DATA VISUALIZATION REQUIREMENTS

Design begins only after the visualization requirements have been defined and signed off by their respective owners. This form is owned by the requesting team, not by Design. Complete the stages in order; each stage establishes the inputs for the next.

DASHBOARD:

01 PURPOSE & SCOPE

AUDIENCE — **OWNER: PRODUCT OWNER / BA**

Define who will use the visualization, what they need to decide or do, how familiar they are with the subject and data, and the circumstances in which they will use it.

USE CONTEXT — **OWNER: PRODUCT OWNER / BA**

Data Familiarity

- ☐ Low
- ☐ Working Knowledge
- ☐ Expert

Primary audience / persona; decision or action; use frequency and environment; risk of misinterpretation:

PURPOSE — **OWNER: PRODUCT OWNER / BA + DATA SCIENTIST**

Define the primary reason for the visualization and the question it must help answer. Most visualizations have one primary purpose, even when they support more than one.

- ☐ Explore - investigate patterns, relationships, or possible explanations
- ☐ Monitor - track current status, performance, thresholds, or change
- ☐ Explain - communicate a specific finding or conclusion

Question to answer / decision or understanding to support:

IF EXPLAIN IS SELECTED: This is completed only for explanatory visualizations.

Intended takeaway; supporting evidence; contradictory evidence:

SCOPE — **OWNER: PRODUCT OWNER / BA + DATA SCIENTIST**

Define the boundaries of the visualization so every later requirement refers to the same population, period, and starting view.

- ☐ Population / cohort - who or what is included in the analysis
- ☐ Inclusion / exclusion rules - the criteria that determine which records count
- ☐ Default timeframe - the period shown when the visualization opens
- ☐ Default filters - the filters applied before the user changes the view

Define each scope rule and default explicitly:

Population / cohort; inclusion and exclusion rules; default timeframe; default filters:

02 MEASURES & DIMENSIONS

MEASURES — OWNER: DATA SCIENTIST + DB ADMIN

Define what is being measured, how each measure is calculated, its unit or format, and the level of aggregation. Distinguish counts, rates, percentages, averages, durations, and other calculations.

Provide representative measures and sample values:

Measure Name	Definition /Calculation	Unit /Aggregation	Sample Value

DIMENSIONS — OWNER: DATA SCIENTIST + DB ADMIN

Identify how measures may be grouped, segmented, filtered, or compared (for example: time, location, department, category, status, or specimen type). Include hierarchy and available granularity.

Provide representative dimensions, values, and hierarchy or granularity:

Dimension Name	Example Values	Hierarchy / Granularity

DATA SOURCE & FRESHNESS — OWNER: DATA SCIENTIST + DB ADMIN

Identify where the data comes from, who is accountable for it, how often it refreshes, expected latency, and the available coverage period. Specify whether viewers must see a last-updated timestamp.

☐ **Display last-updated date/time**

Source System /Dataset	Data Owner /Steward	Refresh Latency	Available Coverage

DATA CHARACTERISTISTICS — OWNER: DATA SCIENTIST + DB ADMIN

Describe the data types and structures that constrain or enable the visual representation. These characteristics inform position, length, size, order, grouping, chart family, scales, and color - not color alone.

Data type:

- ☐ **Quantitative** - numerical values such as counts, rates, durations, or results
- ☐ **Ordinal** - categories with an intrinsic order such as priority or severity
- ☐ **Categorical** - named groups without an intrinsic order such as lab or specimen type

Structure:

- ☐ **Temporal**
- ☐ **Spatial**
- ☐ **Hierarchical**
- ☐ **Networked / relational**
- ☐ **Sequential / flow**

Other characteristics, constraints, or sample data notes:

03 DATA RELATIONSHIP

DATA RELATIONSHIP	OWNER: PRODUCT OWNER / BA + DATA SCIENTIST

Identify the relationship the visualization must represent. This describes what the values need to communicate, not a predetermined chart or narrative.

- ☐ **Comparison / magnitude** - compare sizes or values across categories
- ☐ **Deviation** - show variation from a target, benchmark, or other fixed reference
- ☐ **Ranking** - show position in an ordered list
- ☐ **Distribution** - show the range, shape, frequency, or outliers in a dataset
- ☐ **Change over time** - show how values vary across a defined time period
- ☐ **Part-to-whole** - show how components contribute to a meaningful total
- ☐ **Correlation** - show association between two or more variables without implying causation
- ☐ **Spatial** - show values in relation to a location or geographic area
- ☐ **Flow** - show movement through stages, states, locations, or entities

Other relationship or clarification:

04 CONTEXT

CONTEXT	OWNER: PRODUCT OWNER / BA + DATA SCIENTIST

Define the target, benchmark, baseline, denominator, comparison group, and threshold required for correct interpretation. Identify the official reconciliation source when totals must align with another report or system.

Target; benchmark; baseline; denominator; comparison group; threshold; reconciliation source:

DATA QUALITY & LIMITATIONS	OWNER: DATA SCIENTIST / DB ADMIN

Document anything missing, estimated, incomplete, delayed, aggregated, suppressed, uncertain, or otherwise limited. State comparisons or conclusions the data cannot legitimately support.

Known issues, caveats, exclusions, and prohibited interpretations:

INTERACTION WITH THE DATA	OWNER: PO / BA + DESIGN

Define how the user needs to inspect, change, or navigate the data shown in the visualization.

- ☐ **Static** - view only; the displayed data cannot be changed
- ☐ **Filter** - narrow the displayed dataset or timeframe
- ☐ **Highlight / select** - bring attention to specific marks or categories
- ☐ **Drill down** - move to a more detailed level in a hierarchy
- ☐ **Drill through** - open a related report, record, or destination
- ☐ **Tooltip / details on demand** - inspect contextual information for a data point
- ☐ **Change view** - switch measure, dimension, timeframe, aggregation, or representation

Interaction rules, defaults, and constraints:

OUTPUT & USE	OWNER: PO / BA

Define what the user must be able to do with the finished visualization. These actions are separate from interacting with the underlying data.

- ☐ **Export**
- ☐ **Save**
- ☐ **Share**
- ☐ **Email**
- ☐ **Schedule delivery**
- ☐ **Print**
- ☐ **Embed in another report or application**

Required format, destination, schedule, or permissions:

DELIVERY & TECHNICAL CONSTRAINTS	OWNER: PO / BA + DESIGN / ARCHITECTURE

Define the environments and non-functional requirements that affect delivery, including device or viewport, embedded versus standalone use, performance, privacy and access controls, accessibility, and required export formats.

Target:

- ☐ **Desktop**
- ☐ **Tablet**
- ☐ **Mobile**

Use:

- ☐ **Standalone**
- ☐ **Embedded**

Performance; security/privacy; accessibility; responsive behavior; integration and format constraints:

REQUIREMENTS SIGN-OFF	OWNER: DATA SCIENTIST + DB ADMIN

Each accountable role confirms that its definitions are complete and accurate. Final sign-off authorizes Design to begin; it does not transfer ownership of the underlying requirements to Design or replace later implementation validation.

Requirement Area	Signed off by	Date	Status / Notes

05 VISUAL REPRESENTATION

VISUAL REPRESENTATION	OWNER: DESIGN

After Requirements Sign-Off, Design applies the **Data Visualization Principles** and **Data Visualization Design System** when determining the visual encoding, chart form, scales, axes, labels, color, annotation, hierarchy, interaction behavior, and supporting context.

Design confirms that the representation is accurate, accessible, understandable, and preserves the intended meaning of the data.

REQUIREMENT-TO-REPRESENTATION FRAMEWORK

The first four stages define what the data must communicate; Design determines how it is represented.

Design decision notes / links to specifications: