

Let's Track SG Public Dollars!

USER GUIDE

A Shiny App by
Cathy Chu & Chang Fang-Yu

Advisor: Prof. Kam Tin Seong
Singapore Management University

Tender Analysis

Data Sampling

LDA Supervised Learning

LDA Clustering

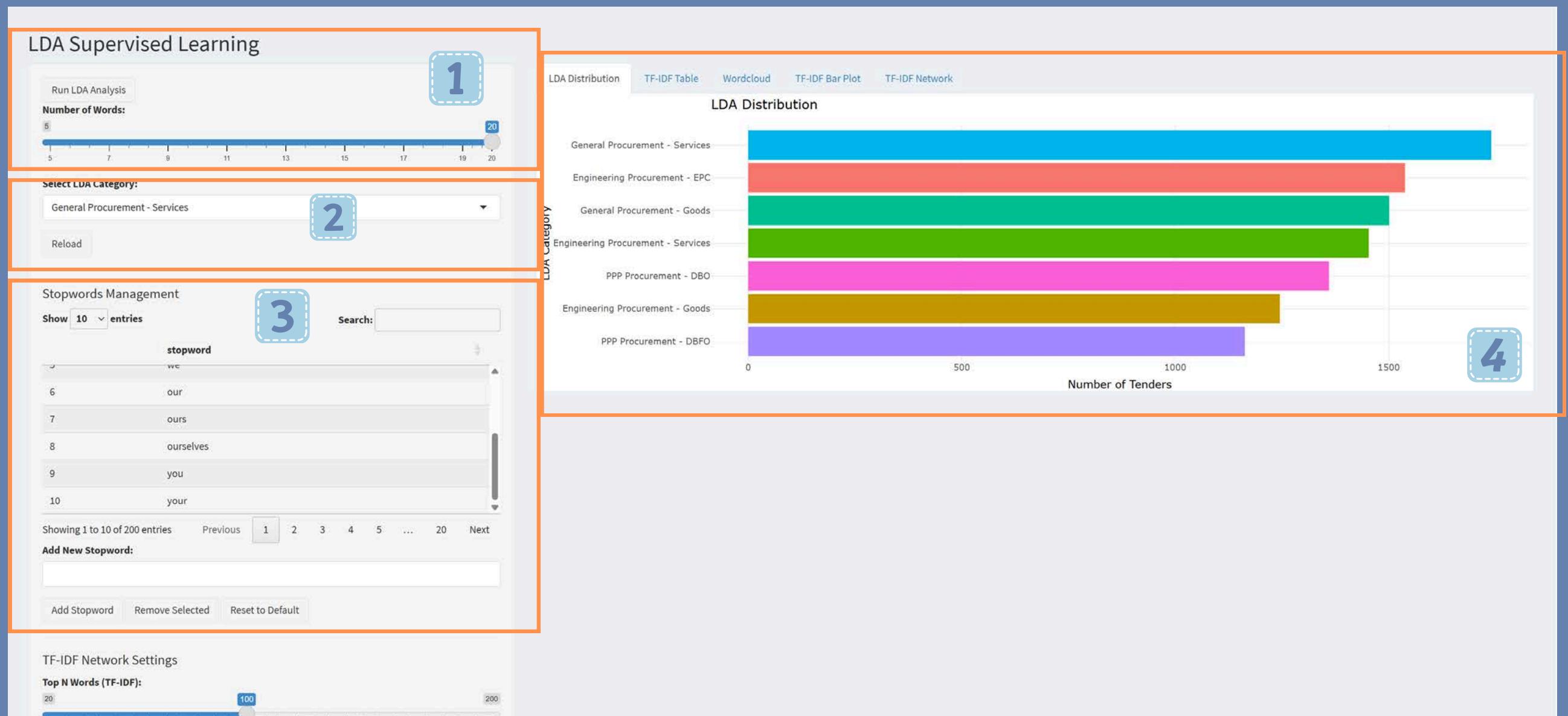
Market Insights



Choose Data Sample:

Before running LDA modeling, please select a sample size such as 1,000, 5,000, 10,000, or "All".

The selected sample will be drawn from the parent dataset Cleaned_GP_LDA.csv.



STEPS

- For the first run, Use the control panel in 1 2 3 to set parameters for your analysis, including the number of top words, and stopwords settings.
- Click “Run LDA Analysis” to perform topic modeling using Latent Dirichlet Allocation (LDA) on the current dataset.
- Use 2 to switch the category filter and click Reload to update the visual outputs accordingly.
- Manage your stopwords using the table in 3 . You can add, remove, or reset stopwords to refine the analysis results.
- Navigate across the five tabs on the right to explore different views: distribution, TF-IDF table, word cloud, bar chart, and word correlation network.

1 2 Control Panel

- Run LDA Analysis:** Start topic modeling on selected data.
- Number of Words:** Slider to set the number of top words shown in word cloud and bar chart.
- Select LDA Category:** Filter visual output by category.
- Reload:** Apply category filter and update all plots.

3 Stopword Management

- Stopword Table:** Shows current stopwords being used.
- Add Stopword:** Input box to add a custom stopword.
- Remove Selected:** Deletes highlighted stopwords from the list.
- Reset to Default:** Reverts stopwords to system default.

4 Visualization Tabs

- LDA Distribution:** Bar chart of how many tenders fall under each LDA category.
- TF-IDF Table:** Interactive table showing term frequency, inverse document frequency, and TF-IDF.
- Wordcloud:** Displays most relevant words (by TF-IDF) in a cloud format.
- TF-IDF Bar Plot:** Horizontal bar chart ranking words by TF-IDF score.
- TF-IDF Network:** Graph showing word associations based on co-occurrence and correlation.

LDA Supervised Learning

Run LDA Analysis
Number of Words: 20

Select LDA Category: General Procurement - Services

Stopwords Management
Show 10 entries
stopword: we
6 our
7 ours
8 ourselves
9 you
10 your

Showing 1 to 10 of 200 entries Previous 1 2 3 4 5 ... 20 Next
Add New Stopword:
Add Stopword Remove Selected Reset to Default

TF-IDF Network Settings
Top N Words (TF-IDF): 100

LDA Distribution TF-IDF Table Wordcloud TF-IDF Bar Plot TF-IDF Network
Show 10 entries

LDA_Catagory	tender_no	word	n	tf	idf	tf_idf
General Procurement - Services	FOR000ETT19300028	egypt	2	0.0001271374992053906	0.8472978603872037	0.0001077233310517073
General Procurement - Services	JUDSUPETT20300009	fify	2	0.0001271374992053906	0.8472978603872037	0.0001077233310517073
General Procurement - Services	NST000ETT20300122	patent	2	0.0001271374992053906	0.8472978603872037	0.0001077233310517073
General Procurement - Services	PAS000ETT20300108	webcast	2	0.0001271374992053906	0.8472978603872037	0.0001077233310517073
General Procurement - Services	ACR000ETT18300010	vcc	1	0.00006356874960269532	1.252762968495368	0.00007963657545581133
General Procurement - Services	ACR000ETT19300001	acras	1	0.00006356874960269532	1.252762968495368	0.00007963657545581133
General Procurement - Services	ACR000ETT19300004	extensions	1	0.00006356874960269532	1.252762968495368	0.00007963657545581133
General Procurement - Services	ACR000ETT22000001	esystem	1	0.00006356874960269532	1.252762968495368	0.00007963657545581133
General Procurement - Services	AGO000ETT23000001	auditorgenerals	1	0.00006356874960269532	1.252762968495368	0.00007963657545581133

Showing 1 to 10 of 9,543 entries Previous 1 2 3 4 5 ... 955 Next

TF-IDF Table:

This interactive table helps you explore key terms extracted from tender documents.

It presents three key metrics:

- TF (Term Frequency): How often a word appears in a specific tender.
- IDF (Inverse Document Frequency): How rare the word is across all tenders.
- TF-IDF: A combined score that highlights words that are both frequent in a tender and distinctive across the dataset.

Use this table to identify words that best represent the topic of each tender and gain insights into the language patterns within each LDA category.

LDA Supervised Learning

Run LDA Analysis
Number of Words: 20

Select LDA Category: General Procurement - Services

Stopwords Management
Show 10 entries
stopword: we
6 our
7 ours
8 ourselves
9 you
10 your

Showing 1 to 10 of 200 entries Previous 1 2 3 4 5 ... 20 Next
Add New Stopword:
Add Stopword Remove Selected Reset to Default

TF-IDF Network Settings
Top N Words (TF-IDF): 100

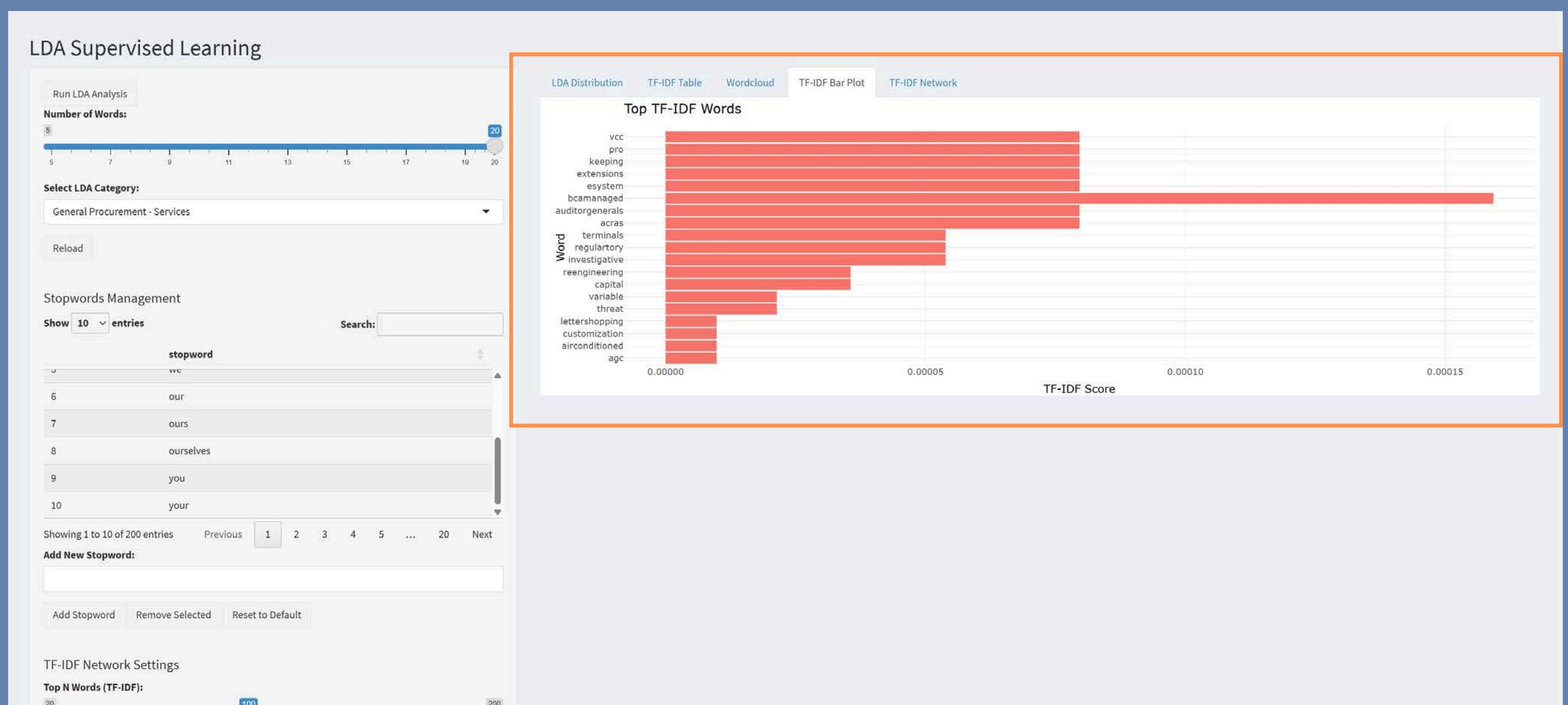
LDA Distribution TF-IDF Table Wordcloud TF-IDF Bar Plot TF-IDF Network
Show 10 entries

Wordcloud:

This view displays a visual cloud of keywords from the selected LDA Category.

Each word's size represents its importance, based on its TF-IDF score—the higher the score, the bigger the word appears.

Use this visual to quickly understand the key terms associated with a topic, helping you identify common themes and trends in tenders without reading all the text.

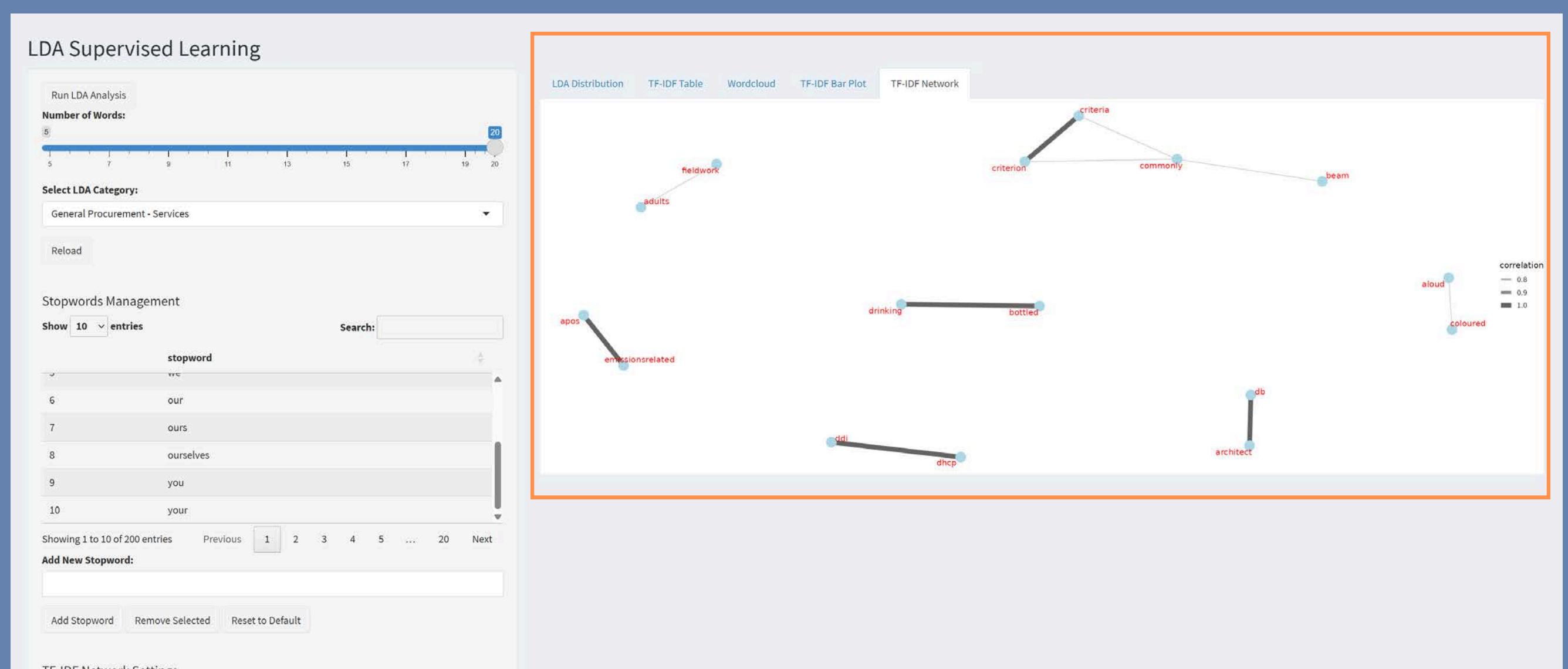


TF-IDF bar plot:

This bar chart visually presents the top words in each LDA topic based on their TF-IDF scores.

- The x-axis shows the most relevant words for the selected topic.
- The y-axis shows their corresponding TF-IDF values, indicating how important and unique each word is.
- Bars are color-coded by LDA category to enhance topic comparison.

Use this plot to quickly understand the most representative terms within each topic and how they differ across categories. It is useful for validating LDA topic quality and keyword distinctiveness.



Top N Words (TF-IDF):

- 1 Use the slider to choose how many of the highest-scoring TF-IDF words to include in the network (range: 20–200).

- Higher values increase detail but may clutter the network.
- Lower values show only the most prominent words.

2 Min Correlation Threshold:

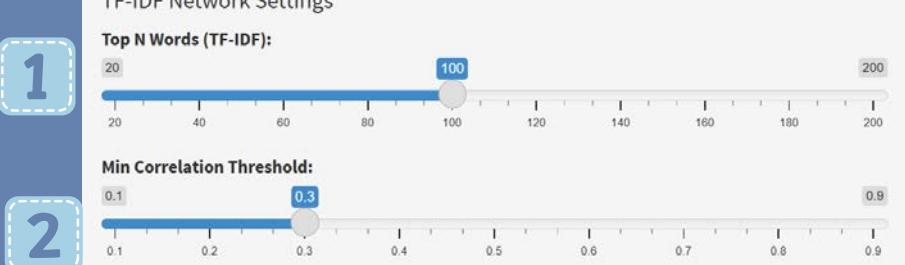
Adjust this slider to filter word-to-word connections by minimum correlation strength (range: 0.1–0.9).

- A lower threshold includes more connections (denser graph).
- A higher threshold focuses on the strongest relationships (cleaner layout).

TF-IDF Network:

This network graph visualizes the relationships between top words within a selected LDA topic, based on their co-occurrence and semantic proximity.

Use the following controls to customize the visualization:

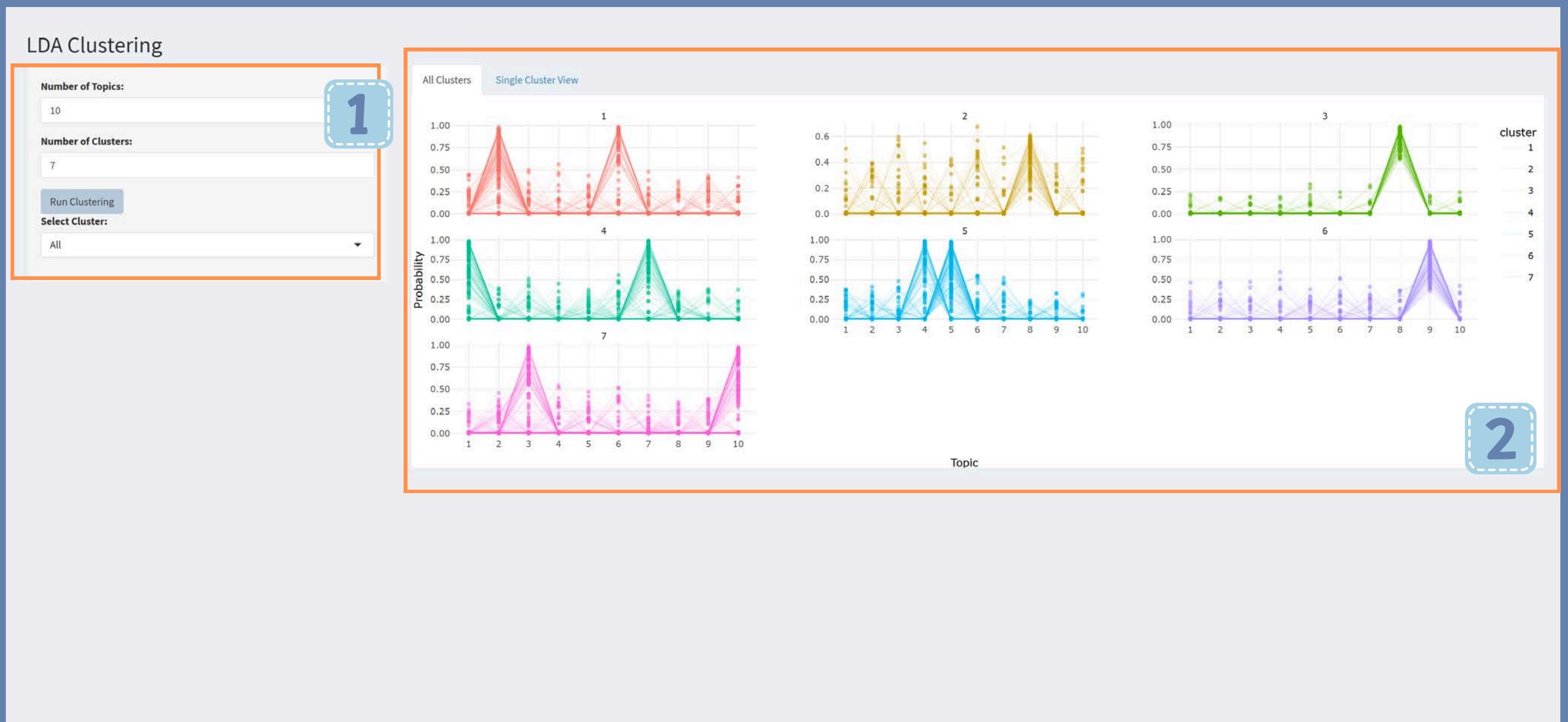


2 Min Correlation Threshold:

Adjust this slider to filter word-to-word connections by minimum correlation strength (range: 0.1–0.9).

- A lower threshold includes more connections (denser graph).
- A higher threshold focuses on the strongest relationships (cleaner layout).

This tool helps users identify closely related terms within each topic and explore how keywords cluster around similar meanings or themes.



STEPS

- Begin by setting the number of topics and number of clusters using the Control Panel 1.
- Click Run Clustering to perform unsupervised topic clustering on the current dataset based on the topic distributions.
- Use the Select Cluster dropdown 1 to filter and examine individual cluster profiles in detail.
- Navigate between All Clusters and Single Cluster View 2 to explore clustering results across the dataset or focus on a specific group of tenders.

1 Control Panel

Control Panel

- Number of Topics: Set the number of topics to extract using the LDA model.
- Number of Clusters: Define how many groups (clusters) you want to divide the tenders into.

Run Clustering:

- Execute the LDA clustering algorithm using the selected settings.
- Select Cluster: Dropdown to choose a specific cluster to visualize or view all clusters together.

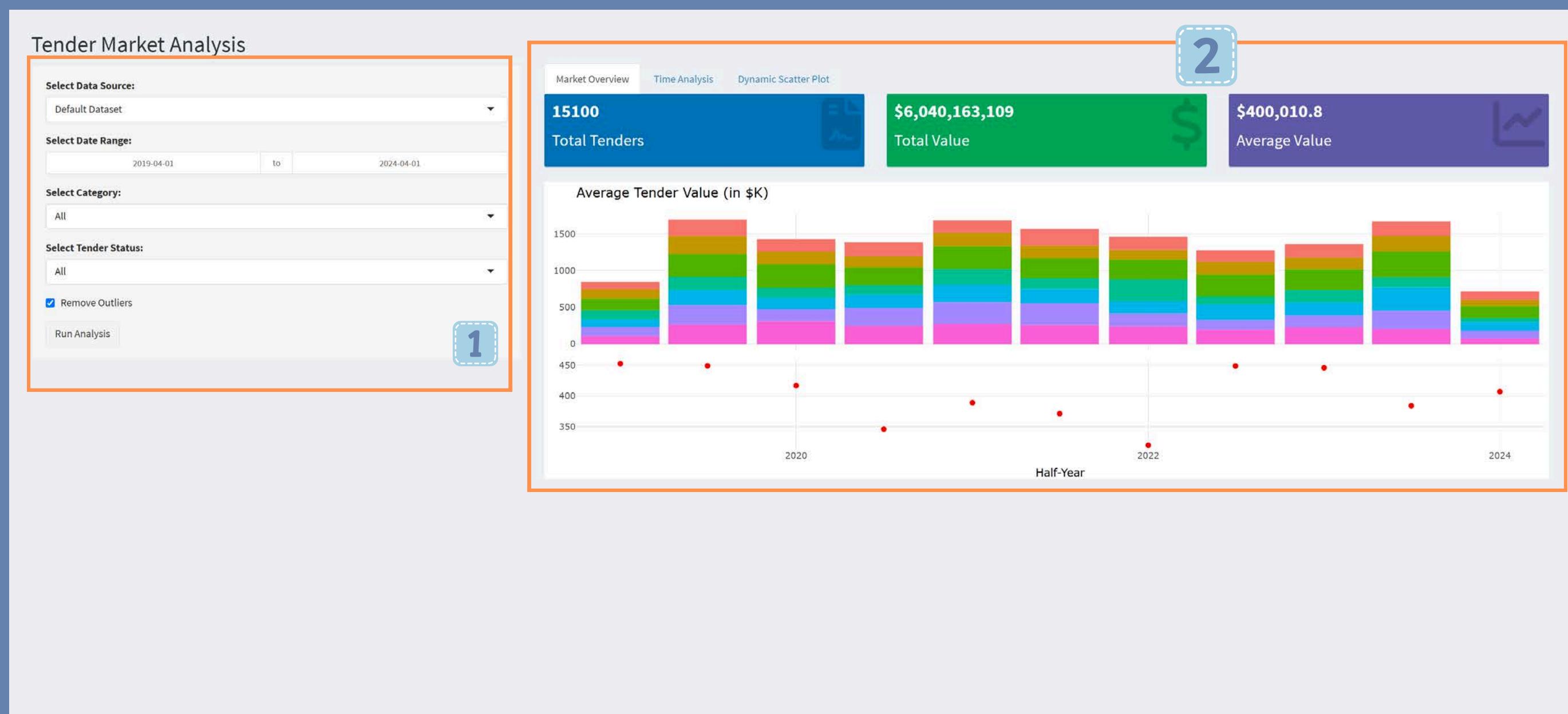
2 Visualization Tabs

Visualization Tabs:

- All Clusters View: Displays parallel coordinate plots of topic probabilities grouped by cluster, showing how each cluster's documents are distributed across topics.

Single Cluster View:

- Focus on one cluster to explore its internal topic distribution in greater detail. Ideal for deeper insights and comparison between clusters.



STEPS

- Use the control panel in 1 to configure your data source, filters, and options before running the analysis.
- Click “Run Analysis” to perform tender market analysis on the selected dataset, generating metrics and plots based on filters.
- Navigate across the tabs 2 to explore visualizations including total metrics, time-based trends, and category-wise spending dynamics

1 Control Panel

Select Data Source

- Default Dataset: Pre-loaded dataset that includes pre-processed tender records with assigned LDA categories.
- LDA Analysis Result: Use your LDA result data set to run the market analysis.

LDA Analysis Results:

- Select this if you have run your own LDA analysis on custom sample data. This uses your analysis output for market insights.

Select Date Range

- Filter tenders within a specific period for analysis.

Select Category

- Narrow down the analysis by specific LDA topic/category.

Select Tender Status

- Filter tenders by their status such as Awarded by supplier, Awarded by items, Awarded by interface record.

Remove Outliers

- Optionally exclude extreme tender values (based on IQR method) to avoid skewed averages and totals.

Run Analysis

- Executes the data pipeline to generate visuals and metrics based on your selected criteria.

2 Visualization Tabs

Market Overview:

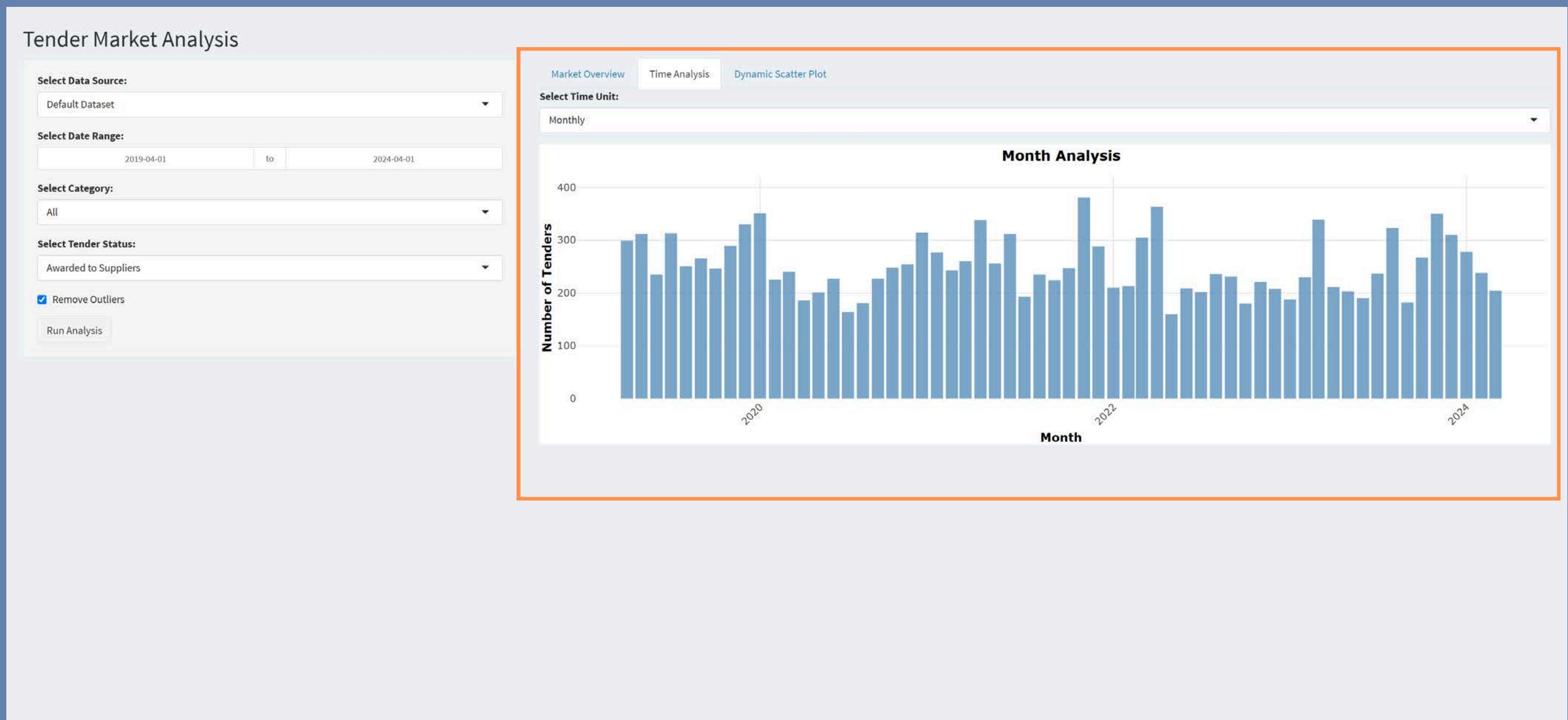
- Shows Total Tenders, Total Value, and Average Value.
- Bar chart stacked by category, plotted over half-year intervals.

Time Analysis:

- View temporal trends in tender counts and values using Monthly, Quarterly, or Yearly intervals.
- Helpful for identifying patterns and seasonality.

Dynamic Scatter Plot:

- An animated scatter plot showing Spending Ratio vs Tender Count per category over time.
- Useful to visualize market share and category trends dynamically.

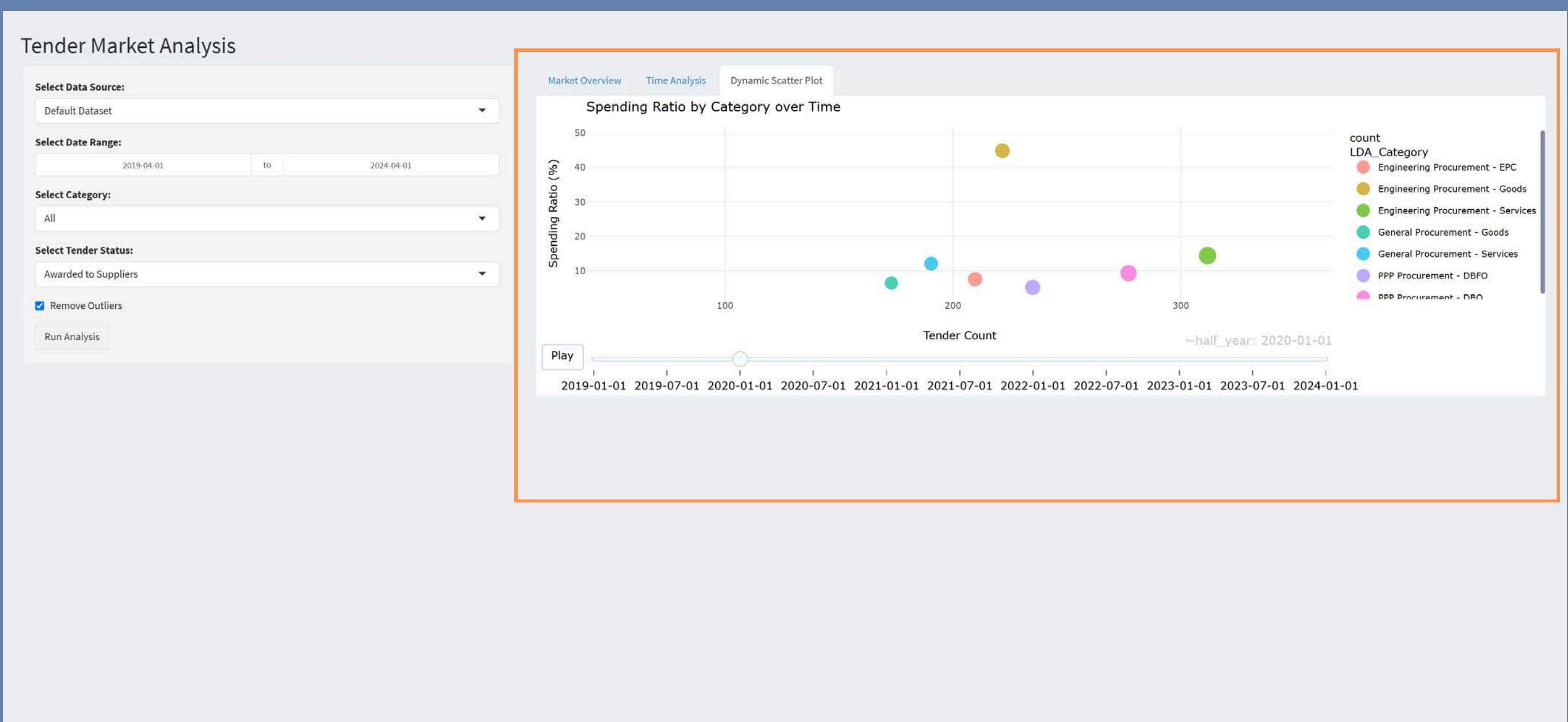


Time Analysis:

This chart shows how tender activity changes over time.

- Select Time Unit: Choose to view data by Month, Quarter, or Year.
- X-Axis: Shows the timeline.
- Y-Axis: Number of tenders in each time period.
- Helps you identify peaks, drops, and seasonal trends.

Use filters on the left to refine by date, category, and status before running the analysis.



Dynamic Scatter Plot:

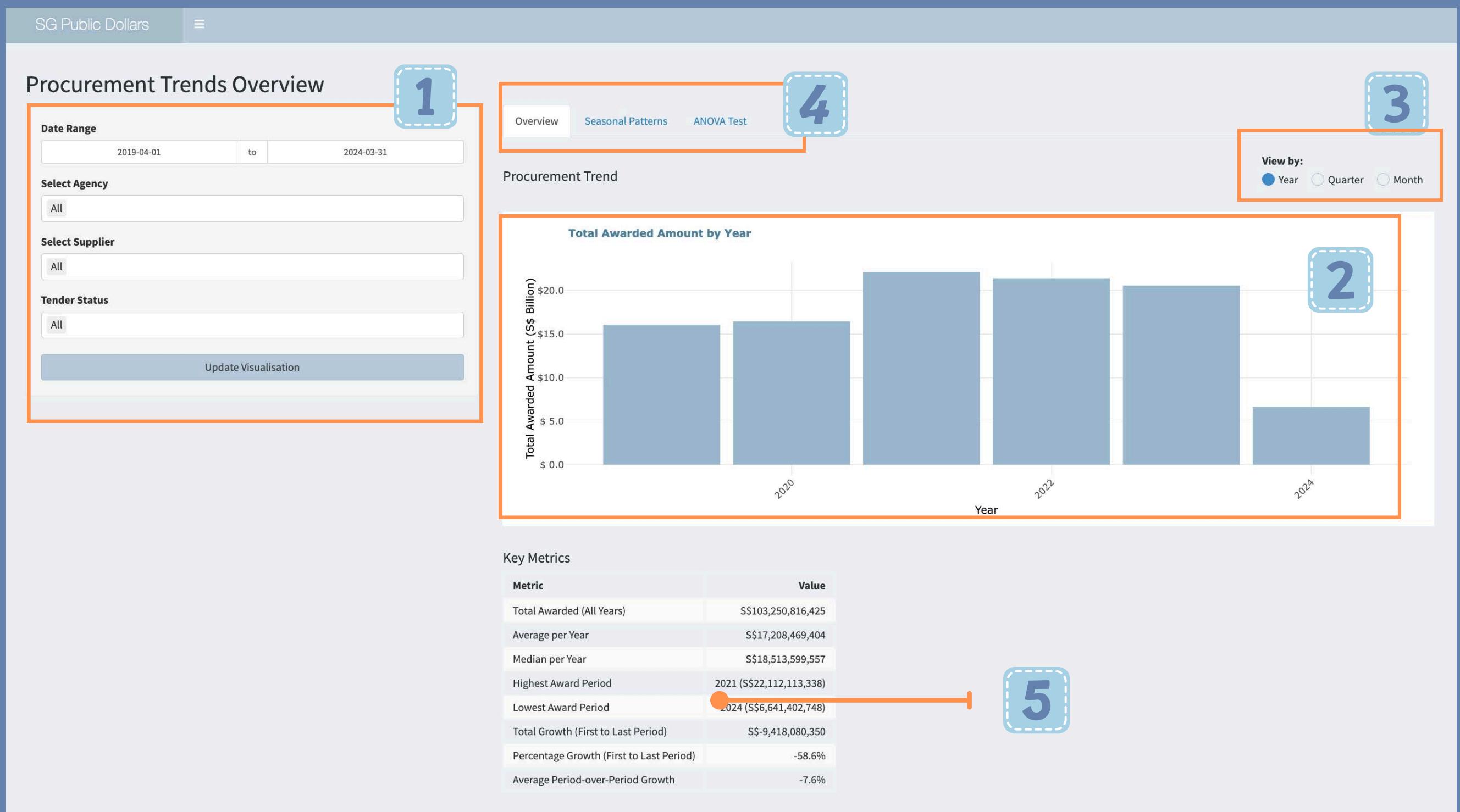
This animated scatter plot shows how tender spending patterns change over time by LDA category.

- X-Axis: Number of tenders
- Y-Axis: Spending Ratio (%), Spending Ratio shows how much each LDA category contributes to the total tender value in a specific time period.
- Bubble Size: Tender count
- Color: LDA Category
- Timeline Slider: Play or drag to explore changes over time

Helps you visualize market share shifts across categories.

Procurement Trends

Temporal Analysis



STEPS

1. Use the control panel in 1 to filter the data desired for temporal analysis.
2. A Bar plot visualisation will appear on the right, showing the trend of the Total Award Amount based on your selected filters.
3. Use 3 to switch between Year, Quarter or Month to observed the trends at different intervals.
4. Consult the Key Metrics in 5, located just below the plot, for a summary of key figures.

1 Control Panel

Date Range: to select the range of date for the tenders

Agency: choose the agencies that awarded contracts

Suppliers: select suppliers that were awarded the contracts

Tender Status: select tender status; Award by interface record, Awarded by items, Awarded to suppliers.

2 Bar Plot

Illustrates Total Award Amount by Year / Quarter / Month

3 Control Button

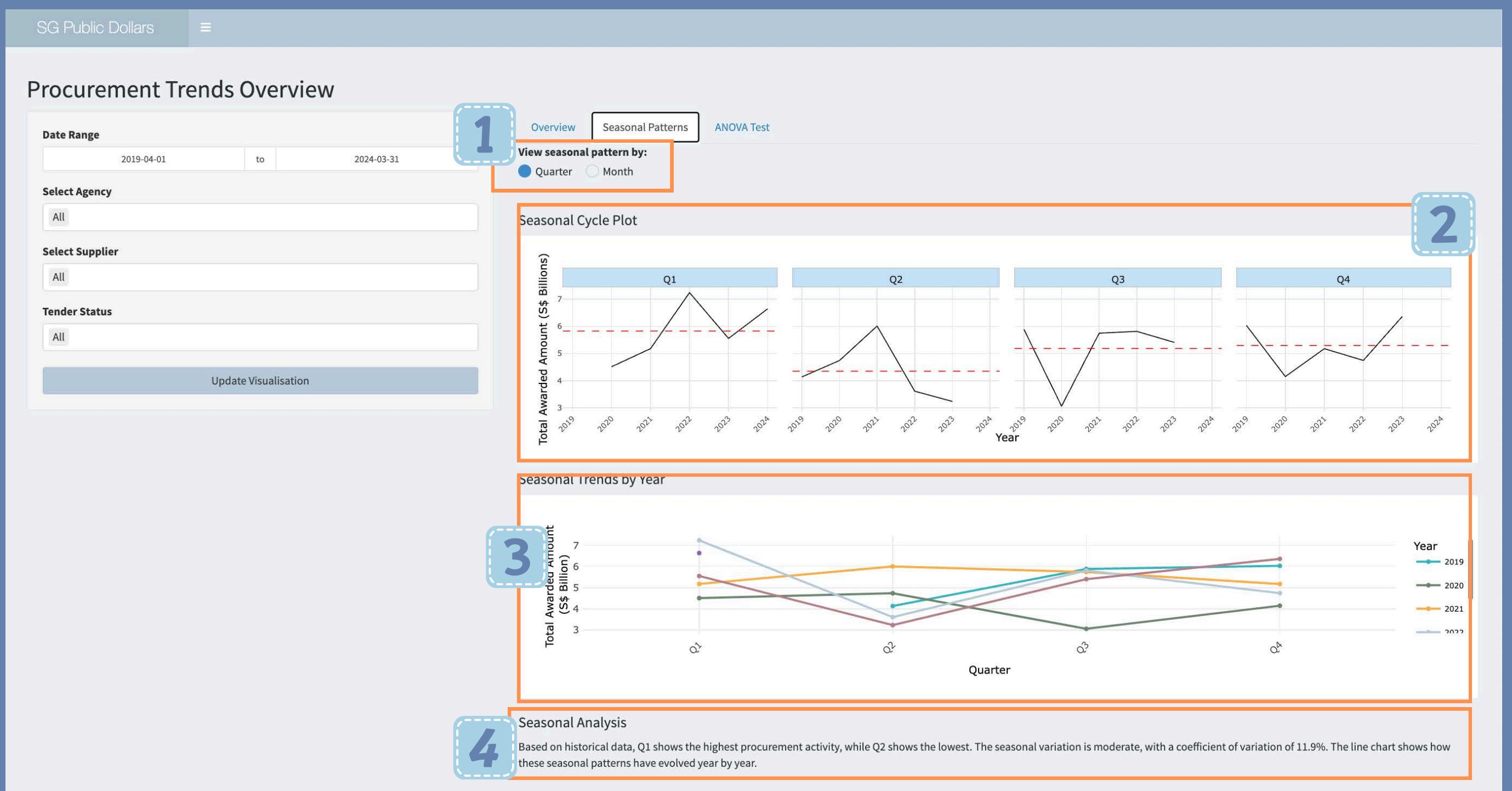
Radio button to control view by different time intervals for the Bar chart, including Year, Quarter and Month.

4 Sub-module

There are 3 tabs in the Time Series Module to offer different types of visualisation for temporal analysis.

5 Metrics Summary

Provides statistical information to understand the awarded amount and changes over time.



STEPS

1. Click on **Seasonal Patterns tab** to view the cycle plot and line chart for various time series.
2. Use **1** to switch between Quarter and Month views, and observe seasonal patterns at different intervals.
3. Cross reference the seasonal trend in **3** to gain insights from different perspectives
4. Check **4** for a concise overview of seasonal procurement patterns.

1 Control Button

Radio button to control view by different time intervals for the Bar chart, including Quarter and Month.

2 Cycle Plot

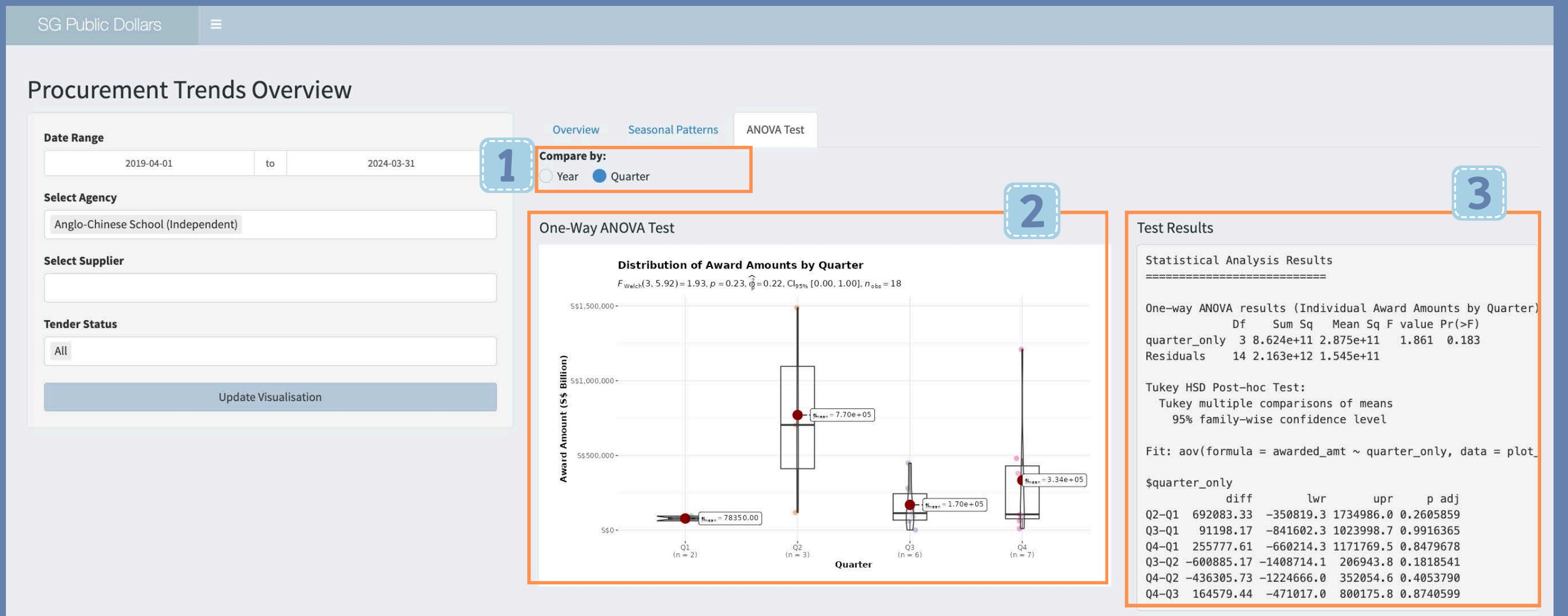
Offers seasonal patterns by Quarter / Month, aggregated by years.

3 Line Chart

Complements the cycle plot above, offering users to observe how each year's trend differs from each other.

4 Analysis Summary

Provides a quick executive summary of the plot result.



STEPS

1. Click on **ANOVA Test** tab to perform hypothesis testing on the time-series dataset.
2. Use **1** to choose whether to compare **by year or quarter**.
3. The **hypothesis test results** and boxplot comparison visualisation will appear **side by side** in **2** and **3**.

1 Control Button

Radio button to control view by different time intervals for the Bar chart, including Year and Quarter.

2 Stats Plot ANOVA Test

Provides statistical hypothesis testing for yearly or quarterly comparisons using ANOVA.

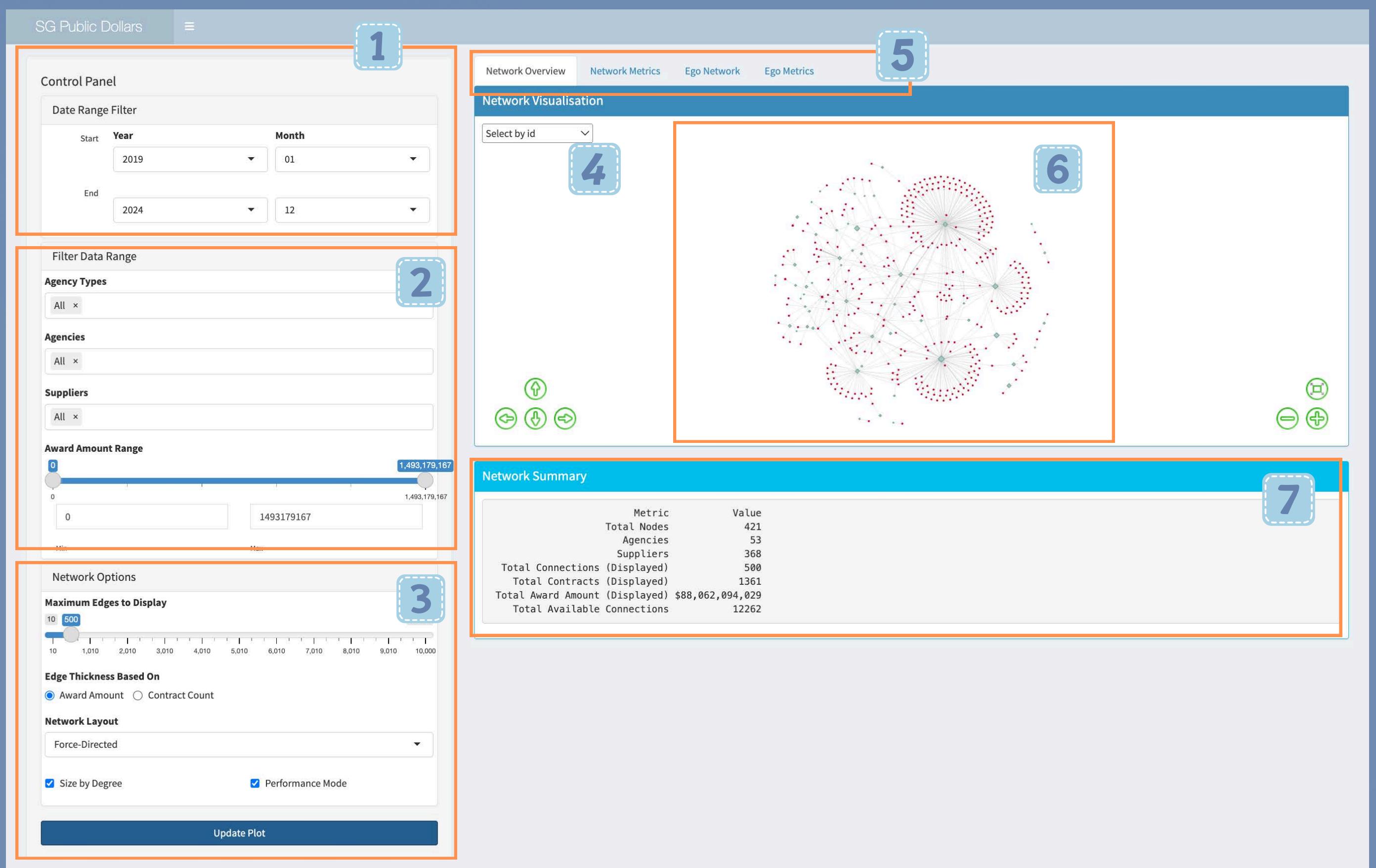
3 ANOVA Test Result

Provides statistical hypothesis testing result for yearly or quarterly comparisons using ANOVA. Includes Tukey HSD post-hoc tests to examine pairwise differences between groups.

Network Insights

Network Overview

Community Network



1 Date Range Filter

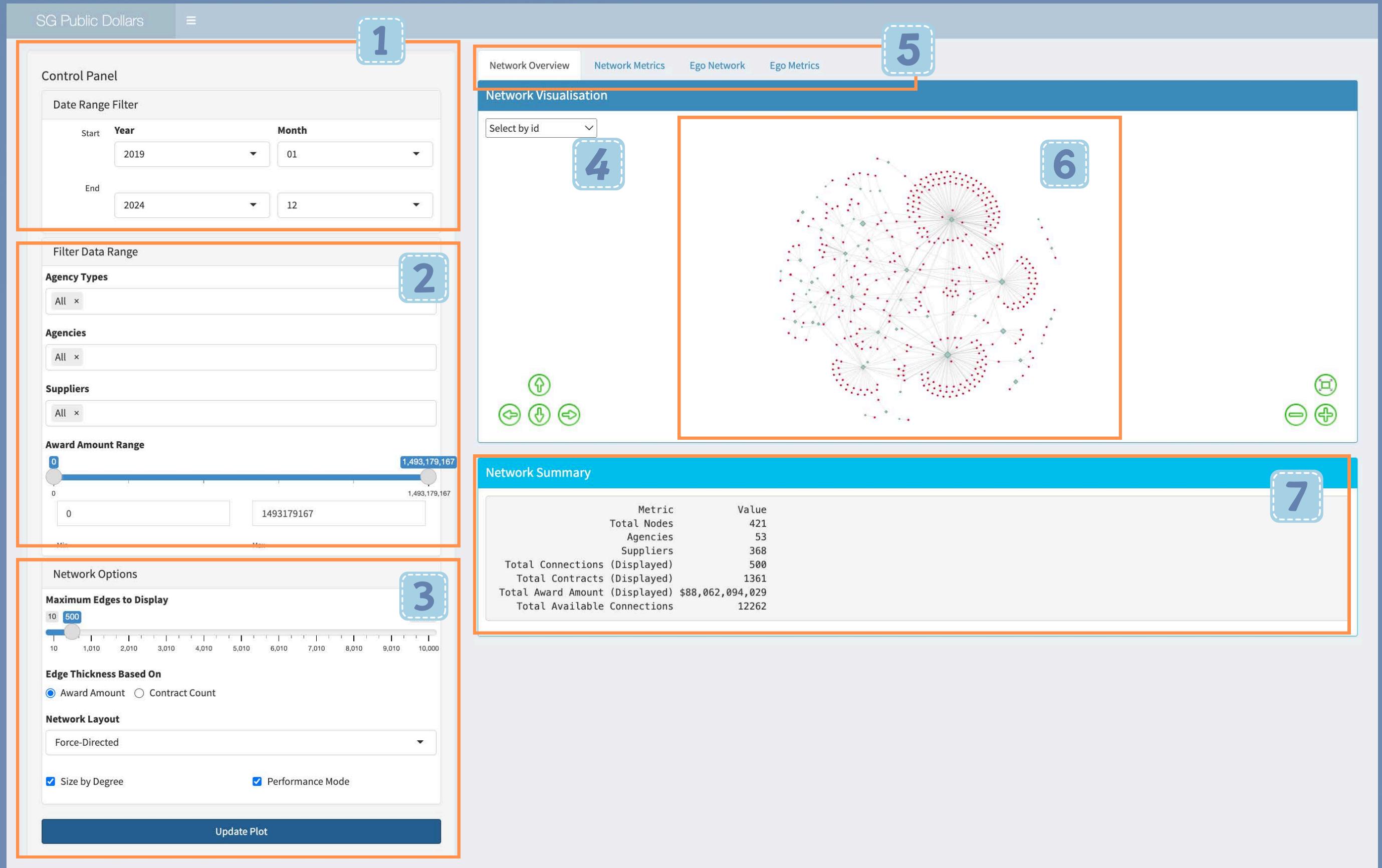
You can filter date range using the selector to choose the start and end month.

2 Data Range Filter

- Agency Types:** Filter by agency types, such as Ministry.
- Agencies:** Filter by agency names. You can choose multiple agencies from the selected agency types.
- Suppliers:** Filter by supplier names. you can use key words to seach, and choose multiple suppliers.
- Award Amount Range:** Use the selector to determine minimum and maximum of the award amount you want to analyse. You can also type i the amount in the box below the selector.

3 Network Options

- Maximum Edge:** Use the selector to determine the maximum amount of edges you want to display. The larger the amount, the heavier computation may required. The larger the amount, the heavier computation may required. The app filters the top N edges you select by the total award amount.
- Edge Thickness:** Use the radio button to decide whether taking the award amount or contract count to scale the edge thickness.
- Network Layout:** Use the drop-down to select preferred layout.
 - Force-Directed:** A balanced, organic layout ideal for medium-sized networks. Good for general exploration with evenly spaced nodes.
 - Repulsion:** Emphasises spacing between nodes to reduce overlap, making it useful for smaller or highly connected graphs.
 - Barnes-Hut:** Optimised for large networks. Provides faster rendering and better performance while preserving overall structure.
- Award Amount Range:** Use the selector to determine minimum and maximum of the award amount you want to analyse. You can also type i the amount in the box below the selector.



STEPS

1. Use the control panel **1** **2** **3** to filter data by desired date range, agency type, agency, suppliers, as well as network display options.
2. Click the **Update Plot** button to apply your selected filters.
3. The network visualisation **6** will appear on the right. Use **4** to highlight a specific node in the plot and zoom in for closer inspection.
4. Check the Network Summary **7** right below to understand the selected network metrics.

4 Drop-down node Selector

Use the drop-down to select a node for Ego-centric view. After a node is selected, the node and its connected nodes will be highlighted in the network plot.

5 Sub-modules

Click on the different tabs to see metrics and Node's Ego-Centric view.

6 Network Plot

Offers an overview of the network for selected data range. Hover over the node and edges to learn total contract and award amount for each node within this network. Click on a node, and move on the Ego Network tab to see the Ego-Centric view.

7 Network Summary

Provides statistical information to understand the awarded amount and changes over time.

The screenshot shows the Network Overview page with the 'Network Metrics' tab selected. On the left, there's a 'Control Panel' with a 'Date Range Filter' for 'Start' (2019), 'Year' (2024), 'Month' (01), and 'End' (12). Below it are 'Filter Data Range' and 'Network Options' buttons, and a 'Update Plot' button at the bottom. The main area has tabs for 'Network Overview', 'Network Metrics' (selected), 'Ego Network', and 'Ego Metrics'. The 'Network Metrics' tab is divided into three sections: 'Agencies', 'Suppliers', and 'Top Contracts'. The 'Agencies' section is highlighted with a red border and contains a table with 10 rows. The table columns are 'Agency Name', 'Total Contracts', and 'Total Award Amount'. The first few rows show Land Transport Authority, Housing and Development Board, Public Utilities Board, National Environment Agency, Jurong Town Corporation, Ministry of Home Affairs - Ministry Headquarter 1, Ministry of Education, Ministry of Health-Ministry Headquarter, Ministry of Home Affairs-Ministry Headquarter, and People's Association. A search bar is located at the top right of the table area. Callouts numbered 1 through 4 point to specific UI elements: 1 points to the 'Start' date input; 2 points to the 'Show 10 entries' dropdown; 3 points to the search bar; and 4 points to the 'Agencies' table.

STEPS

1. Click the **Network Metrics tab** to access this page.
2. The metrics tables **4** are populated in 3 tabs. **1** shows 3 tabs, Agencies, Suppliers and Top Connections.
3. Click on the **Agencies tab** to learn about Agency names, total contracts and total award amount pertaining to each agency.
4. Click on the **Suppliers tab** to learn about Supplier names, total contracts and total award amount pertaining to each supplier.
5. Click on the **Top Connections tab** to learn about the involving agencies, suppliers, total contracts and the total award amount.
6. Use **2** to change the number of members shown per page.
7. Type keywords in the search bar **3** to quickly find specific members by name or other attributes.

1 Metric Table Pages

There are 3 tables pages: Agency table, Supplier table, and Top Connections table.

3 Search Bar

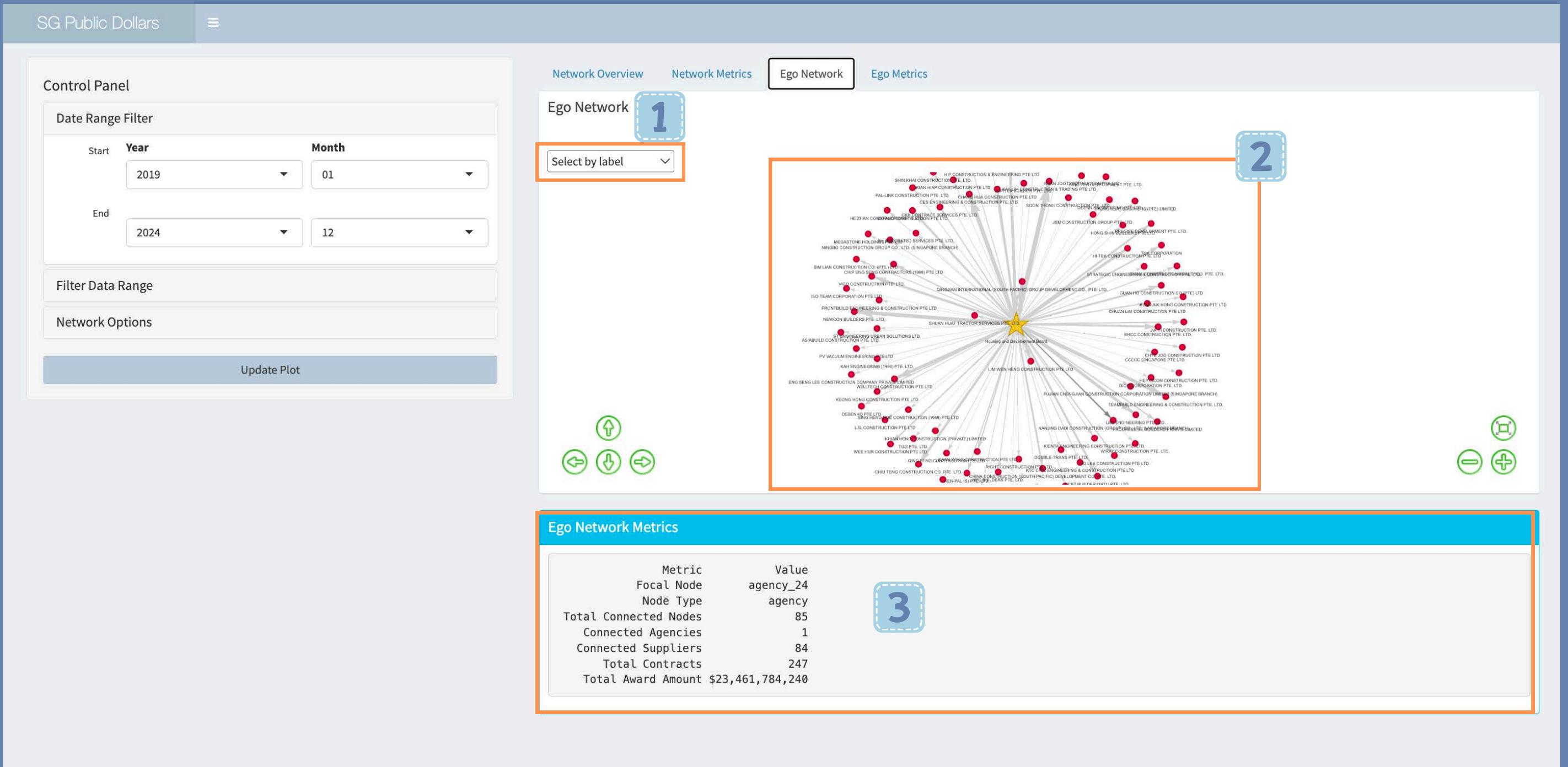
Enter keywords to search for specific names or attributes.

2 Drop-down Selector

Select the number of entries to display per page.

4 Metric Table

Displays the metrics for the network displayed in the Network Overview page.



STEPS

- 1. Click on the Ego Network tab** to view the **Ego-Centric Network visualisation** **2** for the selected node. The selected node is shown in a **star shape**. Hover over nodes and edges to see more information.
- 2. Use the dropdown menu** in **1** to highlight a specific node of interest.
- 3. The Ego Network metrics** for the selected node are summarised below the network plot in **3**.

1 Node Selector

You can select a node by its name. The node will then be highlighted in the network plot in 2.

3 Network Summary

Maximum Edge: Use the selector to determine the maximum amount of edges you want to display. The larger the amount, the heavier computation may required.

2 Ego-Centric Network

The selected node is presented as a star in the network plot. Red dots are suppliers. You will see blue diamonds instead, if the connected nodes are agencies. Hover over the nodes and edges to learn total contract numbers and award amount. Zoom in to see nodes' labels. You can also use mouse to drag the nodes to shift its position.

The screenshot shows the Network Overview interface with the Ego Metrics tab selected. On the left, there's a Control Panel with a Date Range Filter (Start: 2019, Year: 2019, Month: 01; End: 2024, Month: 12) and a 'Update Plot' button. The main area has tabs: Network Overview, Network Metrics, Ego Network (selected), and Ego Metrics. The Ego Network tab displays a table titled 'Ego Agencies' and 'Supplier'. The table has columns: Agency, Supplier, Contract Count, and Award Amo. It lists 10 entries from 1 to 10. A search bar and a page navigation section are also present. A summary section at the bottom shows 'Showing 1 to 10 of 84 entries' and a page number '1'.

Agency	Supplier	Contract Count	Award Amo
1 Housing and Development Board	KAY LIM CONSTRUCTION & TRADING PTE LTD	9	\$1,394,038,000
2 Housing and Development Board	CES ENGINEERING & CONSTRUCTION PTE. LTD.	4	\$1,223,080,000
3 Housing and Development Board	NEWCON BUILDERS PTE. LTD.	6	\$1,144,780,000
4 Housing and Development Board	QINGJIAN INTERNATIONAL (SOUTH PACIFIC) GROUP DEVELOPMENT CO., PTE. LTD.	3	\$1,076,400,000
5 Housing and Development Board	TEAMBUILD ENGINEERING & CONSTRUCTION PTE. LTD.	6	\$1,026,354,989
6 Housing and Development Board	WELLTECH CONSTRUCTION PTE LTD	5	\$975,087,000
7 Housing and Development Board	LBD ENGINEERING PTE. LTD.	4	\$887,860,000
8 Housing and Development Board	RICH CONSTRUCTION COMPANY PTE. LTD.	4	\$862,394,000
9 Housing and Development Board	HI-TEK CONSTRUCTION PTE. LTD.	5	\$790,167,000
10 Housing and Development Board	CHIU TENG CONSTRUCTION CO. PTE. LTD.	4	\$716,712,000

STEPS

1. Click on the **Ego Metrics** tab to explore detailed metrics related to the Ego Network.
2. The table is automatically populated: no additional action is needed on this tab.
3. To modify the filter options, use the control panel on the left to update the metrics for a different network.

1 Table Entry Controller

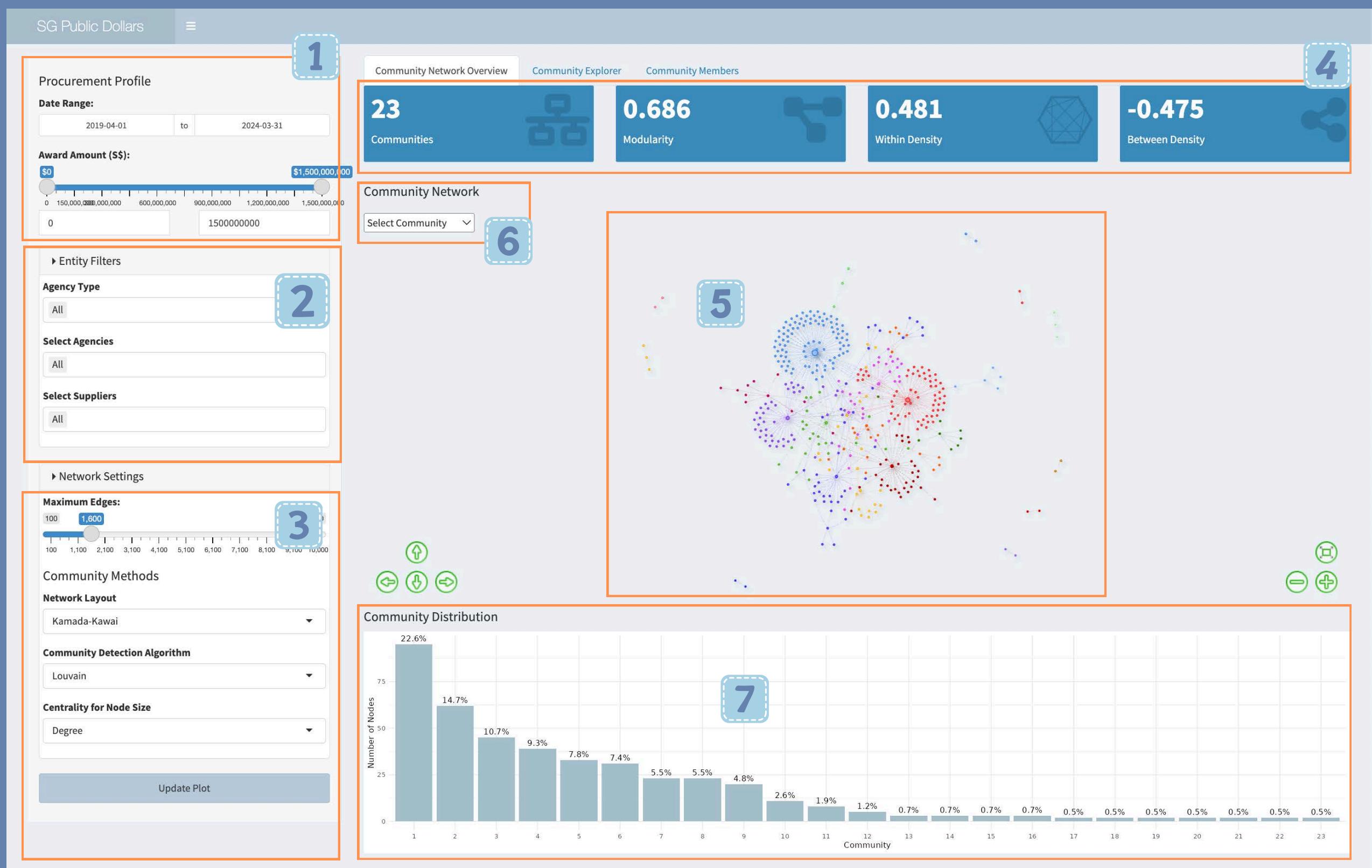
Select the number of entries to display per page.

3 Metric Fields

The table shows Agency names, Supplier names for the edges in the Ego Network, as well as the contract count and total award amount for them.

2 Search Bar

Enter keywords to search for specific agency / supplier names.



1 Date Range

Use the date range selector to filter the date range. You can also type the amounts in the text boxes.

2 Entity Filters

- **Agency Type:** select agency type(s). You can use keywords to find specific suppliers.
- **Agency:** select agency(ies). You can use keywords to find specific suppliers.
- **Suppliers:** select one or more suppliers. You can use keywords to find specific suppliers.

3 Network Settings

- **Maximum Edges:** Select max edges for display. The top edges by total award amount will be displayed.
- **Network Layout:** Select a network layout from 4 options:
 - **Force-directed (FR):** Positions nodes using a force-directed algorithm that simulates physical repulsion and attraction for a balanced layout.
 - **Kamada-kawai:** Arranges nodes to minimise energy based on graph-theoretic distances, producing an evenly spaced and visually intuitive layout.
 - **DrL:** Optimised for large graphs, this layout clusters related nodes together using multi-level force-directed techniques.
 - **GraphOpt:** Uses a physics-inspired model to position nodes efficiently, aiming for a fast and aesthetically pleasing layout.
- **Community Detection Algorithm:** Select a method to detect communities within the network.
 - **Edge Betweenness:** Detects communities by progressively removing edges with high betweenness, revealing network divisions hierarchically.
 - **Louvain:** Fast and scalable algorithm that optimises modularity to detect well-defined communities in large networks.
 - **Walktrap:** Detects communities by simulating random walks, assuming that closely connected nodes are more likely to be visited together.
 - **Label Propagation:** A lightweight and fast method that spreads labels through the network until communities emerge from consensus.
 - **InfoMAP:** Uses information theory to identify communities by compressing the description of random walks through the network.
- **Centrality for Node Size:** Select a centrality method to determine node size.



STEPS

- 1. Use the control panel on the left** 1 2 3 to select and filter your desired date and data range.
2. Once all options are set, click the Update Plot button to apply your selections.
- 3. The community network and bar plot** 5 7 showing community distribution will appear on the right.
- 4. Use the drop-down menu** 6 **to choose a community** to explore further on the next tab. The selected community will be highlighted in the network on this tab.

4 Info Stickers

The number of communities detected, along with the scores for modularity, within-community density, and between-community density, are displayed here.

5 Community Network Visualisation

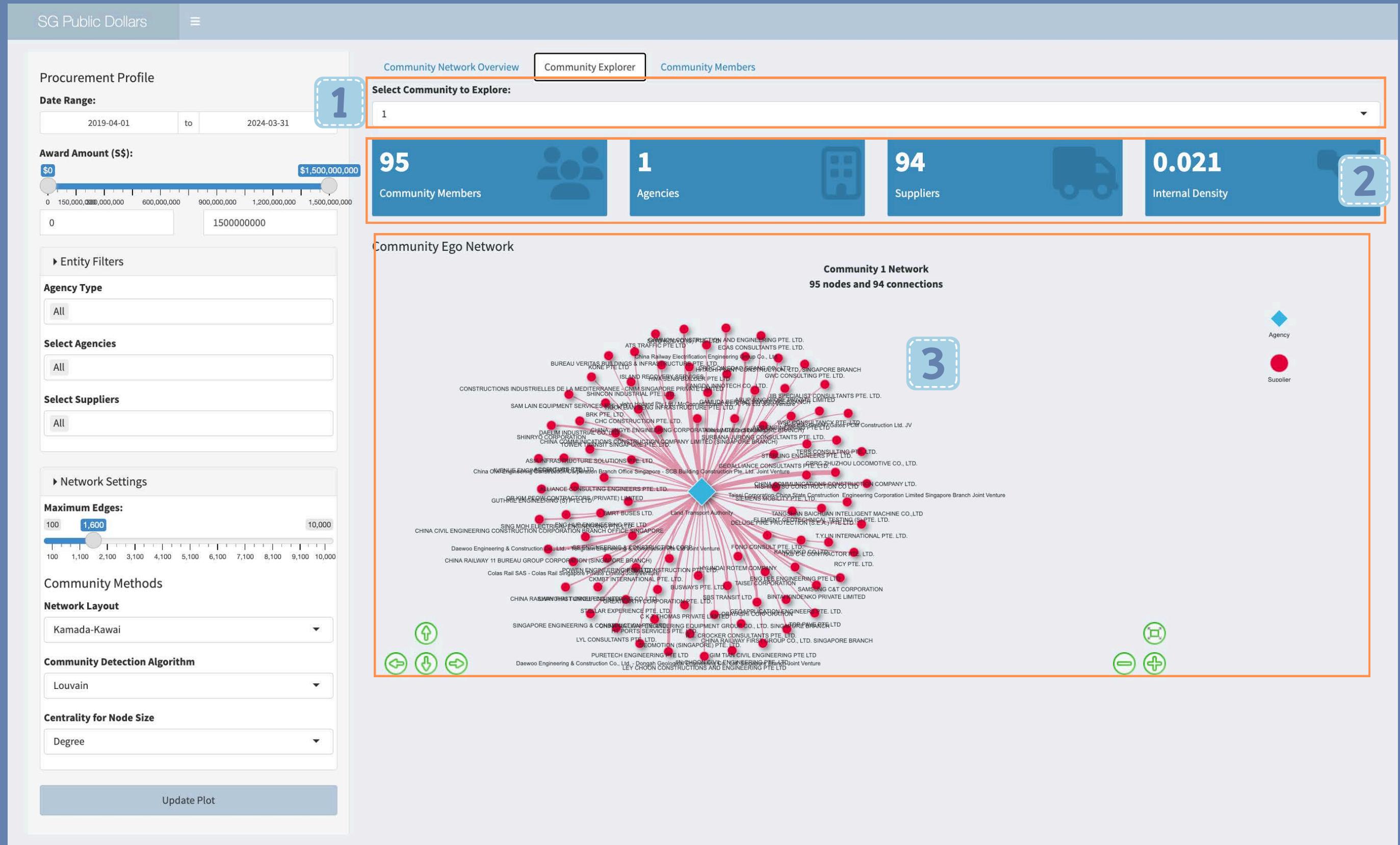
The number of communities detected, along with the scores for modularity, within-community density, and between-community density, are displayed here.

6 Drop-down menu

Use the drop-down menu to select a community (labeled by number) to zoom in, and learn more on the Community Explorer tab.

7 Community Distribution Bar plot

The bar plot shows the distribution of communities detected. Each bar represents a community.



STEPS

1. Click on the **Community Explorer** tab to access this page.
2. You will see the Community Ego Network displayed in **3**.
3. Use **1** to choose a different community to display.
4. Community profile is displayed in **2** Info stickers
5. Click on the **Community Members** tab to learn more about the nodes within the selected community.

1 Drop-down selector

Use the drop-down selector to select a community to explore its ego view.

2 Info Stickers

- **Community Members:** displays the number of members in this community.
- **Agencies:** displays the number of agencies in this community.
- **Suppliers:** displays the number of suppliers in this community.
- **Internal Density:** displays how densely connected the nodes are within this community (max = 1).

3 Community Network Visualisation

This visual shows the Community Ego Network. Zoom in to reveal node labels: agencies are diamonds, and suppliers are red dots.

The screenshot shows the SG Public Dollars Community Network Overview page. The 'Community Members' tab is active. On the left, there are various filters: Date Range (2019-04-01 to 2024-03-31), Award Amount (\$\$) (ranging from \$0 to \$1,500,000,000), Entity Filters, Agency Type (All), Select Agencies (All), Select Suppliers (All), and Network Settings (Maximum Edges set to 1,600). The main area displays a table of 'Community Members' with 10 entries shown per page. The table columns are Node, Type, Degree, Betweenness, Closeness, and Eigenvector. A search bar at the top right is highlighted with a red box. The table entries are:

Node	Type	Degree	Betweenness	Closeness	Eigenvector
1 Land Transport Authority	Agency	94	4371	0.01063829787234043	1
2 CHINA COMMUNICATIONS CONSTRUCTION COMPANY LTD.	Supplier	1	0	0.0053475935828877	0.1031421246258794
3 TAISEI CORPORATION	Supplier	1	0	0.0053475935828877	0.1031421246258794
4 CHINA JINGYE ENGINEERING CORPORATION LIMITED (SINGAPORE BRANCH)	Supplier	1	0	0.0053475935828877	0.1031421246258794
5 TOWER TRANSIT SINGAPORE PTE. LTD.	Supplier	1	0	0.0053475935828877	0.1031421246258794
6 Daewoo Engineering & Construction Co., Ltd. - Dongah Geological Engineering Co., Ltd, Singapore Branch Joint Venture	Supplier	1	0	0.0053475935828877	0.1031421246258794
7 GAMUDA BERHAD SINGAPORE BRANCH	Supplier	1	0	0.0053475935828877	0.1031421246258794
8 CHINA RAILWAY 11 BUREAU GROUP CORPORATION (SINGAPORE BRANCH)	Supplier	1	0	0.0053475935828877	0.1031421246258793
9 HWA SENG BUILDER PTE LTD	Supplier	1	0	0.0053475935828877	0.1031421246258794
10 HOCK LIAN SENG INFRASTRUCTURE PTE. LTD.	Supplier	1	0	0.0053475935828877	0.1031421246258794

STEPS

1. Click on the **Community Members** tab to access this page.
2. You will see information about each community member displayed in the table **2**, including their names, type, and centrality scores.
3. Use **1** to choose a different community and update the table accordingly.
4. Use **3** to change the number of members shown per page.
5. Type keywords in the search bar **4** to quickly find specific members by name or other attributes.

1 Community Selector

Use the drop-down selector to select a community to explore its ego view.

2 Community Metric Table

- **Community Members:** displays the number of members in this community.
- **Agencies:** displays the number of agencies in this community.
- **Suppliers:** displays the number of suppliers in this community.
- **Internal Density:** displays how densely connected the nodes are within this community (max = 1).

3 Entry Display Selector

Select the number of entries to display per page.

4 Search Bar

Enter keywords to search for specific agency / supplier names.

