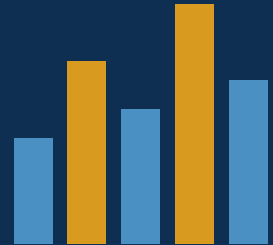


CHAPTER 15

DATA VISUALIZATION AND DASHBOARDS

Transforming MEAL Data into Clear and Actionable Information



Learning Objectives

By the end of this chapter, participants will be able to:

1 Explain the purpose of data visualization

2 Apply principles of effective visualization

3 Select charts that match the analytical question

4 Develop bar, line, pie and stacked charts

5 Present geographic information using maps

6 Develop indicator scorecards

7 Apply traffic-light reporting

8 Design practical MEAL dashboards

9 Present disaggregated results clearly

10 Identify and avoid misleading graphs

11 Improve visualization accessibility

12 Use Excel and Power BI for MEAL reporting

13 Transform an indicator table into a project dashboard

What is Data Visualization?

Presented through

- Charts
- Graphs
- Maps
- Scorecards
- Infographics
- Dashboards
- Tables
- Visual indicators

Making information easier to

- Understand
- Compare
- Interpret
- Communicate
- Use for decisions

Why Visualization Matters in MEAL

MEAL systems generate

- Indicator tables
- Survey results
- Monitoring records
- Financial data
- Community feedback
- Evaluation findings
- Geographic information

Users quickly identify

- Progress
- Gaps
- Trends
- Differences
- Risks
- Priorities

Data Visualization Is Not Decoration

A visualization should

- Communicate evidence
- Support interpretation
- Highlight important patterns
- Reduce unnecessary complexity
- Enable action

A visualization should not

- Hide poor performance
- Exaggerate findings
- Distract users
- Replace explanation
- Manipulate interpretation

KEY MESSAGE

A good visualization makes the evidence clearer — not more impressive than it really is.

Visualization, Dashboard and Infographic

Visualization

A chart, map or graphic showing specific data.

Dashboard

A collection of related visualizations designed for monitoring and decision-making.

Infographic

A visual communication product combining data, text and graphics to explain a message.

Begin with the Audience

Before designing, ask:

- Who will use the visualization?
- What do they need to know?
- What decisions will they make?
- How much technical knowledge do they have?
- Will they view it on paper, phone or computer?
- What level of detail is appropriate?

Start with the Key Question

Every visualization should answer a question. Examples:

■ Are we meeting the target?

■ Which groups are excluded?

■ How has performance changed?

■ What is causing the largest delay?

■ Which locations are underperforming?

■ Where are complaints increasing?

The Four Main Visualization Purposes

Most visualizations are designed to show one of four purposes:

1

Comparison

Compare values across categories or groups

2

Change over time

Show how a value moves across periods

3

Composition

Show how parts contribute to a whole

4

Distribution / relationship

Show spread or how variables relate

Principle 1 — Clarity

A clear visualization:

- Has a simple message

- Shows the correct unit

- Uses understandable labels

- Uses readable text

- Avoids unnecessary decoration

- Highlights the most important result

Principle 2 — Accuracy

An accurate visualization:

- Uses correct data

- Shows full context

- Applies the correct denominator

- Does not exaggerate differences

- Uses consistent scales

- Uses the same indicator definitions across periods

Principle 3 — Relevance

Include only information that supports:

- The monitoring question
- The management decision
- The reporting purpose
- The learning need
- The accountability requirement

Principle 4 — Simplicity

Reduce:

■ Decorative icons

■ Excessive colours

■ Heavy borders

■ Complex backgrounds

■ Unnecessary labels

■ Three-dimensional effects

■ Repeated legends

Principle 5 — Consistency

Use consistent:

■ Indicator names

■ Units

■ Date formats

■ Category order

■ Chart scales

■ Status definitions

■ Fonts

■ Dashboard layout

Principle 6 — Context

A chart should provide enough context to interpret the result. Include where appropriate:

■ Target

■ Sample size

■ Baseline

■ Reporting period

■ Previous period

■ Data source

■ Benchmark

■ Important limitation

Principle 7 — Action Orientation

Good visualizations should help users answer:

■ What is happening?

■ Why does it matter?

■ Where is action required?

■ Who should respond?

■ What should happen next?

Chart Selection Framework

Analytical Purpose	Suggested Chart
Compare categories	Bar chart
Show trends	Line chart
Show contribution to total	Stacked bar or pie chart
Show geographic patterns	Map
Show performance status	Scorecard or traffic light
Show distribution	Histogram or boxplot
Show relationship	Scatter plot

Ask Before Selecting a Chart

■ Are the data categorical or continuous?

■ Is geographic location relevant?

■ Are we comparing categories or time?

■ How many data points are shown?

■ Is the total important?

■ Does the audience need detail or summary?

■ Are there several subgroups?

What is a Bar Chart?

A bar chart compares values across categories. Suitable for:

■ Locations

■ Project components

■ Participant groups

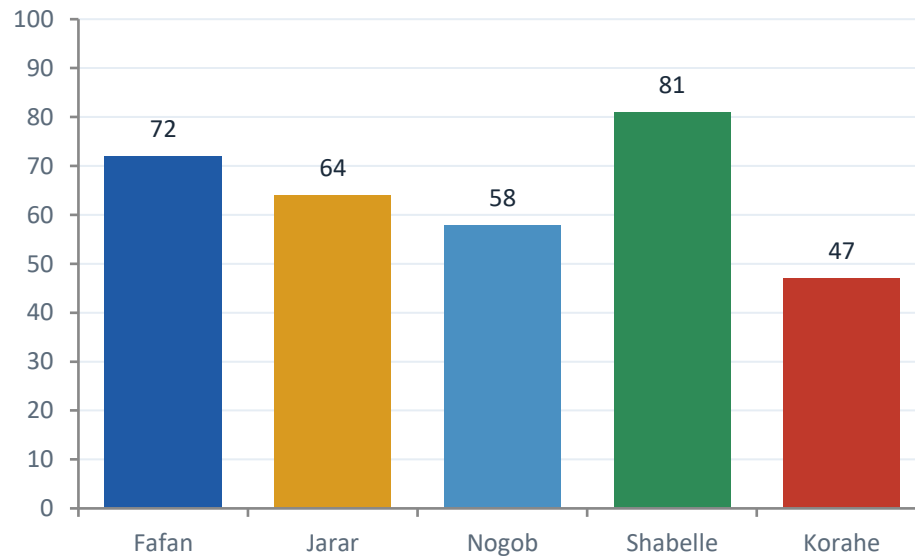
■ Partners

■ Indicators

■ Reporting periods treated as categories

Vertical Bar Chart

- Category names are short
- The number of categories is limited
- Comparing values across groups
- Showing target versus actual



Illustrative example — % of households accessing safe water by district.

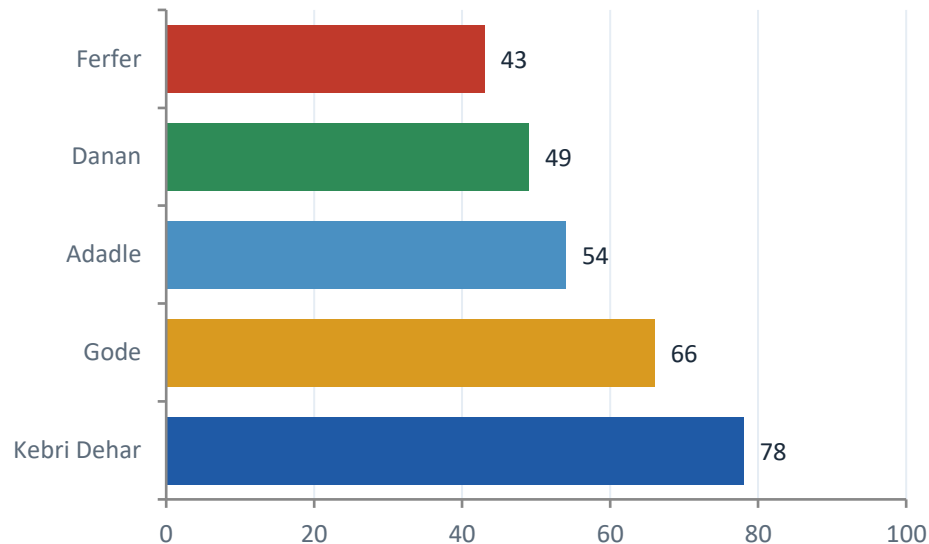
Horizontal Bar Chart

Category labels are long

Many categories are compared

Ranking locations or indicators

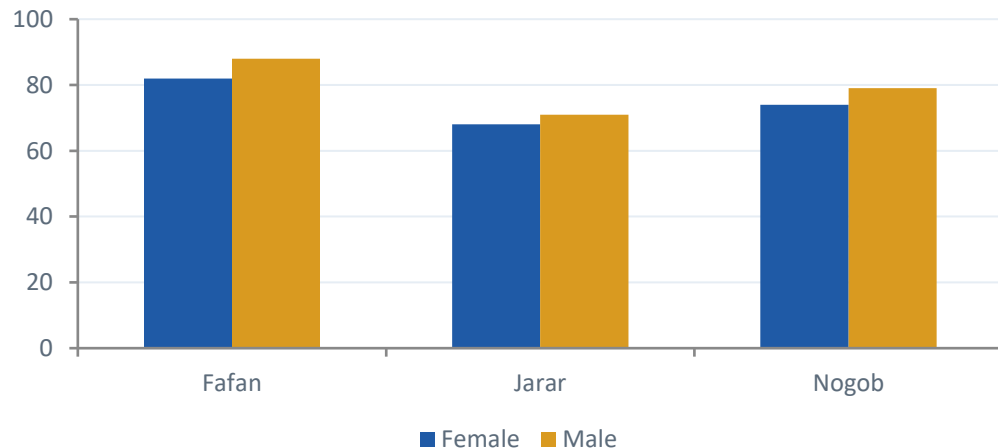
Users need to read labels easily



Illustrative example — Safe water access ranked by woreda (%).

Grouped Bar Chart

A grouped bar chart compares multiple values within each category — e.g. training completion by district and sex.



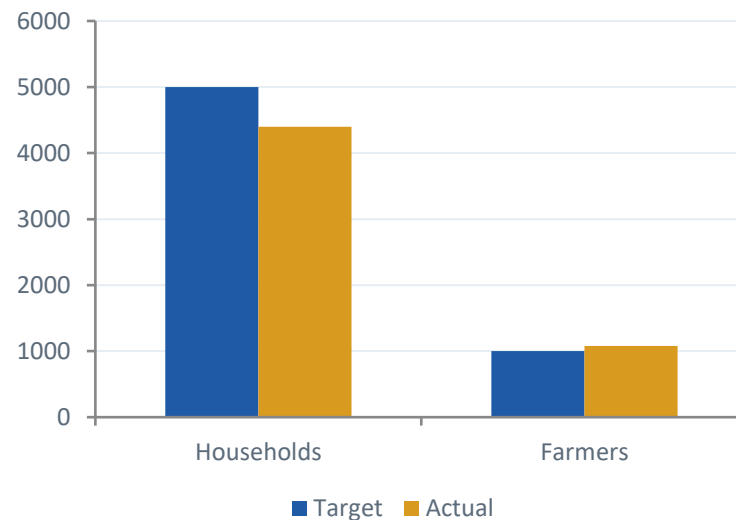
■ Comparing two or three subgroups

■ Category structure is clear

■ Differences between groups matter

Target-versus-Actual Bar Chart

Indicator	Target	Actual
Households reached	5,000	4,400
Farmers trained	1,000	1,080
Complaints resolved	90%	76%



Bar Chart Good Practices

- Start numerical axes at zero

- Display values only when useful

- Order categories logically

- Use the same scale for comparisons

- Use clear labels

- Highlight only the most important category

- Avoid three-dimensional bars

What is a Line Chart?

A line chart shows change over time. Suitable for:

■ Monthly progress

■ Complaints over time

■ Quarterly trends

■ Budget utilization trends

■ Baseline-to-endline changes

■ Attendance patterns

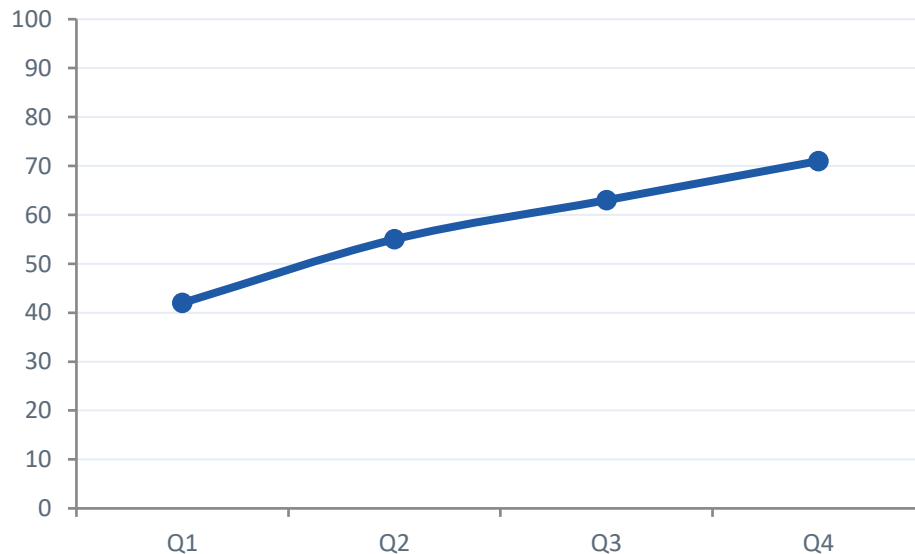
Single-Line Chart

■ One indicator

■ A simple trend

■ Tracking progress across periods

■ Showing actual performance



Illustrative example — % of schools meeting minimum standards by quarter.

Multiple-Line Chart

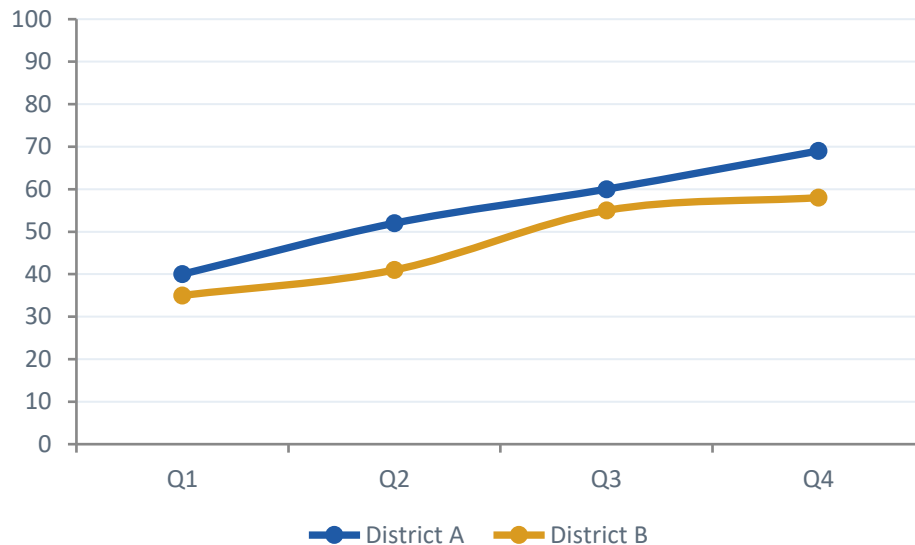
Locations

Subgroups

Partners

Actual and target trends

Different indicators (same unit)



Illustrative example — Compare locations while keeping lines readable.

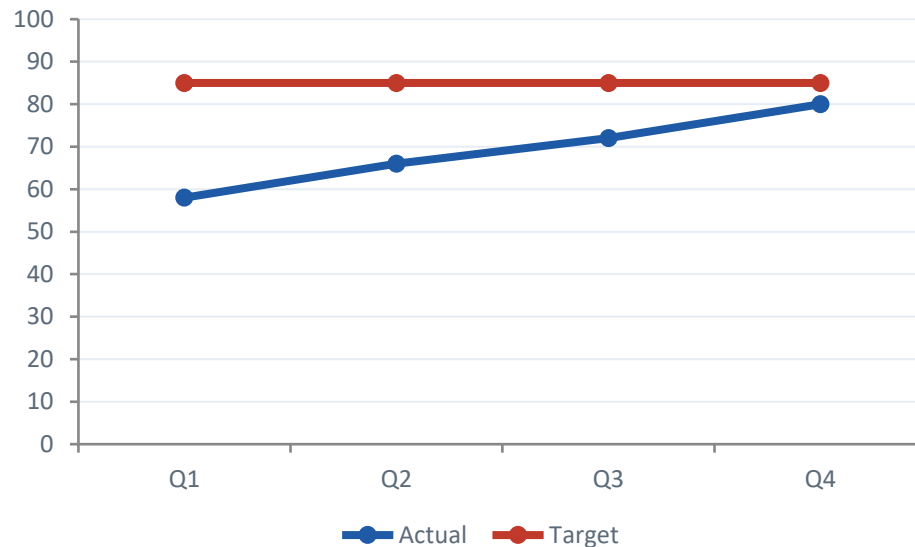
Target Line

Whether performance is on track

When the target was reached

When progress declined

The size of the performance gap



Illustrative example — Actual performance against a labelled target line.

Trend Interpretation

When reviewing a line chart, ask:

■ Is the trend increasing or decreasing?

■ Is there a seasonal pattern?

■ Is the change consistent?

■ Is progress approaching the target?

■ Is there a sudden shift?

■ Are measurement methods consistent?

Line Chart Good Practices

■ Use equal time intervals

■ Use consistent scales

■ Label the time period

■ Do not connect unrelated categories

■ Avoid excessive markers

■ Avoid line charts for unordered groups

■ Explain missing periods

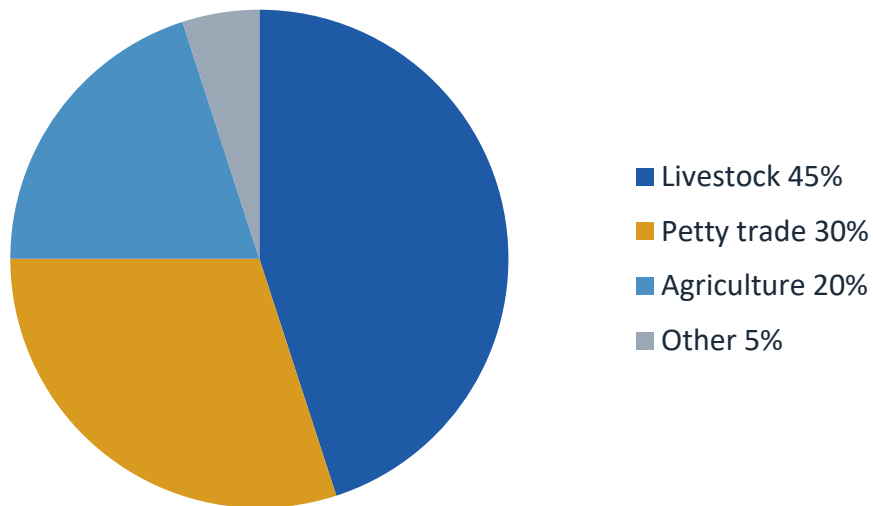
What is a Pie Chart?

A pie chart shows how categories contribute to a whole. Use only when:

- Categories add to 100%
- There are few categories
- Differences are reasonably clear
- The total composition is the main message

Appropriate Pie Chart Example

Distribution of project participants by livelihood activity:



Livestock 45%

Petty trade 30%

Agriculture 20%

Other 5%

When Not to Use Pie Charts

Avoid when:

■ There are many categories

■ Categories do not add to 100%

■ Values are similar

■ Precise comparison is needed

■ Comparing several periods

■ Multiple-response data are shown

Pie Chart Good Practices

- Limit categories

- Avoid separated or exploded slices

- Arrange slices logically

- Use “Other” only where meaningful

- Label values directly

- Confirm the total equals 100%

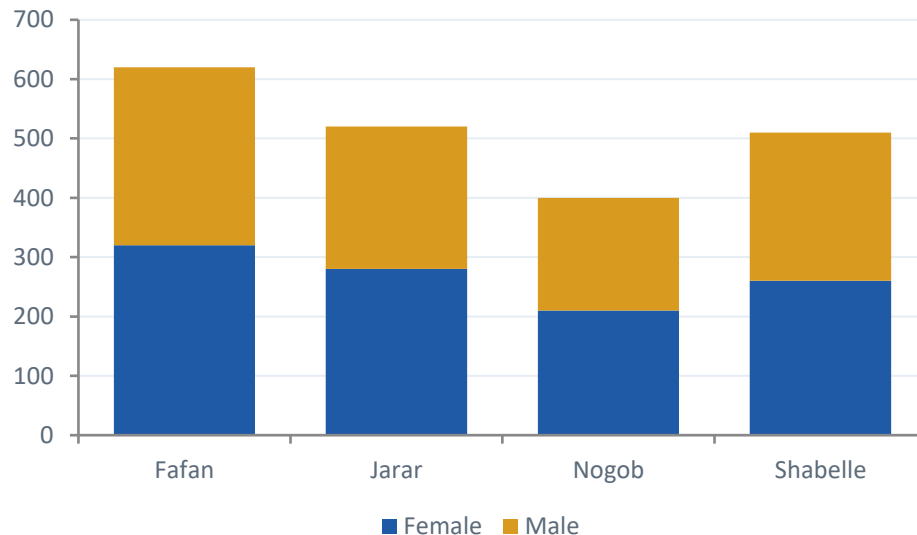
- Avoid three-dimensional design

What is a Stacked Bar Chart?

■ Total size

■ Composition within the total

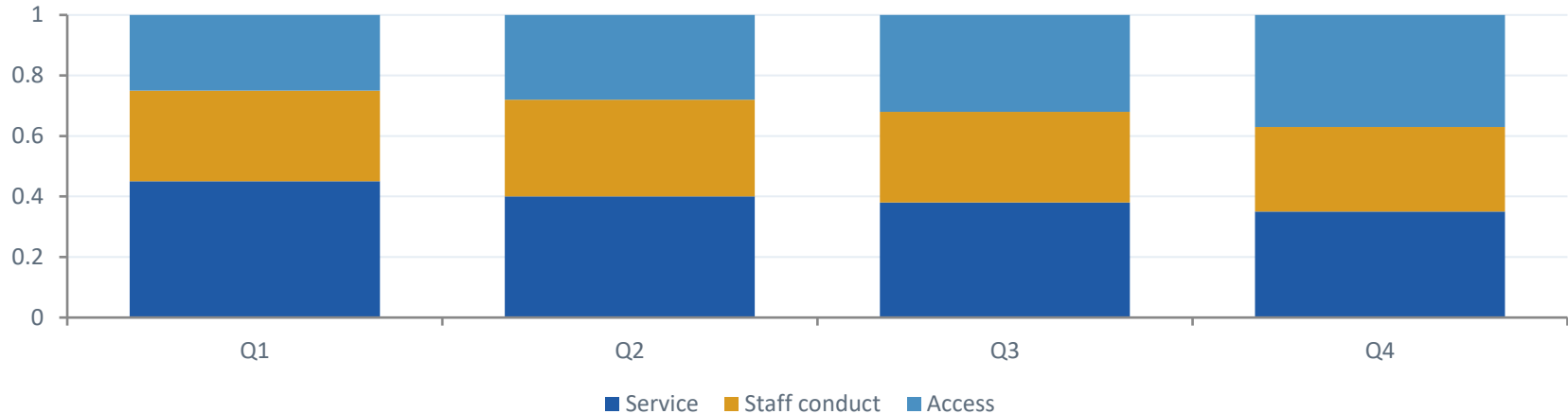
■ Differences across categories or periods



Illustrative example — Participants reached by sex and district.

100% Stacked Bar Chart

A 100% stacked chart compares proportions rather than totals — e.g. complaint categories as a percentage of all complaints by quarter.



Stacked Chart Limitations

Stacked charts become difficult when:

- There are many subgroups
- Categories have similar values
- Users need exact comparisons
- Segment order changes
- Total and proportions both need attention

Why Use Maps?

Maps help users understand:

■ Geographic coverage

■ Population distribution

■ Service locations

■ Risk areas

■ Performance differences

■ Incident locations

■ Access gaps

■ Infrastructure status

Types of Maps

Common MEAL maps include:

■ Location maps

■ Service-access maps

■ Coverage maps

■ Risk maps

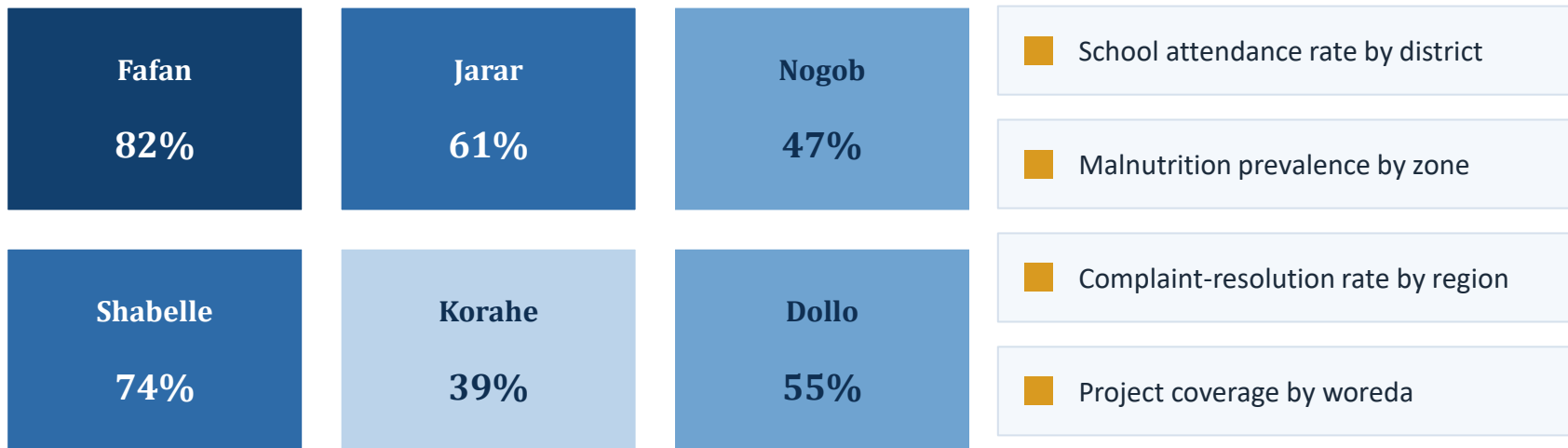
■ Choropleth maps

■ Journey or route maps

■ Symbol maps

Choropleth Map

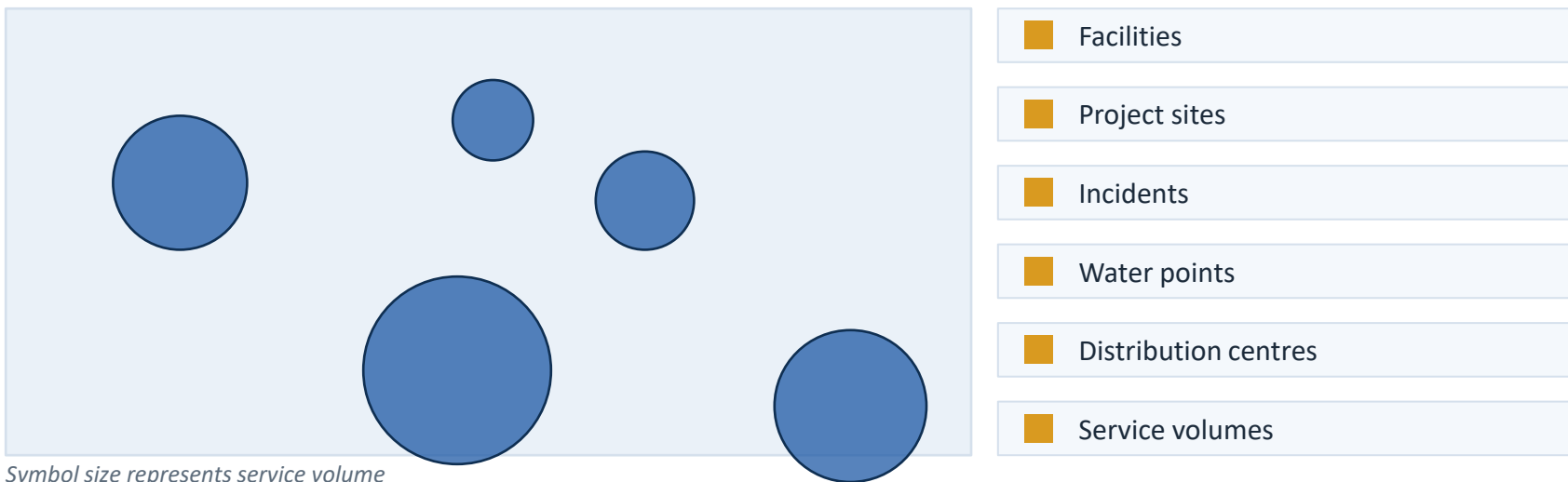
A choropleth map uses shaded geographic areas to show indicator values.



School attendance rate by district (%)

Symbol Map

A symbol map uses points or symbols to show facilities, sites, incidents or service volumes — symbol size may represent quantity.



Geographic Data Protection

Maps may expose

- Participant locations
- Refugee settlements
- Protection cases
- Sensitive facilities
- Security routes
- Vulnerable groups

Protect data by

- Aggregating locations
- Removing coordinates
- Limiting access
- Suppressing sensitive layers
- Reviewing maps before publication

Map Design Good Practices

- Include a clear title

- Use consistent geographic boundaries

- Use an understandable legend

- Cite the data source

- Show scale where needed

- Avoid excessive labels

- Identify the reporting period

- Explain areas with no data

What is an Indicator Scorecard?

An indicator scorecard presents a concise performance summary. Typical fields include:

■ Indicator	■ Actual	■ Trend
■ Baseline	■ Percentage achievement	■ Responsible unit
■ Target	■ Status	■ Comment

Sample Indicator Scorecard

Indicator	Target	Actual	Achievement	Status
Households using safe water	75%	68%	90.7%	Amber
Teachers trained	400	430	107.5%	Green
Complaints resolved on time	90%	61%	67.8%	Red

Benefits of Scorecards

Scorecards help:

■ Summarize many indicators

■ Compare projects or locations

■ Identify priorities quickly

■ Track responsibilities

■ Support management review

■ Trigger corrective actions

Scorecard Limitations

Scorecards may:

■ Oversimplify complex performance

■ Hide data-quality limitations

■ Ignore subgroup differences

■ Encourage focus only on targets

■ Hide reasons behind results

What is Traffic-Light Reporting?

Traffic-light reporting categorizes performance using status levels.

Green	On track
Amber	Attention required
Red	Serious underperformance
Grey	No data or not applicable

Example Thresholds

For indicators where higher is better:

Green	90% or more of target
Amber	75% – 89% of target
Red	Below 75% of target

Indicators Where Lower Is Better

Examples where a lower value indicates stronger performance:

■ Dropout rate

■ Unresolved complaints

■ Cost per participant

■ Disease rate

■ Processing delays

REMEMBER

For these indicators, traffic-light rules must be reversed or specifically defined so that a lower actual value reads as better performance.

Status versus Trend

Status and trend are different — a dashboard should present both.

Indicator 1

Status: Red

▲ Trend: Improving

Indicator 2

Status: Green

▼ Trend: Declining

Risks of Traffic-Light Reporting

Traffic lights can be misleading when:

■ Thresholds are arbitrary

■ All indicators are treated equally

■ Data quality is poor

■ Small differences change status

■ Context is ignored

■ No explanation is provided

What is a Dashboard?

A visual display of the most important information needed to monitor performance and support decisions. A dashboard may present:

■ Indicators

■ Maps

■ Risks

■ Targets

■ Variance

■ Feedback data

■ Trends

■ Financial performance

■ Corrective actions

Operational and Strategic Dashboards

Operational — daily / weekly

- Field activities
- Distribution status
- Data submissions
- Complaint cases

Strategic — leadership / governance

- Outcome performance
- Budget utilization
- Major risks
- Donor compliance
- Project portfolio status

Dashboard Design Process

1 Identify users

2 Define decisions

3 Select key indicators

4 Confirm data sources

5 Determine update frequency

6 Select visualizations

7 Design the layout

8 Test with users

9 Automate where appropriate

10 Review and improve

What Should Appear on a Dashboard?

Include only high-value information such as:

■ Key outcome indicators

■ Trend

■ Data-quality warnings

■ Critical outputs

■ Geographic gaps

■ Risks

■ Target variance

■ Disaggregated results

■ Required management
action

Dashboard Layout

Top Row

Project summary • Reporting period • Key totals • Overall status

Middle Section

Indicator scorecards • Trend charts • Target comparisons

Lower Section

Geographic analysis • Disaggregation • Risks & action points

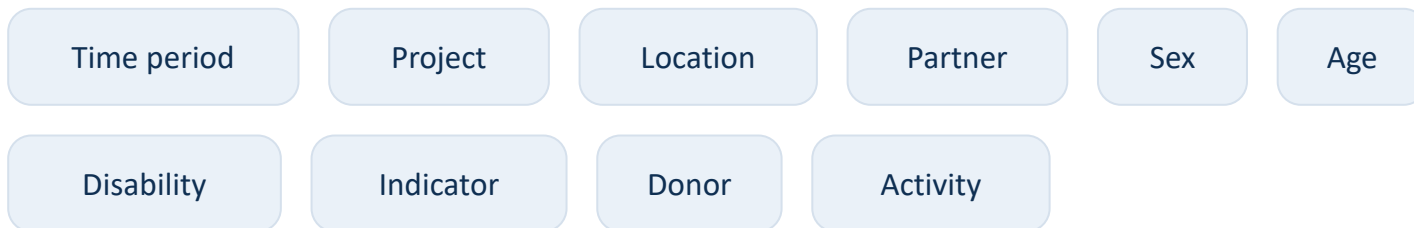
The Visual Hierarchy

Place the most important information:

- At the top
- On the left in left-to-right reading contexts
- In larger cards
- With clear labels
- With limited emphasis

Dashboard Filters

Interactive dashboards may allow users to filter by:



Dashboard Update Frequency

■ Decision needs

■ Data availability

■ Indicator type

■ Reporting cycles

■ Data-validation requirements

■ Cost and technical capacity

Operational data

daily / weekly

Output indicators

monthly

Outcome indicators

quarterly / annually

Evaluation results

when completed

Dashboard Governance

Define responsibility for:

■ Data extraction

■ Data validation

■ Dashboard refresh

■ Access permissions

■ Technical maintenance

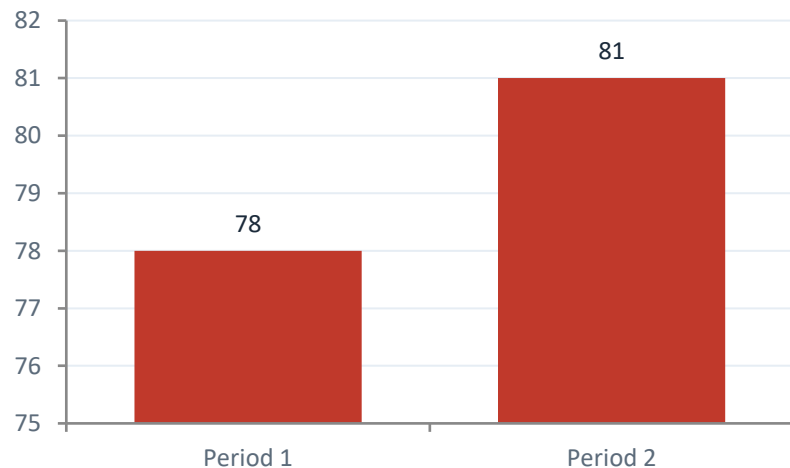
■ Interpretation

■ Approval

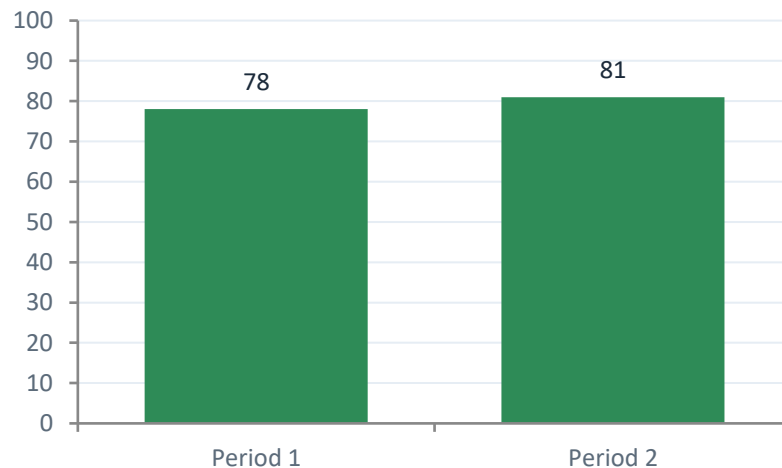
■ Corrective action follow-up

Truncated Axes

A truncated axis starts above zero and can exaggerate small differences.



Axis at 75% — looks dramatic



Axis at 0% — honest scale

Inconsistent Scales

Comparisons become misleading when:

- Charts use different axis ranges
- Time intervals differ
- Units change
- Percentages and counts are mixed
- Baselines differ but are not shown

Three-Dimensional Charts

Three-dimensional charts can distort:

■ Bar height

■ Distance

■ Slice size

■ Relative proportions

RECOMMENDATION

Use simple two-dimensional charts.

Selective Time Periods

A chart may mislead when it shows only:

■ A favourable period

■ A temporary increase

■ A selected starting point

■ A short period that hides long-term decline

Misleading Aggregation

An overall chart may hide:

■ Gender differences

■ Geographic inequalities

■ Partner variation

■ Vulnerable-group exclusion

■ Poor performance in small locations

Overuse of Percentages

A large percentage may be based on a small denominator.

Reported: *“Complaint resolution improved by 100%”*

Actual change: from one resolved case to two resolved cases.

GOOD PRACTICE

Present counts together with percentages so the scale behind a figure is clear.

Visualizing Missing Data

Do not present missing values as

- Zero
- No
- Poor performance

Instead

- Show “No data”
- Use a separate status
- State the missing-data level
- Explain reporting delays
- Avoid creating false trends

Why Present Disaggregated Results?

Disaggregated visuals help identify:

■ Inclusion gaps

■ Geographic differences

■ Unequal outcomes

■ Vulnerability patterns

■ Service barriers

■ Groups requiring corrective action

Suitable Disaggregation Charts

■ Grouped bar charts

■ Scorecards by group

■ Small multiple charts

■ Maps by location

■ 100% stacked bars

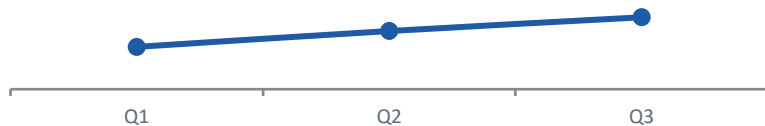
■ Trend lines by subgroup

■ Heat maps

Small Multiples

Small multiples use several similar charts with the same scale — supporting comparison without crowding one chart.

Women



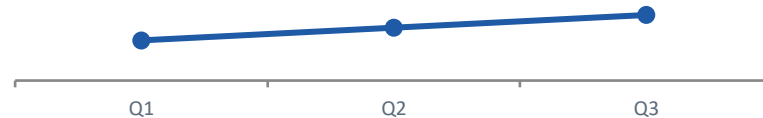
Men



Persons with disabilities



Youth



Heat Maps

A heat map uses a matrix to highlight high and low values.

District	Education	WASH	Livelihoods	Protection
Fafan	84	72	66	58
Jarar	61	55	78	49
Nogob	47	63	52	71
Shabelle	79	81	44	60

Portfolio monitoring

Geographic comparison

Indicator status

Risk prioritization

Disaggregation and Small Numbers

Protect confidentiality when

- A subgroup has very few cases
- A location is highly identifiable
- Sensitive characteristics are shown
- Results concern safeguarding or health

Possible actions

- Suppress the value
- Combine categories
- Aggregate locations
- Restrict dashboard access

What is Accessible Visualization?

Accessible visualization can be understood by users with different:

■ Visual abilities

■ Technical skills

■ Literacy levels

■ Devices

■ Language backgrounds

■ Internet access

Do Not Rely Only on Colour

Use additional signals such as:

■ Labels

■ Icons

■ Symbols

■ Status text

■ Patterns

■ Data values



Do not show only a red circle

Red — Off track

Readable Text

Use:

■ Clear fonts

■ Adequate font size

■ Strong contrast

■ Short titles

■ Simple labels

■ Limited abbreviations

■ Plain language

Alternative Text and Descriptions

Digital visualizations should include:

■ Alternative text

■ Clear chart titles

■ Written summaries

■ Data tables where needed

■ Description of the key finding

Accessible Colour Use

Good practice:

■ Use high contrast

■ Avoid difficult colour combinations

■ Use a limited palette

■ Test for colour-vision deficiencies

■ Maintain consistent status meanings

Accessible Tables

Tables should have:

- Clear row and column headings

- Units in headings

- Logical order

- Limited decimal places

- Highlighted totals

- Notes explaining symbols

- Alternative text in digital documents

Language Accessibility

Adapt visualizations through:

■ Local-language labels

■ Spoken presentation

■ Plain language

■ Printed summaries

■ Familiar symbols

■ Community-friendly versions

■ Limited technical terminology

Excel Visualization Capabilities

Excel can support:

■ Bar and line charts

■ Sparklines

■ Pivot charts

■ Slicers

■ Scorecards

■ Summary dashboards

■ Conditional formatting

■ Target-versus-actual analysis

Preparing Data in Excel

Use a structured table with:

■ One row per record

■ One column per variable

■ Consistent dates

■ No merged cells

■ Clear headers

■ Standard codes

■ Separate raw and summary sheets

Pivot Tables and Pivot Charts

Pivot tables allow users to:

■ Summarize indicators

■ Calculate counts and percentages

■ Compare groups

■ Explore trends

■ Filter locations

■ Create dynamic charts

Conditional Formatting

Conditional formatting can highlight:

■ Target achievement

■ Delays

■ Missing data

■ Variance

■ High risks

■ Duplicate values

Excel Dashboard Good Practices

■ Keep source data separate

■ Validate calculations

■ Protect formulas

■ Use a consistent layout

■ Use named ranges or tables

■ Lock approved dashboard areas

■ Limit manual updates

■ Maintain version control

■ Display the refresh date

What is Power BI?

Power BI is a business-intelligence platform used to:

■ Connect multiple data sources

■ Filter information

■ Transform data

■ Automate updates

■ Build interactive dashboards

■ Share controlled reports

■ Create visual reports

Power BI Workflow

1 Connect to data sources

2 Transform data in Power Query

3 Build relationships

4 Create calculations

5 Develop visuals

6 Add filters

7 Validate results

8 Publish and manage access

Suitable Power BI Data Sources

Power BI may connect to:

■ Excel workbooks

■ Kobo exports

■ CSV files

■ Cloud systems

■ SQL databases

■ Web services

■ SharePoint

■ Organizational information systems

Power BI Measures and Calculations

Dashboards may calculate:

■ Actual achievement

■ Cumulative totals

■ Budget utilization

■ Target achievement

■ Response rates

■ Trends

■ Variance

■ Completion rates

■ Status categories

Power BI Filters and Drill-Down

Users may explore data by:

■ Project

■ Partner

■ Indicator

■ Participant group

■ Region

■ Activity

■ Reporting period

■ Donor

Power BI Security

Apply controls such as:

■ Workspace permissions

■ Role-based access

■ Row-level security

■ Restricted exports

■ Approved sharing

■ Data-refresh monitoring

■ Account protection

Step 1 — Define the Purpose

Clarify whether the dashboard supports:

■ Daily operations

■ Community accountability

■ Monthly management

■ Portfolio oversight

■ Donor reporting

■ Risk management

■ Senior leadership

Step 2 — Select Priority Indicators

Choose indicators that are:

■ Strategically important

■ Clearly defined

■ Decision-relevant

■ Limited in number

■ Reliable

■ Connected to action

■ Updated on time

Step 3 — Define Dashboard Metrics

Possible metrics:

■ Baseline

■ Target

■ Actual

■ Percentage achievement

■ Variance

■ Trend

■ Status

■ Reporting completeness

■ Last update

■ Responsible person

Step 4 — Select Visuals

Performance status

Scorecard

Trend

Line chart

Location comparison

Bar chart or map

Composition

Stacked bar

Disaggregation

Grouped bar or small multiples

Portfolio status

Heat map

Step 5 — Add Interpretation

Include:

■ Key message

■ Corrective action

■ Variance explanation

■ Responsible person

■ Data-quality note

■ Deadline

■ Emerging risk

Step 6 — Test the Dashboard

Ask users:

■ Can they find important information quickly?

■ Are calculations correct?

■ Do they understand the indicators?

■ Is important context missing?

■ Are labels clear?

■ Does it support decisions?

■ Do filters work?

■ Is the dashboard accessible?

Step 7 — Establish a Review Cycle

Review the dashboard regularly to assess:

■ Indicator relevance

■ Calculation accuracy

■ Data availability

■ Access permissions

■ User needs

■ Performance thresholds

■ Broken data links

■ New reporting requirements

Practical Exercise Overview

Participants will transform a complex indicator table into a clear project dashboard.

1 Review the indicator data

2 Identify key users

3 Select priority metrics

4 Choose appropriate charts

5 Prepare scorecards

6 Apply traffic-light status

7 Present disaggregated results

8 Add management messages

Exercise Scenario

A three-year education project tracks

- Students enrolled
- Attendance rate
- Teacher training completion
- Teachers applying new methods
- Student learning achievement
- Complaints resolved
- Budget utilization

Data available by

- Quarter
- District
- Sex
- Disability status
- School

Exercise Part 1 — Identify the Audience

Each group should choose one audience:

Senior management

Project manager

Field coordinator

Donor

Community committee

Then answer:

■ What decisions will this audience make?

■ Which indicators are essential?

■ What level of detail is needed?

Exercise Part 2 — Select Metrics

Select:

☐ Three strategic indicators

☐ Three operational indicators

☐ One accountability indicator

☐ One financial indicator

☐ One data-quality indicator

Exercise Part 3 — Choose Charts

Question	Chart Type	Reason
Are targets being achieved?	Scorecard	Quick status
How is attendance changing?	Line chart	Trend over time
Which districts lag behind?	Bar chart	Category comparison
Are disability gaps present?	Grouped bar	Disaggregated comparison

Exercise Part 4 — Develop the Scorecard

Include:

■ Indicator	■ Actual	■ Trend
■ Baseline	■ Percentage achievement	■ Responsible person
■ Target	■ Status	■ Short explanation

Exercise Part 5 — Apply Traffic Lights

Groups should:

- Define thresholds
- Identify indicators where higher is better
- Identify indicators where lower is better
- Assign status
- Explain any missing data
- Identify indicators needing management action

Exercise Part 6 — Design the Layout

Header	Project • Period • Update date
Top Cards	Key results • Overall status
Middle Charts	Trends • Target comparisons
Lower Charts	Disaggregation • Geographic performance
Action Panel	Risks • Explanations • Decisions required

Exercise Part 7 — Prepare the Management Message

Write three short dashboard findings:

1 Main achievement

2 Main performance gap

3 Priority management action

EXAMPLE

Attendance improved to 78%, but remains below the 85% target. Girls with disabilities in District C recorded the lowest attendance. The project should conduct an accessibility review and adjust school-support arrangements before the next quarter.

Dashboard Peer Review Checklist

 Clear

 Properly labelled

 Accurate

 Disaggregated

 Relevant

 Accessible

 Simple

 Action-oriented

 Consistent

 Free from misleading design

Technical Validation Checklist



Values match the source table



Status rules are applied correctly



Targets are correct



Missing data are visible



Denominators are consistent



Filters return correct results



Percentage achievement is accurate



Update date is shown



Cumulative and period data are separated



Data source is documented

Too Much Information

A dashboard becomes ineffective when it includes:

■ Every indicator

■ Long narratives

■ Too many filters

■ Too many colours

■ Repeated charts

■ Detailed raw tables

■ Technical terms without explanation

No Clear Audience

A dashboard designed for everyone may satisfy no one. Problems include:

■ Too technical for managers

■ Too general for MEAL teams

■ Too detailed for donors

■ Too confidential for communities

No Data-Quality Warning

Dashboards should identify:

■ Missing reports

■ Unverified data

■ Low response rates

■ Late submissions

■ Method changes

■ Incomplete periods

■ Indicators under review

No Management Action

A dashboard fails when users can see problems but do not know:

■ Who should act

■ What action is required

■ When action is due

■ Whether action was completed

Chapter Summary

- Data visualization makes MEAL evidence easier to understand and use.
- Every visual should serve a clear audience and question.
- Bar charts compare categories.
- Line charts show change over time.
- Pie charts show simple composition but should be used sparingly.
- Stacked charts show totals and subgroup composition.
- Maps communicate geographic patterns.
- Scorecards summarize indicator performance.
- Traffic-light reporting highlights status but requires clear rules.
- Dashboards should focus on key decisions and priority indicators.
- Misleading scales, selective periods and weak denominators distort evidence.
- Disaggregated visuals reveal inequalities.
- Accessible design supports inclusive communication.
- Excel supports routine dashboards; Power BI supports interactive reporting.
- Dashboards require governance, validation and regular review.

Knowledge Check

1 What are the main purposes of data visualization?

2 When should a bar chart be used?

3 Why are line charts suitable for trends?

4 When is a pie chart appropriate?

5 Difference between a stacked bar and a 100% stacked bar?

6 Why should maps be used carefully?

7 What is an indicator scorecard?

8 What does traffic-light reporting show?

9 Why should bar-chart axes normally begin at zero?

10 How can disaggregated information be visualized?

11 What makes a visualization accessible?

12 Operational vs strategic dashboard?

13 What should a dashboard management message include?

14 Why must dashboard calculations be validated?

Action Planning

Each participant should identify:

■ One report containing an ineffective chart

■ One dashboard with too many indicators

■ One misleading scale or denominator

■ One missing disaggregation

■ One accessibility weakness

■ One dashboard data-quality risk

■ One corrective action

■ Responsible person

■ Completion date

THANK YOU

Questions and Discussion

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Closing message

Effective data visualization does more than display performance. It helps people understand what is changing, identify who is being left behind and decide what action should be taken next.