical items.

Basic Knowledge Requirements for managing supply chains:

- What does it look like now?
- What is vulnerable?
- What is the timeframe(s) when inventory becomes critical (usage & supply)?
- What continuous information feeds do you have on usage & supply?
- What continuous information feeds do you still need?
- Generation of watchlists to keep the Enterprise and Vendor(s) informed for tactical and strategic issue(s) and risk(s) actions.



Basic Knowledge Requirements for managing supply chains

What does it look like now?

What is vulnerable?

What is the timeframe(s) when inventory becomes critical (usage & supply)?

What continuous information feeds do you have on usage & usage?

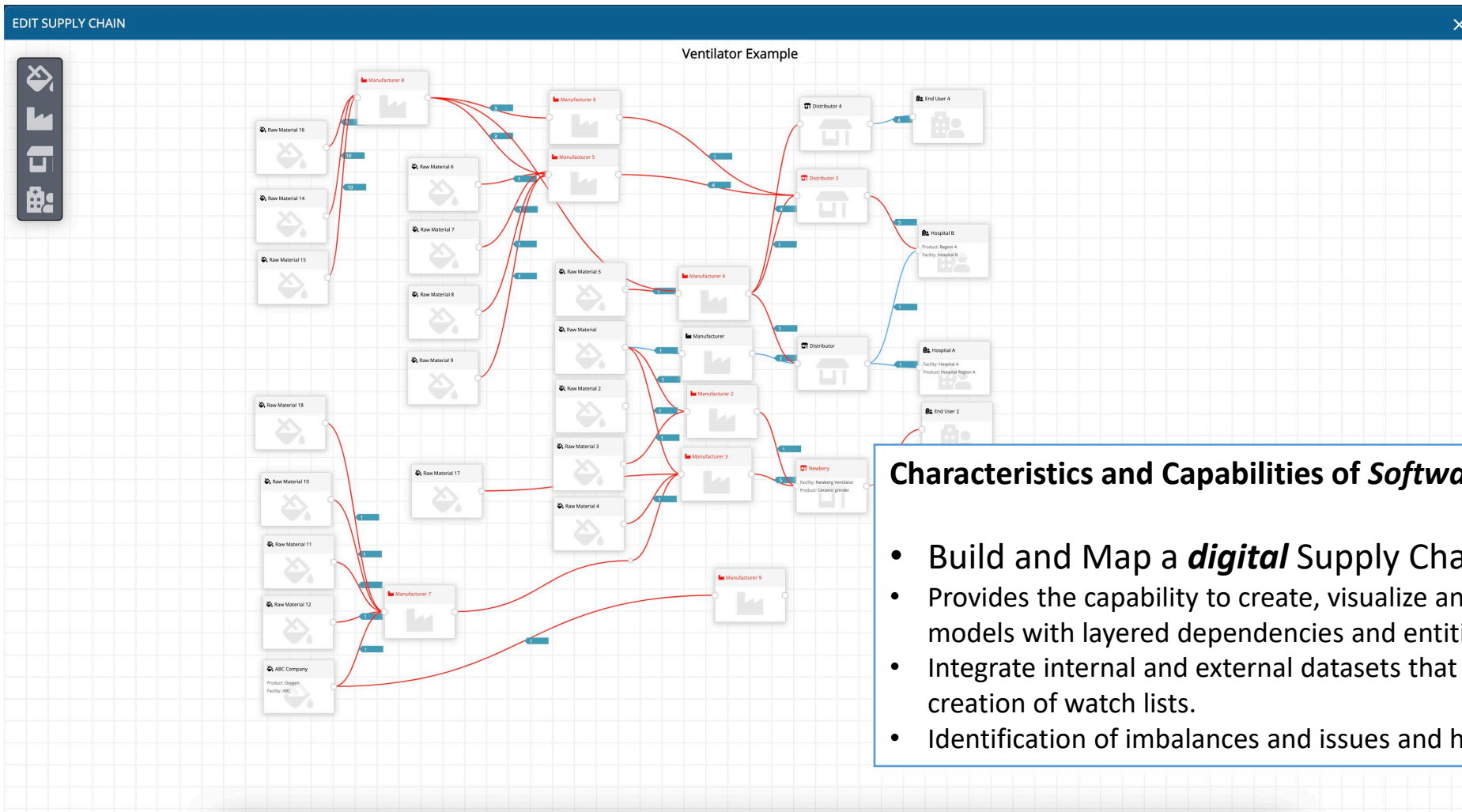
What continuous information feeds do you still need?

Generation of watchlists to keep team informed for issue and risk actions.

## Complex Knowledge Requirements for managing Supply Chains:

- Stakeholder Dependencies: Domestic and Foreign Governments, Domestic and Foreign Suppliers, and Production, Storage, and Distribution Entities.
- Regulatory and Logistic Dependencies: Obsolescence, Accreditation Lapses, Government and non-Government Warnings, Facilities, and Logistic Impacts.
- Greater IB (i.e., automotive, construction, medical) Dependencies from competing demands and impacts on the CAD/PAD Enterprise.

Supply chains reveal complicated webs (relationships) of materials, manufacturers, distributors and end markets.



## Characteristics and Capabilities of *Software* Supply Chain Solution

- Build and Map a **digital** Supply Chain in days vs weeks and months.
- Provides the capability to create, visualize and edit detailed **digital** supply chain models with layered dependencies and entities.
- Integrate internal and external datasets that automate ongoing tracking of risks and creation of watch lists.
- Identification of imbalances and issues and highlight flows (in red)

## CAD/PAD SUPPLY CHAIN

Illumination View Alt view 2 Alt view 3

Items Item 1 x Item 2 x

Period

Last 90 days

At Risk Filter

Country / Conditions

Data Source

Annotations

Share

### Annotation Updates

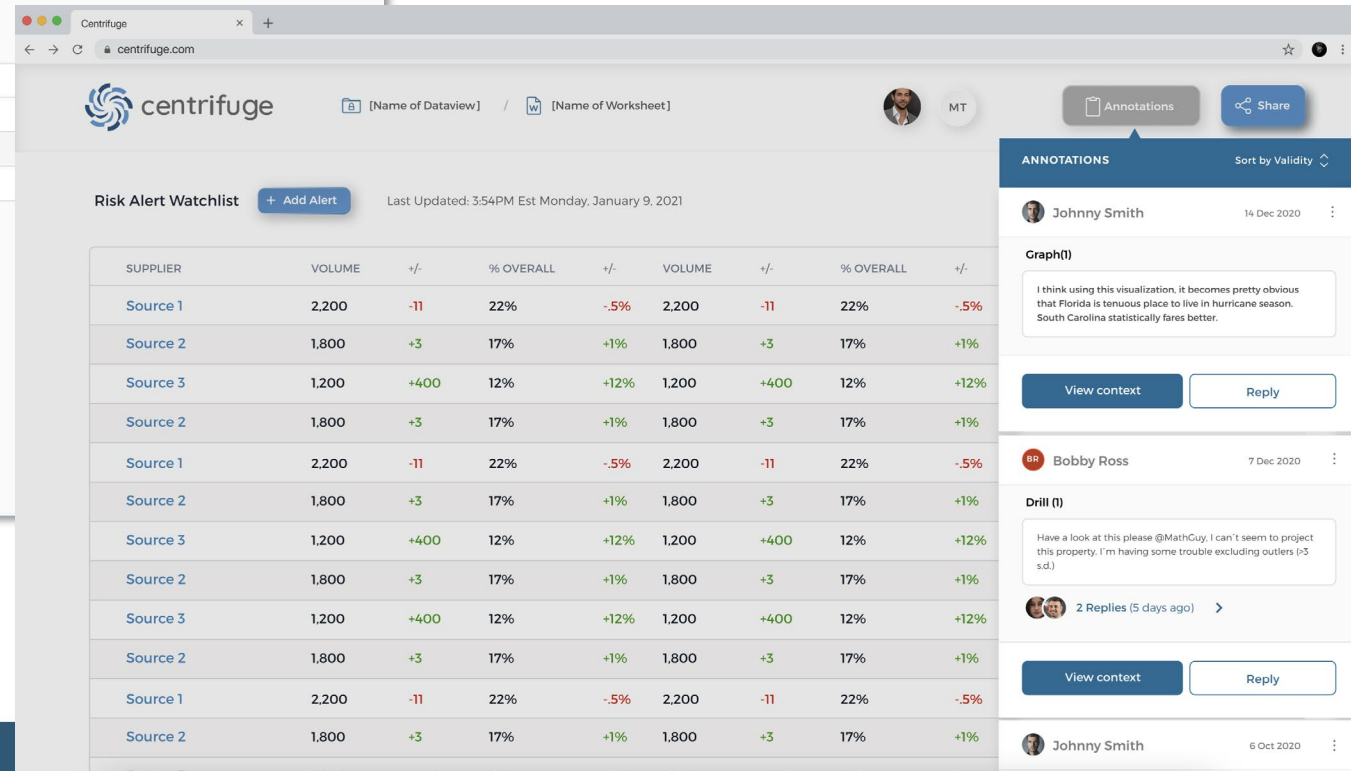
ANNOTATION	LABELS	AUTHOR	POSTED
Need alternative to phosphate	Raw Materials	David Smith	Jan 2, 2022 09:54:41
Canadian partner to consider	Raw Materials Recommendations	Eleanor Jacobs	Jan 1, 2022 11:02:33

### Risk Alert Watchlist

SUPPLIER	VOLUME	+/-	% OVERALL	+/-
Source 1	2,200	-11	22%	-.5%
Source 2	1,800	+3	17%	+1%
Source 3	1,200	+400	12%	12%

## Characteristics and Capabilities of *Software Supply Chain Solution*

- Dashboard to aggregate data feeds, notes, track risk, issue actions, and alerts for analysis and development or updated risk, issue actions.
- Decision-making capabilities aggregated into a watchlist derived from user input and predictive capabilities.

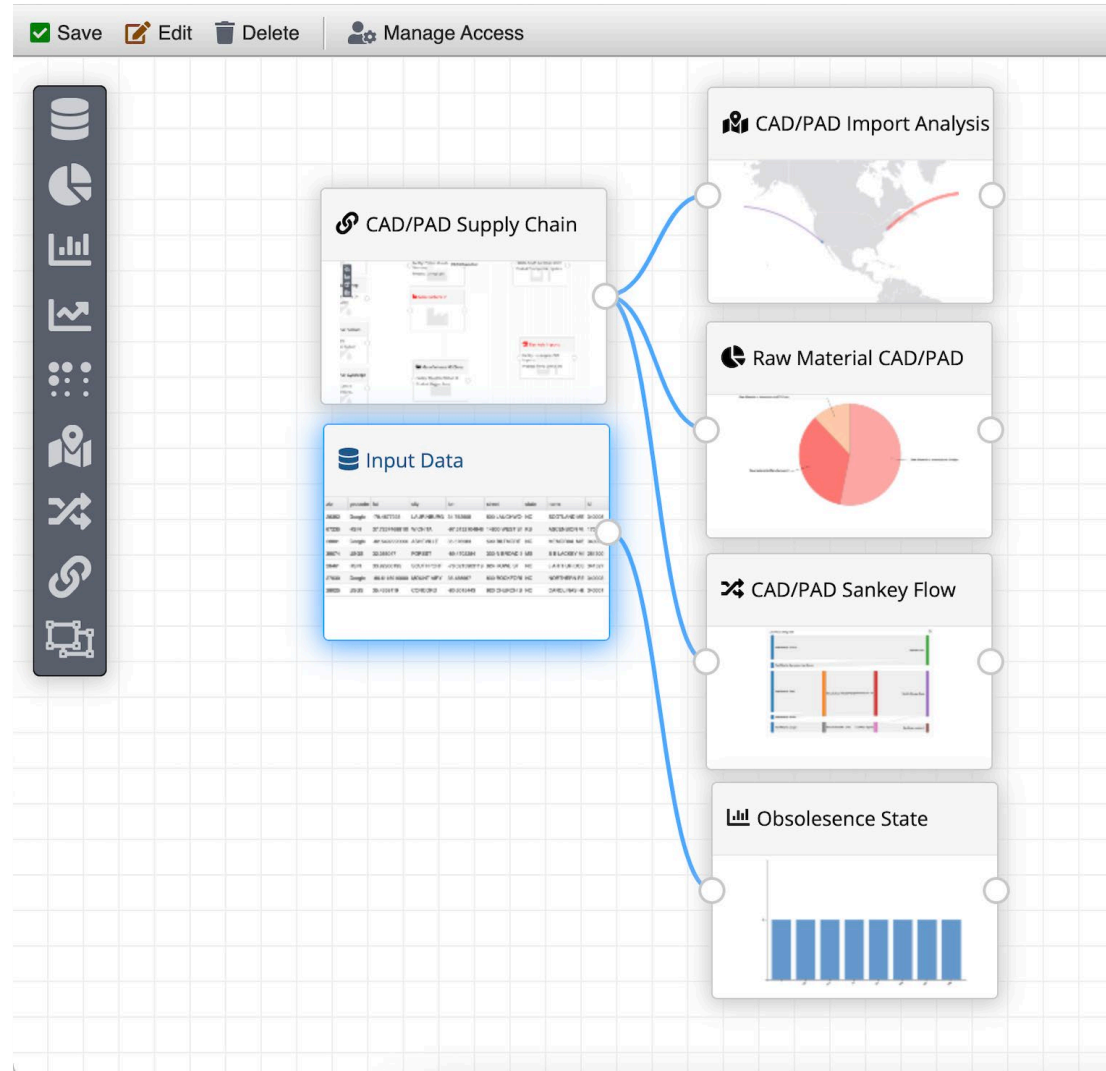


The screenshot shows the Centrifuge software interface. The main dashboard displays a 'Risk Alert Watchlist' with a table of supplier data. The table has columns for Supplier, Volume, +/-, % Overall, and a final +/- column. The data is as follows:

SUPPLIER	VOLUME	+/-	% OVERALL	+/-
Source 1	2,200	-11	22%	-.5%
Source 2	1,800	+3	17%	+1%
Source 3	1,200	+400	12%	12%

The interface also includes a sidebar with 'Annotations' and 'Drill (1)' sections. The 'Annotations' section shows a comment by Johnny Smith dated 14 Dec 2020. The 'Drill (1)' section shows a comment by Bobby Ross dated 7 Dec 2020. The top navigation bar includes 'Annotations' and 'Share' buttons. The bottom navigation bar includes 'Risk Alert Watchlist' and '+ Add Alert' button. The last updated time is 3:54PM Est Monday, January 9, 2021.

View components





CAD/PAD SUPPLY CHAIN



MT

Annotations

Illumination View Alt view 2 Alt view 3

Items Item 1 x Item 2 x

Period

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Data Source

Annotation Updates

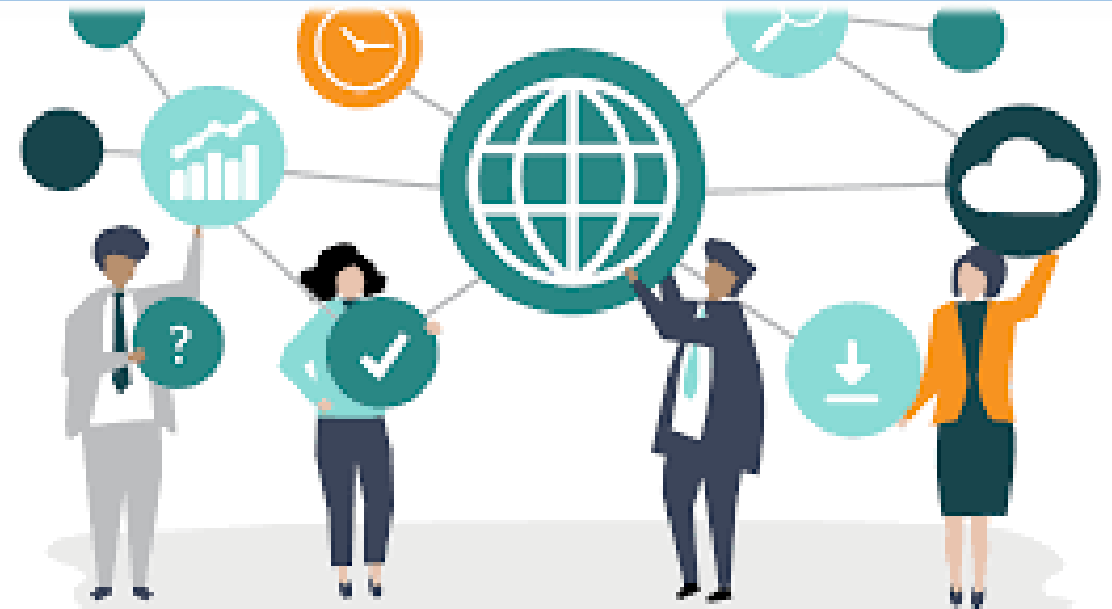
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Risk Alert Watchlist

		Impact				
		Negligible	Minor	Moderate	Significant	Severe
Likelihood	Very Likely	Low Med	Medium	Med Hi	High	High
	Likely	Low	Low Med	Medium	Med Hi	High
	Possible	Low	Low Med	Medium	Med Hi	Med Hi
	Unlikely	Low	Low Med	Low Med	Medium	Med Hi
	Very Unlikely	Low	Low	Low Med	Medium	Medium

## Characteristics and Capabilities of *Software* Supply Chain Solution

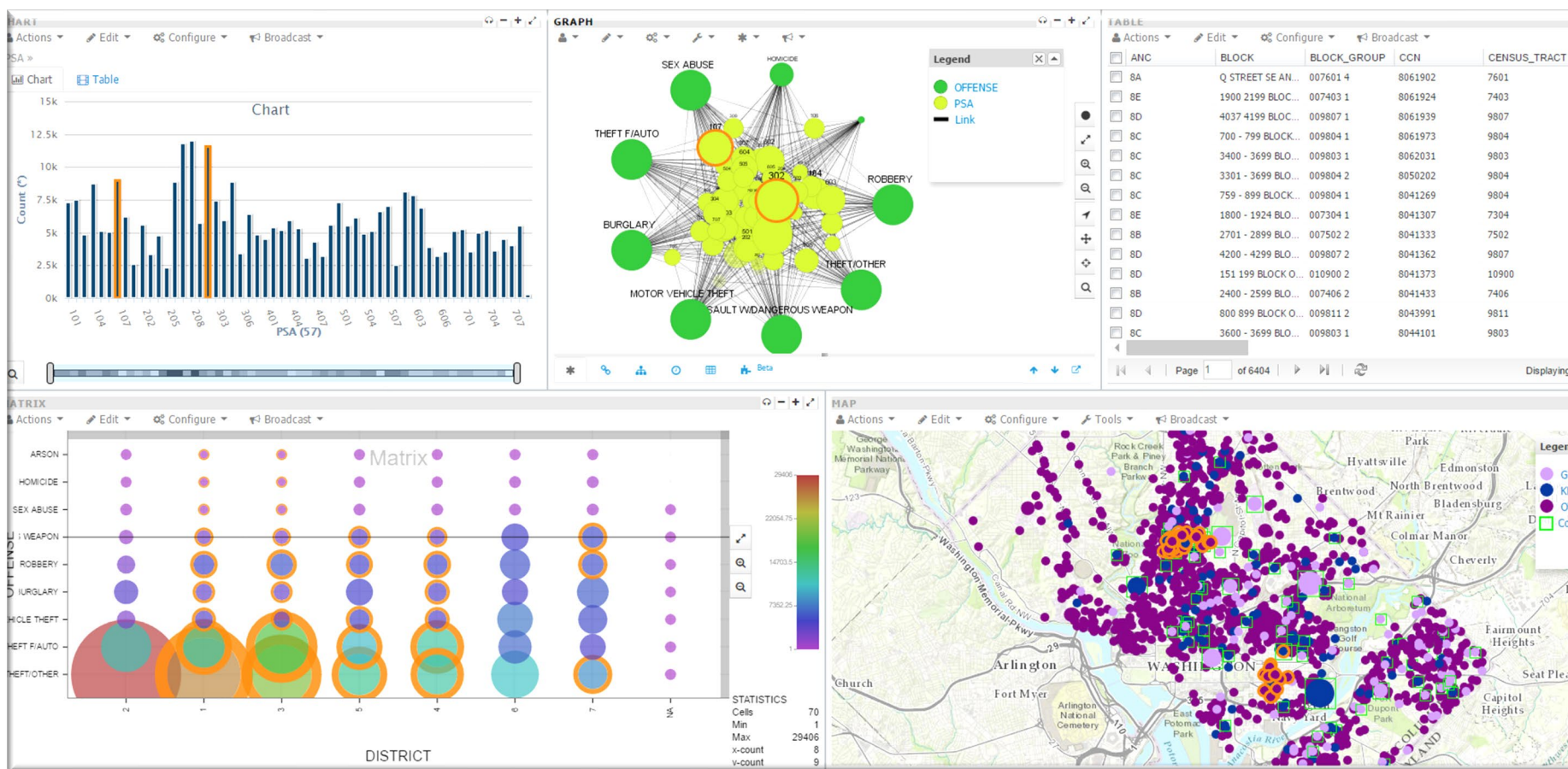
- Supply Chains are Complicated
- **People Have Knowledge to Contribute** – Contract Officers, Program Managers, Commercial Vendors, Others. But no one person has full complete view.
- **Integration of Knowledge** – Enterprise access to the integrated view for scenario impact analysis.
- **Continuity** – People leave and retire. Knowledge must be retained, which also provides a quick ramp up for new people in the organization.





## Concepts – Centrifuge Data Analytics and Link-Analysis Platform

Centrifuge Analytics is a big data discovery technology that provides the scalability and flexibility to connect, and visualize information without complex data transformation, or costly services. It combines sophisticated data connectivity, link-analysis, spatial awareness, and interactive visualizations to dramatically simplify overall data understanding and problem solving.



# Concepts – Supply Chain with Centrifuge

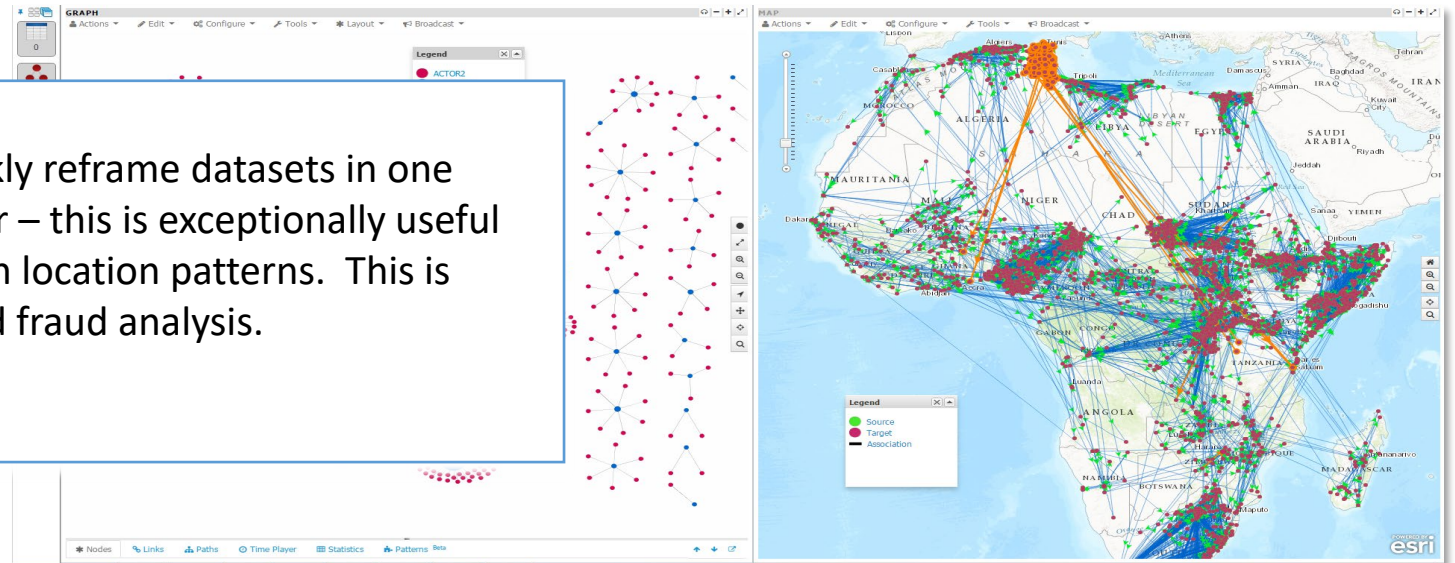


## Geographic time series analysis

- Centrifuge can ingest geographic data points and plot the movement of assets and goods over time for playback analysis.

## Vendor accreditation analysis

- Centrifuge has the ability to quickly reframe datasets in one visualization method into another – this is exceptionally useful when combining link analysis with location patterns. This is often used in foreign supplier and fraud analysis.





**Antimony Sulfide Use Case – Element sourced from one high risk supplier requiring obsolescence management (i.e., finite stockpile of Antimony Sulfide, procurement of accredited CAD/PAD items, accreditation of alternate sourced and replacement primers and new CAD/PAD items, procurement of replacement CAD/PAD items.**

- 3<sup>rd</sup> Party commercial datasets are available to integrate into a digital supply chain.
- Digital Supply Chain illuminates current, potential, and futures issues and risks for key components across the Greater IB and CAD/PAD IB.
- Digital Supply Chain capabilities include:
  - Integration with internal and external data sets.
  - Watchlist capabilities to support IB and vendor actions.
  - Integration with Data-Analytic Tools like Centrifuge for development of data-driven issue and risk actions.
  - AI/ML Integration to provide trend-analysis, predictive capabilities (i.e., provide DoD and IB with future year production requirements.)
  - Integration with Obsolescence Management capability - sunseting obsolete CAD/PAD items and procurement of new CAD/PAD items.

### 3<sup>rd</sup> Party Antimony Sulfide Data Sets

Code	Title	Revenue Growth % (2021 - 23)	Life Cycle Stage	Key Buying Industry	Key Selling Industry	Overall Risk Level	Overall Risk Trend	Overall Risk
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441b - Circuit Board & Electronic Component Manufact	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441b - Circuit Board & Electronic Component Manufact	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441b - Circuit Board & Electronic Component Manufact	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441a - Semiconductor & Circuit Manufacturing in the US	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441a - Semiconductor & Circuit Manufacturing in the US	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33441a - Semiconductor & Circuit Manufacturing in the US	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33431 - Audio & Video Equipment Manufacturing in the US	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33431 - Audio & Video Equipment Manufacturing in the US	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33431 - Audio & Video Equipment Manufacturing in the US	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33422 - Communication Equipment Manufacturing in the US	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33422 - Communication Equipment Manufacturing in the US	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33422 - Communication Equipment Manufacturing in the US	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411b - Computer Peripheral Manufacturing in the US	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411b - Computer Peripheral Manufacturing in the US	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411b - Computer Peripheral Manufacturing in the US	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411a - Computer Manufacturing in the US	42361 - Electrical Equipment Wholesaling in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411a - Computer Manufacturing in the US	33531 - Electrical Equipment Manufacturing in the US	Low	Steady	4.08
33329a	Semiconductor Machinery Manufacturing in the US	4.92	Mature	33411a - Computer Manufacturing in the US	33299b - Ball Bearing Manufacturing in the US	Low	Steady	4.08
33411a	Computer Manufacturing in the US	4.67	Mature	99 - Consumers in the US	33592 - Wire & Cable Manufacturing in the US	Medium - High	Steady	5.45
33411a	Computer Manufacturing in the US	4.67	Mature	99 - Consumers in the US	33441a - Semiconductor & Circuit Manufacturing in the US	Medium - High	Steady	5.45
33411a	Computer Manufacturing in the US	4.67	Mature	92 - Public Administration in the US	33592 - Wire & Cable Manufacturing in the US	Medium - High	Steady	5.45
33411a	Computer Manufacturing in the US	4.67	Mature	92 - Public Administration in the US	33441a - Semiconductor & Circuit Manufacturing in the US	Medium - High	Steady	5.45
33411a	Computer Manufacturing in the US	4.67	Mature	51 - Information in the US	33592 - Wire & Cable Manufacturing in the US	Medium - High	Steady	5.45
33411a	Computer Manufacturing in the US	4.67	Mature	51 - Information in the US	33441a - Semiconductor & Circuit Manufacturing in the US	Medium - High	Steady	5.45
005937	Online Gun & Ammunition Sales	4.43	Growth	9901 - Consumers in the US	49111 - Postal Service in the US	Medium	Increasing	4.95
005937	Online Gun & Ammunition Sales	4.43	Growth	9901 - Consumers in the US	33299a - Gun & Ammunition Manufacturing in the US	Medium	Increasing	4.95
005937	Online Gun & Ammunition Sales	4.43	Growth	9901 - Consumers in the US	33221 - Cardboard Box & Container Manufacturing in the US	Medium	Increasing	4.95
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	92 - Public Administration in the US	33441b - Circuit Board & Electronic Component Manufacturing in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	92 - Public Administration in the US	33441a - Semiconductor & Circuit Manufacturing in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	92 - Public Administration in the US	33411a - Computer Manufacturing in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	92 - Public Administration in the US	3361a - Engine & Turbine Manufacturing in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	92 - Public Administration in the US	21229 - Molybdenum & Nickel Mining in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	33641b - Space Vehicle & Missile Manufacturing in the US	33441b - Circuit Board & Electronic Component Manufacturing in the US	Low	Steady	3.77
33641b	Space Vehicle & Missile Manufacturing in the US	3.27	Mature	33641b - Space Vehicle & Missile Manufacturing in the US	33441a - Semiconductor & Circuit Manufacturing in the US	Low	Steady	3.77
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*Questions?*

