VIDEO 3: END-TO-END DASHBOARD DESIGN

Complete Playbook - FreshMarket Executive Reporting

Duration: 35-40 minutes
Industry: Australian Grocery Retail
Focus: Professional dashboard design, UI/UX, interactivity, Power BI Service publishing

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1. SESSION OVERVIEW & LEARNING OUTCOMES

Duration: 35-40 minutes

What You'll Build

A **production-ready, two-page Power BI dashboard** featuring:

- ✅ Executive Summary (KPIs, trends, state map, top performers)
- ✅ Operational Details (drill-through, detailed tables, filtering)
- ✅ Professional UI/UX (corporate colors, consistent layout, accessibility)
- ✅ Interactive features (slicers, bookmarks, tooltips, drill-through)
- ✅ Optimized performance (<3 second page load)
- ✅ Published to Power BI Service with scheduled refresh
- ✅ Mobile-responsive layout

Learning Outcomes

By the end of this session, you will be able to:

- ✅ Design executive dashboards following UI/UX best practices
- ✅ Create KPI cards, trend lines, maps, and comparison visuals
- ✅ Implement drill-through pages for detailed analysis
- ✅ Apply corporate branding (colors, fonts, layouts)
- ✅ Build interactive features (slicers, bookmarks, tooltips)
- ✅ Optimize report performance (<3 second page load)
- ✅ Ensure accessibility (color contrast, alt text, keyboard navigation)
- ✅ Publish to Power BI Service with workspace organization
- ✅ Configure scheduled refresh with on-premises gateway
- ✅ Implement row-level security (RLS) for data governance
- ✅ Design mobile layouts for executive viewing

Why This Matters

Executive dashboards are your showcase. They demonstrate:

- 📊 **Business acumen** - understanding what executives need to see
- 🎨 **Design skills** - professional layout and visual hierarchy
- ⚡ **Technical excellence** - fast, responsive, accessible reports
- 🔒 **Governance awareness** - security, deployment, refresh automation

According to Gartner research, **70% of business intelligence projects fail** due to poor user adoption. The #1 reason? **Poorly designed dashboards that executives don't use.**

A well-designed dashboard:

- Gets used daily by executives
- Drives data-driven decision making
- Becomes the "single source of truth"
- Showcases your skills in interviews and portfolios

Enterprise Impact

For FreshMarket, this dashboard enables:

- ✅ **Daily performance monitoring** - CFO checks YTD revenue every morning
- ✅ **State-level comparisons** - identify underperforming regions
- ✅ **Product portfolio optimization** - double down on top performers
- ✅ **Budget accountability** - track variance by category and store
- ✅ **Mobile access** - executives view KPIs on phones during travel

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2. BUSINESS REQUIREMENTS REVIEW

Where We Are (After Video 2)

✅ **Star schema model** (1 fact + 5 dimensions)
✅ **20+ DAX measures** (revenue, margins, time intelligence, budget variance)
✅ **Australian FY date table** (July 1 - June 30)
✅ **Optimized performance** (42 MB, <1 second queries)
✅ **Validated accuracy** (99.8% reconciliation)

Current state: Data model ready, measures validated, no visuals yet.

Stakeholder Requirements

CFO (Financial Performance):

> "I need to see YTD revenue, gross margin %, and budget variance at a glance every morning. Show me which states are over/under budget. I want to drill into categories and stores."

Head of Operations (Store & Product Performance):

> "Show me the top 10 products and bottom 10 stores by margin. I need to identify underperformers for intervention. Give me detailed tables I can export."

CMO (Marketing Effectiveness):

> "Show me revenue trends by channel (In-Store, Online, Click & Collect). Which products are growing YoY? I need this on my phone during client meetings."

CEO (High-Level Overview):

> "One page that shows: Are we hitting budget? Are we growing? Where are the problems? I have 30 seconds to review this each morning before meetings."

Dashboard Scope

Page 1: Executive Summary (30-second glance)

- Large KPI cards: Revenue, Margin %, Budget Achievement, YoY Growth
- Revenue trend line (12 months with YTD vs Prior Year)
- Australia state map showing revenue by location
- Top 5 products by revenue (bar chart)
- Channel performance comparison (pie/donut chart)

Page 2: Operational Details (deep analysis)

- Product performance table (sortable, exportable)
- Store performance matrix (drill-through enabled)
- Budget variance table by category
- Date range slicer, state filter, category filter
- Drill-through to individual store/product details

Navigation:

- Tabs/buttons to switch between pages
- Bookmarks for quick views ("Show All", "NSW Only", "Over Budget Only")
- Tooltips showing detail on hover
- Drill-through from summary to details

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3. DASHBOARD DESIGN PRINCIPLES

The 7 Golden Rules of Dashboard Design

1. Visual Hierarchy

- Most important metrics at top-left (where eyes land first)
- KPIs in large cards, supporting details below
- Use size and color to indicate importance

2. Minimize Clutter

- Limit to **8 visuals per page** (more = cognitive overload)
- Remove unnecessary gridlines, borders, backgrounds
- Use white space intentionally

3. Consistent Layout

- Align visuals to grid (View → Snap to grid)
- Maintain consistent spacing between visuals
- Group related visuals together

4. Color with Purpose

- Use corporate brand colors (FreshMarket: Green #2D5016, Blue #004C97)
- Apply color meaningfully (green = positive, red = negative, neutral = gray)
- Avoid rainbow charts (use 2-3 colors maximum)

5. Interactivity

- Enable cross-filtering between visuals (but control it)
- Provide slicers for key filters (date, state, category)
- Add drill-through for detailed exploration

6. Performance

- Target <3 seconds page load time
- Limit to 8 visuals per page
- Avoid complex visuals (especially custom visuals)
- Use Performance Analyzer to identify bottlenecks

7. Accessibility

- Ensure color contrast meets WCAG 2.1 AA standards (4.5:1 ratio)
- Provide alt text for all visuals
- Support keyboard navigation
- Don't rely solely on color to convey information

FreshMarket Brand Guidelines

Colors:

- Primary: Fresh Green (#2D5016) - use for positive metrics, headers
- Secondary: Corporate Blue (#004C97) - use for neutral metrics, accents
- Success: Green (#27AE60) - use for over-budget, positive variance
- Warning: Orange (#F39C12) - use for neutral/on-budget
- Danger: Red (#E74C3C) - use for under-budget, negative variance
- Background: White (#FFFFFF) or Light Gray (#F5F5F5)
- Text: Dark Gray (#2C3E50) for body, Black (#000000) for headers

Fonts:

- Headers: Segoe UI Bold, 18-20pt

- KPIs: Segoe UI Light, 36-48pt
- Body text: Segoe UI Regular, 10-12pt

Logo:

- Place in top-left corner, 60x60 pixels
- Link logo to Page 1 (Executive Summary)

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4. PAGE 1: EXECUTIVE SUMMARY

Page Layout Overview

Top Row (KPIs):

- 4 large card visuals across the width
- Total Revenue | Gross Margin % | Budget Achievement % | YoY Growth %

Middle Row (Trends):

- Left 60%: Revenue trend line (12 months, current vs prior year)
- Right 40%: Australia state map (revenue by state)

Bottom Row (Details):

- Left 50%: Top 5 Products (horizontal bar chart)
- Right 50%: Channel Performance (donut chart)

Total visuals: 7 (within 8-visual best practice limit)

Step-by-Step Build

Step 1: Create Executive Summary Page

What to do:

1. In Power BI Desktop, at bottom of canvas, right-click **Page 1** tab
2. Select **Rename page**

3. New name: Executive Summary
4. Press Enter

Why it matters:
Clear page names improve navigation and professionalism.

How to validate:

Bottom tab shows "Executive Summary" instead of "Page 1".

Step 2: Set Page Background

What to do:

1. Click blank area of canvas (deselect all visuals)
2. In **Visualizations** pane → **Format page** (paint roller icon)
3. Expand **Canvas background**
4. Color: #F5F5F5 (light gray)
5. Transparency: 0%

Why it matters:
Subtle background separates visuals from white workspace, easier on eyes.

How to validate:

Canvas has light gray background.

Step 3: Create KPI Card - Total Revenue

What to do:

1. In **Visualizations** pane, click **Card** visual
2. Drag to top-left corner of canvas
3. Size: Width = 250px, Height = 120px
4. In **Fields** pane, drag **[Total Revenue]** to **Fields** well
5. Format the card:
    - Click **Format visual** (paint roller)
    - **Callout value:**
        - Font: Segoe UI Light

    - Size: 36pt
    - Color: #2D5016 (Fresh Green)
- **Category label:**
    - Text: "Total Revenue"
    - Font: Segoe UI Bold
    - Size: 12pt
    - Color: #2C3E50 (Dark Gray)
- **Effects → Background:**
    - Color: White (#FFFFFF)
    - Transparency: 0%
- **Effects → Border:**
    - Color: #E0E0E0 (Light Gray)
    - Width: 1px
    - Radius: 5px

Why it matters:
Large, prominent revenue figure is the first thing executives see. Green color indicates positive metric.

How to validate:

Card displays: **$45,234,567** (formatted as currency, green text, white background with subtle border).

Step 4: Create KPI Card - Gross Margin %

What to do:

1. Copy the Total Revenue card (Ctrl+C, Ctrl+V)
2. Position to the right of Total Revenue (aligned horizontally)
3. Remove [Total Revenue] from Fields well
4. Drag **[Gross Margin %]** to Fields well
5. Update Category label: "Gross Margin %"
6. Keep same formatting (green text, white background)

How to validate:

Card displays: **29.45%** (formatted as percentage).

Step 5: Create KPI Card - Budget Achievement %

What to do:

1. Copy Gross Margin % card
2. Position to right of Gross Margin %
3. Replace with **[Budget Achievement %]**
4. Update Category label: "Budget Achievement"
5. Add conditional formatting:
    - Format visual → Callout value → Conditional formatting → Color
    - Format by: Field value
    - Based on field: [Budget Achievement %]
    - Rules:
        - If value ≥ 100%: Color = Green (#27AE60)
        - If value ≥ 95% and < 100%: Color = Orange (#F39C12)
        - If value < 95%: Color = Red (#E74C3C)

Why it matters:
Conditional color immediately shows performance status (green = good, red = problem).

How to validate:

Card displays: **102.5%** in green (assuming over budget).

Step 6: Create KPI Card - YoY Growth %

What to do:

1. Copy Budget Achievement card
2. Position to right of Budget Achievement
3. Replace with **[YoY Revenue %]**
4. Update Category label: "YoY Growth"
5. Conditional formatting:
    - If value > 0%: Green (#27AE60) - positive growth

- If value = 0%: Gray (#95A5A6) - flat
- If value < 0%: Red (#E74C3C) - negative growth

How to validate:

Card displays: **8.6%** in green (positive growth).

Step 7: Create Revenue Trend Line Chart

What to do:

1. Click **Line chart** visual
2. Position below KPI cards, left 60% of canvas width
3. Size: Width = 700px, Height = 300px
4. Configure visual:
   - **X-axis:** DimDate[MonthYear] (sorted by date)
   - **Y-axis:** [Total Revenue], [Prior Year Revenue]
   - **Legend:** Show (displays "Total Revenue" and "Prior Year Revenue")
5. Format visual:
   - **Title:** "Revenue Trend - Current vs Prior Year"
   - **X-axis title:** "Month"
   - **Y-axis title:** "Revenue ($)"
   - **Y-axis format:** Currency, millions (e.g., $45M)
   - **Data colors:**
     - Total Revenue: #2D5016 (Fresh Green)
     - Prior Year Revenue: #95A5A6 (Gray)
   - **Data labels:** Off (clutters chart)
   - **Legend position:** Top
   - **Background:** White (#FFFFFF)
   - **Border:** Light gray (#E0E0E0), 1px

Why it matters:
Trend line shows momentum - are revenues growing, flat, or declining? Comparing current year to prior year shows YoY trends visually.

How to validate:

Line chart shows 12 months (Jul-2023 to Jun-2024), green line above gray line = growth.

Step 8: Create Australia State Map

What to do:

1. Click **Map** visual
2. Position to right of trend line (right 40% of canvas)
3. Size: Width = 450px, Height = 300px
4. Configure visual:
    - **Location:** DimStore[State]
    - **Bubble size:** [Total Revenue]
    - **Tooltips:** [Total Revenue], [Gross Margin %], [Budget Achievement %]
5. Format visual:
    - **Title:** "Revenue by State"
    - **Map style:** Road (default)
    - **Zoom level:** Australia (auto-zoom to show all states)
    - **Bubbles → Color:** #2D5016 (Fresh Green)
    - **Bubbles → Transparency:** 60% (allows overlapping bubbles to show)
    - **Background:** White
    - **Border:** Light gray, 1px

Why it matters:
Geographic visualization shows state performance at a glance. Larger bubbles = higher revenue.

How to validate:

Map shows Australia with bubbles over NSW, VIC, QLD. NSW bubble is largest (most stores/revenue).

Step 9: Create Top 5 Products Bar Chart

What to do:

1. Click **Clustered bar chart** visual (horizontal bars)
2. Position bottom-left, below trend line

3. Size: Width = 450px, Height = 250px
4. Configure visual:
    - **Y-axis:** DimProduct[ProductName]
    - **X-axis:** [Total Revenue]
    - **Data label:** Show value (e.g., $2.5M)
5. Add Top N filter:
    - Visual filters → ProductName → Filter type: **Top N**
    - Show: Top 5
    - By value: [Total Revenue]
6. Format visual:
    - **Title:** "Top 5 Products by Revenue"
    - **Bars → Color:** #2D5016 (Fresh Green)
    - **Data labels:** On, white text, outside end of bars
    - **Y-axis labels:** Product names
    - **X-axis format:** Currency, millions
    - **Background:** White
    - **Border:** Light gray, 1px

Why it matters:
Focuses attention on revenue drivers. Top 5 products may represent 30-40% of total revenue (Pareto principle).

How to validate:

Bar chart shows 5 products, sorted longest to shortest. Data labels show revenue values.

Step 10: Create Channel Performance Donut Chart

What to do:

1. Click **Donut chart** visual
2. Position bottom-right, next to Top 5 Products
3. Size: Width = 450px, Height = 250px
4. Configure visual:
    - **Legend:** DimChannel[ChannelName]
    - **Values:** [Total Revenue]

- **Tooltips:** [Total Revenue], [Gross Margin %]

5. Format visual:
    - **Title:** "Revenue by Channel"
    - **Slices → Colors:**
        - In-Store: #2D5016 (Fresh Green)
        - Online: #004C97 (Corporate Blue)
        - Click & Collect: #95A5A6 (Gray)
    - **Data labels:** Percentage (e.g., 65%)
    - **Legend position:** Right
    - **Detail labels:** Category name + percentage
    - **Background:** White
    - **Border:** Light gray, 1px

Why it matters:
Shows channel mix. Executives track digital vs physical sales trends.

How to validate:

Donut chart shows 3 slices. In-Store should be largest (~65-70%), Online ~20-25%, Click & Collect ~10-15%.

Step 11: Align and Distribute Visuals

What to do:

1. Select all visuals on page (Ctrl+A or drag-select)
2. **Format** ribbon → **Align** → **Align to grid**
3. **Format** ribbon → **Distribute** → **Horizontally** (for KPI cards)
4. Manually adjust spacing to ensure consistent gaps

Why it matters:
Professional dashboards have precise alignment. Misaligned visuals look amateurish.

How to validate:

All visuals aligned to grid, consistent spacing between cards and sections.

Step 12: Add Page Title and Logo

What to do:

1. Insert **Text box** (Insert ribbon → Text box)
2. Position top-left, above KPI cards
3. Text: "FreshMarket Australia - Executive Summary"
4. Format:
    - Font: Segoe UI Bold
    - Size: 20pt
    - Color: #2D5016 (Fresh Green)
5. Insert image (Insert → Image)
6. Upload FreshMarket logo (60x60px PNG)
7. Position: Far left, next to title

How to validate:

Title and logo visible at top of page.

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5. PAGE 2: OPERATIONAL DETAILS

Page Layout Overview

Top Section (Filters):

- Date range slicer (Jan 2023 - Dec 2024)
- State multi-select slicer
- Category multi-select slicer
- "Reset Filters" button

Left Section (Products):

- Product performance table (sortable, exportable)
- Columns: Product Name, Category, Revenue, Margin %, Rank
- Top 20 products shown (scrollable)

Right Section (Budget Variance):

- Budget variance table by category
- Columns: Category, Actual, Budget, Variance $, Variance %, Achievement %
- Conditional formatting on variance columns

Bottom Section (Stores):

- Store performance matrix
- Rows: Store Name (grouped by State)
- Columns: Revenue, Margin %, Budget Achievement
- Drill-through enabled to detailed store page

Step-by-Step Build

Step 1: Create Operational Details Page

What to do:

1. At bottom, click + **Add page** button
2. Rename page: `Operational Details`
3. Set canvas background: `#F5F5F5` (same as Page 1)

Step 2: Create Date Range Slicer

What to do:

1. Click **Slicer** visual
2. Position top-left of canvas
3. Size: Width = 300px, Height = 100px
4. Configure:
    - Field: DimDate[Date]
    - Slicer type: **Between** (range selector)
5. Format:
    - **Title:** "Date Range"

- **Slicer settings → Style:** Between
- **Background:** White
- **Border:** Light gray, 1px

Why it matters:
Allows users to focus analysis on specific time periods (e.g., Q3 FY2024).

How to validate:

Slicer shows two date pickers (From and To) with calendar dropdowns.

Step 3: Create State Multi-Select Slicer

What to do:

1. Copy date slicer
2. Position to right of date slicer
3. Replace field: DimStore[State]
4. Slicer type: **List**
5. Enable **Multi-select with Ctrl** (Format → Selection → Multi-select with Ctrl: On)
6. Update title: "State"

How to validate:

Slicer shows list of states (NSW, VIC, QLD, WA, SA, TAS, NT, ACT). Ctrl+Click selects multiple.

Step 4: Create Category Multi-Select Slicer

What to do:

1. Copy state slicer
2. Position to right of state slicer
3. Replace field: DimProduct[Category]
4. Update title: "Product Category"

How to validate:

Slicer shows categories (Fresh Produce, Dairy & Eggs, Meat & Seafood, etc.).

Step 5: Create Product Performance Table

What to do:

1. Click **Table** visual
2. Position below slicers, left 50% of canvas
3. Size: Width = 550px, Height = 550px
4. Add columns (in order):
    - DimProduct[ProductName]
    - DimProduct[Category]
    - [Total Revenue]
    - [Gross Margin %]
    - [Product Rank]
5. Add Top N filter:
    - Visual filters → ProductName → Top 20 by [Total Revenue]
6. Format visual:
    - **Title:** "Product Performance (Top 20)"
    - **Grid → Row headers:** Bold
    - **Values → Alignment:**
        - ProductName: Left
        - Numbers: Right
    - **Values → Conditional formatting:**
        - Gross Margin %: Data bars (green = high, red = low)
    - **Enable export:** Format → Export → Allow export: On
    - **Background:** White
    - **Border:** Light gray, 1px

Why it matters:
Detailed product analysis. Users can sort by any column, export to Excel for further analysis.

How to validate:

Table shows 20 products with formatted values. Click column headers to sort. Right-click table → Export data works.

Step 6: Create Budget Variance Table

What to do:

1. Click **Table** visual
2. Position top-right, next to product table
3. Size: Width = 550px, Height = 300px
4. Add columns:
    - DimProduct[Category]
    - [Total Revenue] (rename column to "Actual")
    - [Budget Revenue] (rename to "Budget")
    - [Variance $]
    - [Variance %]
    - [Budget Achievement %]
5. Format visual:
    - **Title:** "Budget Variance by Category"
    - **Conditional formatting:**
        - Variance $: Green (positive), Red (negative)
        - Variance %: Green (>5%), Red (<-5%)
        - Budget Achievement %: Green (>100%), Orange (95-100%), Red (<95%)
    - **Values → Currency:** $ format
    - **Background:** White

Why it matters:
Shows which categories are over/under budget. Conditional colors highlight problems instantly.

How to validate:

Table shows 8 categories with variance columns color-coded.

Step 7: Create Store Performance Matrix

What to do:

1. Click **Matrix** visual
2. Position below budget variance table

3. Size: Width = 550px, Height = 550px
4. Configure:
    - **Rows:** DimStore[State] (outer), DimStore[StoreName] (inner)
    - **Values:** [Total Revenue], [Gross Margin %], [Budget Achievement %]
5. Format visual:
    - **Title:** "Store Performance by State"
    - **Row subtotals:** Show (state-level totals)
    - **Column headers:** Bold
    - **Values → Conditional formatting:**
        - Gross Margin %: Data bars (green)
        - Budget Achievement %: Icons (✓ green if >100%, ⚠ orange if 95-100%, ✗ red if <95%)
    - **Enable expand/collapse:** Format → Row headers → +/- icons: On
    - **Background:** White

Why it matters:
Hierarchical view of stores grouped by state. Users can expand/collapse states to focus analysis.

How to validate:

Matrix shows states with expandable +/- icons. Clicking + expands to show stores within that state.

Step 8: Add "Reset Filters" Button

What to do:

1. Insert **Button** (Insert ribbon → Buttons → Blank)
2. Position next to slicers (top-right area)
3. Size: Width = 150px, Height = 40px
4. Configure:
    - **Button text:** "Reset Filters"
    - **Action:** Bookmark
    - **Bookmark:** Create a bookmark with all slicers cleared (see next step)
5. Format button:
    - **Fill:** #2D5016 (Fresh Green)

- **Text:** White, Segoe UI Bold, 12pt
- **Border:** None
- **Hover effect:** Fill = #1E3A0E (darker green)

Bookmark creation:

1. Clear all slicer selections
2. View ribbon → Bookmarks → Add bookmark
3. Rename bookmark: "Clear All Filters"
4. Edit bookmark (right-click → Data: Current page)
5. Go back to button → Action → Bookmark → Select "Clear All Filters"

Why it matters:
One-click reset saves users time vs. manually clearing each slicer.

How to validate:

Select filters, click "Reset Filters" button, all slicers clear.

Step 9: Create Drill-Through Page (Store Details)

What to do:

1. Add new page: Store Details
2. Set canvas background: #F5F5F5
3. Configure drill-through:
   - Visualizations pane → **Drill through** section
   - Add field: DimStore[StoreName]
4. Add visuals:
   - **Card:** Store Name (large, top-center)
   - **Cards:** Total Revenue, Gross Margin %, Budget Achievement (row below)
   - **Line chart:** Monthly revenue trend (12 months)
   - **Table:** Top 10 products sold at this store
   - **Bar chart:** Customer loyalty tier distribution
5. Add back button:
   - Insert → Buttons → Back

- Position: Top-left
- Action: Back (returns to source page)

Why it matters:
Drill-through enables deep-dive analysis. Right-click any store in the matrix → Drill through → Store Details.

How to validate:

From Operational Details page, right-click a store → Drill through → Store Details. Page shows filtered data for that store only. Back button returns to Operational Details.

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6. VISUAL DESIGN & LAYOUT

Color Psychology in Dashboards

Green (#27AE60, #2D5016):

- Use for: Positive metrics, growth, over-budget performance
- Psychology: Success, growth, approval

Red (#E74C3C):

- Use for: Negative metrics, decline, under-budget performance
- Psychology: Danger, problems requiring attention

Orange (#F39C12):

- Use for: Warnings, neutral state (close to budget)
- Psychology: Caution, watch closely

Blue (#004C97):

- Use for: Neutral data series, corporate branding
- Psychology: Trust, stability, professionalism

Gray (#95A5A6, #2C3E50):

- Use for: Text, borders, secondary data series
- Psychology: Neutral, background

Typography Hierarchy

Page Titles: Segoe UI Bold, 20pt, Brand Green (#2D5016)
Visual Titles: Segoe UI Bold, 14pt, Dark Gray (#2C3E50)
KPI Values: Segoe UI Light, 36-48pt, Conditional Colors
KPI Labels: Segoe UI Regular, 12pt, Dark Gray
Body Text: Segoe UI Regular, 10pt, Medium Gray (#7F8C8D)
Data Labels: Segoe UI Regular, 9pt, White (on bars) or Dark Gray

Layout Grid System

Use a **12-column grid** for alignment:

- Full-width visual: 12 columns (100%)
- Half-width visual: 6 columns (50%)
- Third-width visual: 4 columns (33%)
- Quarter-width visual: 3 columns (25%)

KPI cards: 3 columns each (4 cards across = 12 columns)
Trend + Map: Trend = 7 columns, Map = 5 columns
Product + Channel: 6 columns each

Visual Selection Guide

Question	Visual Type	Example
What's the total/average?	Card	Total Revenue card
How does it trend over time?	Line chart	Monthly revenue trend
How do categories compare?	Bar chart	Top 5 products
What's the distribution?	Pie/Donut chart	Channel mix
Where is performance located?	Map	Revenue by state
What are the details?	Table/Matrix	Product performance
How does it rank?	Clustered bar	Store rankings

Avoid:

- ❌ Pie charts with >5 slices (use bar chart instead)
- ❌ 3D charts (distort values, hard to read)
- ❌ Dual-axis charts with different scales (misleading)
- ❌ Gauges and speedometers (waste space, hard to compare)

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7. INTERACTIVITY & NAVIGATION

Cross-Filtering Configuration

What to do:

By default, all visuals on a page cross-filter each other. This can be helpful or confusing depending on the scenario.

Recommended configuration for Executive Summary:

1. Click any KPI card
2. Format ribbon → **Edit interactions**
3. For each visual on the page, choose the interaction:
    - **Filter:** Clicking filters other visuals
    - **Highlight:** Clicking highlights portion of other visuals
    - **None:** Clicking has no effect on other visuals

Recommendations:

- KPI cards → All other visuals: **None** (KPIs should show totals, not filtered values)
- Trend line → Map, Products, Channels: **Highlight** (shows time period in context)
- Map → Products, Channels: **Filter** (focus on selected state)
- Products → Channels: **Filter** (show channel mix for selected products)

Why it matters:
Controlled interactions prevent confusing behavior (e.g., clicking NSW on map shouldn't filter KPIs to only NSW).

How to validate:

Click NSW on map → Products chart filters to NSW products, but KPI cards still show totals.

Bookmarks for Quick Views

What to do:

Create bookmarks for common views executives use:

1. **Bookmark 1: Show All**
    - Clear all filters
    - View ribbon → Bookmarks → Add
    - Rename: "Show All"
2. **Bookmark 2: NSW Only**
    - Select NSW in state slicer (if on Operational Details)
    - Add bookmark
    - Rename: "NSW Only"
3. **Bookmark 3: Over Budget Only**
    - Apply filter: Budget Achievement % > 100%
    - Add bookmark
    - Rename: "Over Budget Only"
4. **Bookmark 4: Current FY YTD**
    - Apply filter: DimDate[FY] = "FY2025"
    - Add bookmark
    - Rename: "FY2025 YTD"

Create bookmark buttons:

1. Insert → Buttons → Blank
2. Add four buttons in a row
3. Configure each button:

- Action → Type: Bookmark
- Bookmark: Select corresponding bookmark
- Button text: Bookmark name

Why it matters:
One-click access to common views saves users 5-10 clicks per analysis session.

How to validate:

Click "NSW Only" button → All visuals filter to NSW. Click "Show All" → Filters clear.

Tooltips for Additional Context

What to do:

Custom tooltips show detailed information on hover without cluttering the main visual.

1. Create a new page: `Revenue Tooltip`
2. Page settings → Canvas → **Type: Tooltip**
3. Size: Small (320 x 240)
4. Add visuals to tooltip page:
    - Card: [Total Revenue]
    - Card: [Gross Margin %]
    - Mini bar chart: Monthly trend (last 6 months)
5. Go back to main page (Executive Summary)
6. Select the state map visual
7. Format → Tooltips → Type: **Report page**
8. Page: Revenue Tooltip

Why it matters:
Hovering over a state bubble shows detailed revenue, margin, and trend without leaving the page.

How to validate:

Hover over NSW bubble on map → Custom tooltip appears with revenue, margin, and mini trend chart.

---

8. PERFORMANCE OPTIMIZATION

Target Metrics

Metric	Target	How to Measure
Page load time	<3 seconds	Performance Analyzer
Visual render time	<500ms per visual	Performance Analyzer
DAX query time	<100ms per query	Performance Analyzer
Total visuals per page	≤8 visuals	Manual count
Report file size	<50 MB	File properties

Using Performance Analyzer

What to do:

1. View ribbon → **Performance Analyzer → Start recording**
2. Click **Refresh visuals** button (forces all visuals to re-render)
3. Performance Analyzer shows each visual's render time
4. Sort by **Duration (descending)** to identify slowest visuals
5. For slow visuals:
    - Check if DAX query is complex (can simplify measure?)
    - Check if visual has too many data points (apply Top N filter?)
    - Check if using custom visual (replace with built-in if possible?)

Example output:

```
Revenue Trend Line: 1,245ms
  DAX Query: 850ms
  Visual Display: 395ms

State Map: 2,100ms  ← SLOW
  DAX Query: 250ms
  Visual Display: 1,850ms  ← Map rendering is slow
```

Optimization:

- State map is slow due to rendering overhead
- Solution: Use filled map instead of bubble map, or reduce data points with Top N filter

Why it matters:
Slow reports frustrate users. Executives won't wait 10 seconds for a page to load.

How to validate:

After optimization, total page load time <3 seconds.

Optimization Techniques

1. Limit Visuals per Page

- Executive Summary: 7 visuals ✅
- Operational Details: 8 visuals ✅

2. Reduce Data Points

- Top 5 Products (not all 2,000 products)
- Top 20 in product table (with scroll)
- Last 12 months in trends (not full history)

3. Avoid Custom Visuals

- Use built-in visuals when possible
- Custom visuals (from AppSource) are slower and less reliable

4. Optimize DAX Queries

- Use variables (VAR) to avoid repeating calculations
- Avoid iterating functions (SUMX, FILTER) when simple aggregations work

5. Disable Auto-Visuals

- When adding fields, Power BI auto-creates visuals
- Turn off: Options → Current file → Data load → "Auto date/time": Off

6. Compress Images

- Logos and background images: <100 KB
- Use PNG with transparency, compress to smallest size

---

9. ACCESSIBILITY & BEST PRACTICES

Color Contrast Standards

WCAG 2.1 Level AA Requirements:

- Normal text (< 18pt): **4.5:1** contrast ratio
- Large text (≥ 18pt): **3:1** contrast ratio

Check contrast:

Use online tools (e.g., WebAIM Contrast Checker):

- Foreground: #2D5016 (Fresh Green)
- Background: #FFFFFF (White)
- Ratio: **6.8:1** ✅ (passes AA and AAA)

Common violations:

- ❌ Light gray text (#D3D3D3) on white background (ratio ~1.5:1, fails)
- ❌ Yellow text (#F1C40F) on white background (ratio ~1.2:1, fails)

Fixes:

- Use dark gray (#2C3E50) or black (#000000) for text on light backgrounds
- Use white (#FFFFFF) for text on dark backgrounds

Alt Text for Visuals

What to do:

For each visual:

1. Select visual
2. Format visual → General → **Alt text**
3. Enter descriptive text (100-150 characters)

Examples:

Total Revenue Card:

> "Card showing total revenue of $45.2 million for the current period"

Revenue Trend Line:

> "Line chart comparing current year revenue (green line) to prior year revenue (gray line) over 12 months, showing 8.6% growth"

State Map:

> "Map of Australia showing revenue distribution by state, with NSW (largest bubble), VIC, and QLD highlighted"

Product Table:

> "Table listing top 20 products with revenue, margin percentage, and ranking, sortable by any column"

Why it matters:
Screen readers for visually impaired users read alt text aloud. Accessibility is required for government and enterprise reports.

How to validate:

Tab through visuals using keyboard. Screen reader announces alt text.

Keyboard Navigation

What to do:

Ensure users can navigate without a mouse:

1. Tab key moves between visuals
2. Arrow keys scroll within tables
3. Enter key activates buttons
4. Spacebar toggles selections in slicers

Test:

1. Disconnect mouse
2. Use Tab to move between visuals
3. Use Enter to activate drill-through
4. Use Spacebar to select slicer values

Why it matters:
Accessibility compliance, faster power-user navigation.

How to validate:

Can navigate entire report using only keyboard.

Additional Best Practices

1. Don't Rely on Color Alone

- ✅ Use icons + color (✓ green, ⚠ orange, ✗ red)
- ❌ Only color to show status

2. Provide Text Alternatives

- Include data labels on charts (not just colors)
- Show actual values alongside conditional formatting

3. Consistent Navigation

- Place navigation buttons in same location on every page
- Use same button style throughout

4. Clear Labels

- All axes labeled
- All slicers have clear titles
- All buttons have descriptive text

5. Mobile-Friendly

- Touch targets ≥44x44 pixels

- Avoid hover-only interactions (no hover on mobile)

---

10. PUBLISHING TO POWER BI SERVICE

Step 1: Create Workspace

What to do:

1. Open Power BI Service (app.powerbi.com)
2. Sign in with organizational account
3. Left navigation → **Workspaces** → **Create workspace**
4. Workspace name: `FreshMarket Analytics`
5. Description: "Executive and operational dashboards for FreshMarket Australia"
6. **Advanced settings:**
   - License mode: **Power BI Pro** or **Premium Per User**
   - Workspace admins: Add yourself
   - Members: Add data team
   - Contributors: Add analysts
   - Viewers: Add executives
7. Click **Save**

Why it matters:
Workspaces organize related content and manage access control. Development, Test, and Production environments should be separate workspaces.

How to validate:

FreshMarket Analytics workspace appears in workspace list.

Step 2: Publish from Power BI Desktop

What to do:

1. In Power BI Desktop, save PBIX file: `FreshMarket_Dashboard_v1.pbix`

2. Home ribbon → **Publish**
3. Select destination: **FreshMarket Analytics**
4. Click **Select**

Publishing uploads the report and dataset to Power BI Service.

5. Wait for "Publishing succeeded" message
6. Click **Open 'FreshMarket_Dashboard_v1' in Power BI**

Why it matters:
Publishing makes the report available to users via web browser and mobile app.

How to validate:

In Power BI Service, FreshMarket Analytics workspace shows:

- **Dataset:** FreshMarket_Dashboard_v1
- **Report:** FreshMarket_Dashboard_v1

Step 3: Separate Dataset and Report (Best Practice)

What to do:

Currently, the dataset and report are linked. Best practice: **separate them** so multiple reports can use the same dataset.

1. In workspace, find the **report**
2. Right-click report → **Save a copy**
3. New name: `FreshMarket Executive Dashboard`
4. This creates an independent report
5. Rename original dataset:
    - Click dataset (three dots) → **Settings**
    - Rename: `FreshMarket Sales Model`

Now you have:

- **Dataset:** FreshMarket Sales Model (reusable)
- **Report:** FreshMarket Executive Dashboard (uses dataset)

Why it matters:
Separating dataset and report:

- Allows multiple reports to share one dataset (no duplication)
- Simplifies refresh (only dataset refreshes, not report)
- Enables dataset certification and promotion

How to validate:

Workspace shows two items:

- Dataset icon: FreshMarket Sales Model
- Report icon: FreshMarket Executive Dashboard

---

11. SCHEDULED REFRESH CONFIGURATION

Prerequisites

On-Premises Gateway Required:

Since our data sources include:

- SQL Server (local or on-premises)
- CSV files (local file paths)
- Excel files (local file paths)

We need an **on-premises data gateway** to refresh data from Power BI Service.

Alternative: If all sources are cloud-based (Azure SQL, SharePoint Online, OneDrive), no gateway needed.

Step 1: Install On-Premises Data Gateway

What to do:

1. Download gateway: aka.ms/opdg
2. Install on a server/PC that:
    - Has access to SQL Server

- Has access to file paths
- Runs 24/7 (not your laptop)
- Has stable internet connection

3. Run installer:
    - Select **On-premises data gateway (standard mode)**
    - Sign in with Power BI account
    - Register gateway
    - Gateway name: `FreshMarket Gateway`
    - Recovery key: Save securely (needed to recover gateway)
4. Gateway installs and starts as Windows service

Why it matters:
Gateway acts as a bridge between Power BI Service (cloud) and on-premises data sources.

How to validate:

In Power BI Service:

1. Settings (gear icon) → **Manage gateways**
2. Gateway status: **Connected**

Step 2: Add Data Sources to Gateway

What to do:

1. In Power BI Service → Settings → **Manage gateways**
2. Select: FreshMarket Gateway
3. Click **Add data source**

Data Source 1: SQL Server

- Data source name: `FreshMarket SQL`
- Data source type: SQL Server
- Server: `localhost\SQLEXPRESS` (or your server name)
- Database: `SalesDW`
- Authentication: Windows or SQL Server

- Username/Password: Service account credentials
- Click **Add**

Data Source 2: File Path (for CSV)

- Data source name: `FreshMarket CSV Files`
- Data source type: File
- Path: `C:\PowerBI-Training\FreshMarket-ETL\data\csv\`
- Authentication: Windows
- Username/Password: Service account credentials
- Click **Add**

Repeat for Excel and SharePoint paths.

Why it matters:
Data sources define how the gateway authenticates and connects to your data.

How to validate:

Data sources listed under gateway, status: **Configured**.

Step 3: Configure Scheduled Refresh

What to do:

1. In workspace, find dataset: **FreshMarket Sales Model**
2. Click three dots → **Settings**
3. Expand **Gateway and cloud connections**
4. Select gateway: **FreshMarket Gateway**
5. Map data sources:
    - SQL Server connection → FreshMarket SQL
    - CSV files → FreshMarket CSV Files
    - Excel files → FreshMarket Excel Files
6. Expand **Scheduled refresh**
7. Toggle: **Keep your data up to date → On**
8. Refresh frequency: **Daily**

9. Time zones: **Australia/Sydney**
10. Add refresh times:
    - 6:00 AM (before executives arrive)
    - 12:00 PM (midday update)
    - 6:00 PM (end of day)
11. Email notifications: **Send refresh failure notifications to:** [your email]
12. Click **Apply**

Why it matters:
Scheduled refresh ensures data is current without manual intervention.

How to validate:

1. Click **Refresh now** (manual trigger)
2. Wait 2-5 minutes
3. Refresh history shows: **Completed** (green checkmark)

If failed:

- Check gateway connection
- Check data source credentials
- Review error message

---

12. ROW-LEVEL SECURITY (RLS)

Use Case

Requirement: State managers should only see their state's data.

Example:

- **NSW Manager:** Sees only NSW stores and transactions
- **VIC Manager:** Sees only VIC stores and transactions
- **Executives:** See all states

Step 1: Create RLS Roles in Power BI Desktop

What to do:

1. In Power BI Desktop, click **Modeling** ribbon → **Manage roles**
2. Click **Create**
3. Role name: `NSW Manager`
4. Add filter:
   - Table: DimStore
   - Column: State
   - DAX filter: `[State] = "NSW"`
5. Click **Save**
6. Repeat for other states:
   - `VIC Manager`: `[State] = "VIC"`
   - `QLD Manager`: `[State] = "QLD"`
7. Create role: `All States` (no filter) for executives

Why it matters:
RLS ensures users only see data they're authorized to view. Critical for data governance.

How to validate:

Test in Power BI Desktop:

1. Modeling ribbon → **View as roles**
2. Select: **NSW Manager**
3. Check table shows only NSW data

Step 2: Assign Users to Roles (Power BI Service)

What to do:

1. In Power BI Service, go to workspace
2. Find dataset: **FreshMarket Sales Model**
3. Click three dots → **Security**

4. Select role: **NSW Manager**
5. In **Members** section, add users:
    - Type: email address (e.g., john.smith@freshmarket.com.au)
    - Click **Add**
6. Repeat for all roles

Why it matters:
Role membership ties Azure AD users to RLS roles. Users automatically see filtered data when opening reports.

How to validate:

As an admin:

1. Modeling ribbon → View as role → NSW Manager
2. Confirm only NSW data visible

As a user:

- NSW Manager user opens report → Sees only NSW data (no manual filtering needed)

---

13. MOBILE LAYOUT

Why Mobile Layout Matters

Executives view dashboards on phones during:

- Commute to office
- Client meetings
- Travel between stores
- Board meetings (quick checks)

Mobile layouts must show **key KPIs only** (not all visuals).

Step 1: Create Mobile Layout

What to do:

1. In Power BI Desktop, select page: **Executive Summary**
2. View ribbon → **Mobile layout**

The canvas switches to phone dimensions (portrait mode).

3. From the **Visualizations** pane on right, drag visuals to mobile canvas:
    - Total Revenue card (top)
    - Gross Margin % card
    - Budget Achievement % card
    - YoY Growth % card
    - Revenue trend line (compressed)
4. Do NOT add:
    - State map (too small on phone)
    - Top 5 Products (hard to read on phone)
    - Channel donut (cluttered)
5. Resize visuals to fit phone width
6. Stack vertically (scroll down to see more)

Why it matters:
Mobile layouts optimize for small screens. Different layout than desktop (fewer visuals, larger text).

How to validate:

In Power BI Service:

1. Open report on phone (Power BI mobile app)
2. Verify mobile layout displays correctly
3. Swipe down to scroll through KPIs

---

14. FINAL TESTING & VALIDATION

Pre-Deployment Checklist

Visual Validation:

- [ ] All KPI values are accurate (compare to source data)
- [ ] Conditional formatting works (green/red colors correct)
- [ ] Tooltips display on hover
- [ ] Drill-through navigates to detail page
- [ ] Bookmarks load correct views
- [ ] Slicers filter all relevant visuals
- [ ] Reset Filters button clears all selections
- [ ] Cross-filtering behaves as expected (no unexpected interactions)

Performance Validation:

- [ ] Page load time <3 seconds (Performance Analyzer)
- [ ] Each visual renders in <500ms
- [ ] Total visuals per page ≤8
- [ ] Report file size <50 MB

Accessibility Validation:

- [ ] Color contrast ≥4.5:1 for text
- [ ] Alt text on all visuals
- [ ] Keyboard navigation works (Tab, Enter, Spacebar)
- [ ] No reliance on color alone for meaning

Mobile Validation:

- [ ] Mobile layout created for key pages
- [ ] KPIs readable on phone (font size ≥14pt)
- [ ] No horizontal scrolling required

Security Validation:

- [ ] RLS roles created and tested
- [ ] Users assigned to correct roles
- [ ] Test as NSW Manager → Only sees NSW data

Refresh Validation:

- [ ] Gateway connected
- [ ] Data sources configured
- [ ] Scheduled refresh succeeds (Refresh now → Completed)
- [ ] Failure notifications configured

User Acceptance Testing (UAT)

What to do:

1. Invite 2-3 executives to test dashboard
2. Provide scenarios:
    - "Show me NSW revenue for Q3 FY2024"
    - "Which products are under budget?"
    - "Drill into Store 15's performance"
3. Observe:
    - Do they find the answer quickly?
    - Do they get confused by any interactions?
    - Do they ask questions that the dashboard doesn't answer?
4. Gather feedback:
    - What works well?
    - What's missing?
    - What's confusing?
5. Iterate based on feedback

Why it matters:
Dashboards are for users, not developers. If executives can't use it, it fails regardless of technical quality.

How to validate:

UAT feedback: "Easy to use", "Found answers in <30 seconds", "Exactly what we needed"

---

15. PORTFOLIO DOCUMENTATION

GitHub Repository Structure

```
FreshMarket-PowerBI-Dashboard/
├── README.md
├── screenshots/
│   ├── executive-summary.png
│   ├── operational-details.png
│   ├── drill-through-store-details.png
│   └── mobile-layout.png
├── documentation/
│   ├── user-guide.md
│   ├── technical-design.md
│   └── dax-measures.txt
├── FreshMarket_Dashboard_v1.pbix
└── data/ (sample data for demo)
    └── data_profile_report.csv
```

README.md Template

markdown

FreshMarket Australia - Power BI Executive Dashboard

Project Overview

Built a production-ready, two-page Power BI dashboard for FreshMarket Australia (50-store grocery chain) enabling executiv

Industry: Australian Grocery Retail
Tools: Power BI Desktop, Power BI Service, DAX, On-Premises Gateway
Dataset: 50,000+ transactions, 50 stores, 2,000 products, 20,000 customers

Business Problem

FreshMarket executives lacked real-time visibility into:
- Revenue performance vs budget
- State-level comparisons (NSW, VIC, QLD)
- Product portfolio optimization
- Store underperformance identification

Manual Excel reporting took 8 hours weekly and was often outdated.

Solution

Page 1: Executive Summary
- 4 KPI cards: Revenue ($45M YTD), Margin (29%), Budget Achievement (102%), YoY Growth (8.6%)
- Revenue trend line (current vs prior year)
- Australia state map (geographic performance)
- Top 5 products bar chart
- Channel performance donut chart

![Executive Summary](screenshots/executive-summary.png)

Page 2: Operational Details
- Product performance table (top 20, sortable, exportable)
- Budget variance by category (conditional formatting)
- Store performance matrix (drill-through enabled)
- Interactive slicers (date range, state, category)
- Drill-through to store details page

![Operational Details](screenshots/operational-details.png)

Key Features:
- ✅ Australian FY time intelligence (July 1 - June 30)
- ✅ 20+ DAX measures (YTD, YoY, QoQ, budget variance, rankings)

- ✅ Row-level security (state managers see only their state)
- ✅ Scheduled refresh (3x daily via on-premises gateway)
- ✅ Mobile-responsive layout
- ✅ Accessible design (WCAG 2.1 AA compliant)

Technical Implementation

Data Model:
- Star schema: 1 fact table (FactSales) + 5 dimensions
- Relationships: All 1:*, single direction
- Model size: 42 MB
- Query performance: <1 second average

DAX Highlights:

Year-to-Date Revenue (Australian FY):
```DAX
YTD Revenue =
TOTALYTD(
    [Total Revenue],
    DimDate[Date],
    "6/30"  -- Australian fiscal year ends June 30
)
```

Year-over-Year Growth %:
```DAX
YoY Revenue % =
DIVIDE(
    [Total Revenue] - [Prior Year Revenue],
    [Prior Year Revenue],
    BLANK()
)
```

Product Ranking:
```DAX
Product Rank =
IF(
    ISINSCOPE(DimProduct[ProductName]),
    RANKX(ALL(DimProduct[ProductName]), [Total Revenue], , DESC, DENSE),
    BLANK()
)
```

Performance Optimization:
- Page load time: 2.1 seconds (target: <3s)
- Visual count: 7 per page (target: ≤8)
- DAX query time: <100ms per query

Deployment:
- Published to Power BI Service (workspace: FreshMarket Analytics)
- Scheduled refresh: 6 AM, 12 PM, 6 PM AEST
- Row-level security: 8 roles (state managers + executives)
- Mobile layout optimized for iOS/Android

Results

Metric	Before	After	Improvement
Reporting time	8 hours/week	5 minutes/day	97% reduction
Data freshness	48 hours old	Real-time (refreshed 3x daily)	Same-day insights
Executive adoption	20% (Excel ignored)	95% (viewed daily)	4.75x increase
Time to insight	30 minutes (manual digging)	30 seconds (dashboard glance)	60x faster

Business Impact:
- Identified 3 underperforming stores → Implemented corrective action → 12% margin improvement
- Discovered top 5 products contribute 38% of revenue → Increased inventory → 6% revenue lift
- NSW overperforming budget by 8% → Allocated additional marketing spend → Maintained momentum

Skills Demonstrated

Business Intelligence:
- Dashboard design (executive vs operational views)
- Visual selection and layout (card, line, map, bar, donut, table, matrix)
- Interactivity (slicers, drill-through, bookmarks, tooltips)

Data Modeling:
- Star schema design
- Relationship configuration (1:*, single direction)
- Australian FY date table

DAX:
- Time intelligence (YTD, YoY, QoQ, rolling averages)
- Budget variance analysis
- Advanced analytics (RANKX, TOPN, ISINSCOPE)

Power BI Service:

- Workspace organization
- Scheduled refresh (on-premises gateway)
- Row-level security (role-based access)
- Mobile layout design

UI/UX:
- Corporate branding (color, typography, layout)
- Accessibility (WCAG 2.1 AA compliance)
- Performance optimization (<3s page load)

Files in Repository

- `FreshMarket_Dashboard_v1.pbix` - Power BI Desktop file
- `screenshots/` - Dashboard screenshots (executive summary, operational details, mobile)
- `documentation/user-guide.md` - End-user documentation
- `documentation/technical-design.md` - Technical architecture and DAX formulas
- `data/data_profile_report.csv` - Sample data profile

Live Demo: [Power BI Service Link] (if published publicly)
LinkedIn: [Your Profile]
Portfolio: [Your Website]

Screenshots for Portfolio

Required screenshots:

1. **Executive Summary** - Full page showing all KPIs, trend, map, products
2. **Operational Details** - Full page showing tables, slicers, matrix
3. **Store Details Drill-Through** - Example store detail page
4. **Mobile Layout** - Phone screenshot showing mobile-optimized view
5. **Performance Analyzer** - Showing <3 second page load time
6. **Row-Level Security** - View as role showing filtered data
7. **Scheduled Refresh** - Refresh history showing successful runs

How to capture:

1. Open dashboard in Power BI Desktop or Service

2. Zoom to 100%
3. Windows: Win+Shift+S (screenshot tool)
4. Mac: Cmd+Shift+4
5. Crop to show only relevant area
6. Save as PNG (high quality)

---

16. INTERVIEW PREPARATION

Elevator Pitch (30 seconds)

> "I built a two-page Power BI dashboard for FreshMarket, a 50-store Australian grocery chain. The executive summary page shows KPIs—revenue, margin, budget achievement, and YoY growth—along with a revenue trend line, state map, and top products. The operational details page provides drill-through analysis with product and store performance tables, budget variance, and interactive filtering. I implemented Australian financial year logic, row-level security for state managers, scheduled refresh three times daily, and optimized performance to under 3 seconds page load. The dashboard reduced reporting time from 8 hours weekly to 5 minutes daily and is now used by 95% of executives."

Technical Deep Dive (2 minutes)

> "For FreshMarket's dashboard, I designed two pages optimized for different audiences.
> **Executive Summary** targets the CEO and CFO who need a 30-second snapshot each morning. I placed four large KPI cards at the top showing total revenue, gross margin percentage, budget achievement, and year-over-year growth. These use conditional formatting—green when over budget, red when under—so executives instantly see performance status. Below that, a revenue trend line compares current year to prior year over 12 months, making YoY trends immediately visible. The Australia state map shows revenue by geographic location with bubble size proportional to performance. This helps identify regional strengths and weaknesses at a glance. I also included top 5 products and channel performance breakdown.
> **Operational Details** serves analysts and managers who need to drill into data. I built a product performance table showing the top 20 products with revenue, margin, and ranking. Users can sort by any column and export to Excel for further analysis. A budget variance table shows actual versus planned performance by category with conditional formatting to highlight over/under budget categories. The store performance matrix groups stores by state with drill-through enabled—right-click any store and navigate to a detailed store page showing that store's trends, top products, and customer mix.
> **Interactivity** was critical. I configured cross-filtering so the state map filters products and channels, but KPI cards always show totals—executives shouldn't see filtered totals when exploring one state. I created

> bookmarks for common views like 'Show All,' 'NSW Only,' and 'Over Budget Only' with one-click buttons. Custom tooltips show additional detail on hover without cluttering the main visual.
> **Performance optimization** was essential. I limited each page to 7-8 visuals, used Performance Analyzer to identify slow visuals, and ensured page load time stays under 3 seconds. The state map was initially slow at 2.1 seconds—I replaced the bubble map with a filled map which reduced render time to 400 milliseconds.
> For deployment, I published to Power BI Service with an on-premises gateway for scheduled refresh. The gateway connects to our SQL Server and file paths, refreshing data at 6 AM, noon, and 6 PM AEST. I implemented row-level security with eight roles—one for each state manager plus an 'All States' role for executives. NSW managers see only NSW data, VIC managers only VIC, and so on. I also designed a mobile layout showing just the four KPIs and compressed trend line, optimized for executives checking performance on phones during meetings.
> The result: reporting time dropped from 8 hours per week to 5 minutes per day, data freshness went from 48 hours old to real-time, and executive adoption increased from 20% to 95%. The dashboard directly contributed to business decisions that improved store margins by 12% and increased revenue by 6%."

Common Interview Questions

Q1: "How do you decide what visuals to include on an executive dashboard?"

Answer:

> "I start by understanding stakeholder requirements through interviews. For FreshMarket, I asked the CFO: 'What's the first thing you need to see each morning?' The answer was budget performance—so I put budget achievement as the third KPI card. I asked the Head of Operations: 'What action do you take after reviewing data?' She said 'I identify underperforming stores for intervention,' so I created the store performance matrix with bottom-ranked stores highlighted in red.
> I follow the principle of progressive disclosure: start with high-level KPIs, then provide drill-down for details. The executive summary has just seven visuals because research shows users can only process 5-9 pieces of information at a glance. Every visual must answer a specific business question. If I can't articulate why a visual is there, I remove it.
> I also consider the '30-second rule': Can an executive get value from this page in 30 seconds? For FreshMarket's executive summary, yes—four KPIs tell the story, the trend line shows direction, the map shows where. If they need more, they navigate to operational details."

Q2: "How did you optimize dashboard performance?"

Answer:

> "Performance optimization started with measurement. I used Power BI's Performance Analyzer to identify bottlenecks. The initial state map visual took 2.1 seconds to render because bubble maps are computationally expensive. I replaced it with a filled map, reducing render time to 400 milliseconds.
> I also limited visuals per page to eight—research and Microsoft's best practices show that 10+ visuals causes cognitive overload and slow rendering. Each additional visual increases the DAX query load.

> For the product table, instead of showing all 2,000 products, I applied a Top 20 filter. Users can scroll if needed, but the initial render is fast because Power BI only queries 20 rows.
> In the data model, I used measures instead of calculated columns wherever possible. Calculated columns store values for every row—50,000 values for 50,000 transactions. Measures compute on-the-fly from aggregated data, which is much faster.
> I also disabled auto-date/time tables in Power BI settings. These duplicate your custom date table and bloat the model. After disabling them, model size dropped from 48 MB to 42 MB.
> The result: page load time is 2.1 seconds, well below the 3-second target. Every visual renders in under 500 milliseconds. Users described the dashboard as 'fast and responsive.'"

Q3: "Explain how you implemented row-level security."

Answer:

> "Row-level security ensures users only see data they're authorized to view. For FreshMarket, state managers should only see their own state's data—NSW managers shouldn't see VIC stores.
> I created roles in Power BI Desktop using DAX filters. For the NSW Manager role, I added a filter on the DimStore table: `[State] = 'NSW'`. This filter propagates through relationships—when an NSW Manager views the dashboard, the State filter applies to DimStore, which filters FactSales through the relationship, which filters all visuals. They see only NSW products, NSW revenue, NSW stores.
> I created eight roles: one for each state (NSW, VIC, QLD, WA, SA, TAS, NT, ACT) plus an 'All States' role for executives with no filter.
> After publishing to Power BI Service, I assigned users to roles in the dataset security settings. I added john.smith@freshmarket.com.au to the NSW Manager role, jane.doe@freshmarket.com.au to the VIC Manager role, and the CFO to the All States role.
> Testing was critical. I used Power BI Desktop's 'View as role' feature to simulate being an NSW Manager—the dashboard showed only NSW data. I also had actual state managers test to confirm they couldn't see other states' data.
> RLS is essential for data governance. It prevents accidental data leakage and ensures compliance with privacy requirements."

Q4: "How did you handle Australian financial year in time intelligence?"

Answer:

> "Australian businesses operate on a July 1 to June 30 fiscal year, which is different from the calendar year. This affects every time intelligence calculation—year-to-date, quarter-to-date, year-over-year growth.
> I created a custom date table in DAX with an FY column calculated as: if month is July or later, FY equals current year plus one, otherwise FY equals current year. So July 1, 2024 starts FY2025, and June 30, 2024 ends FY2024.
> For YTD Revenue, I used the TOTALYTD function with a third parameter: '6/30'. This tells Power BI that the fiscal year ends on June 30, not the default December 31. Without this parameter, YTD would accumulate from January 1—incorrect for Australian businesses.

> I also created an IsEOFY flag (End of Financial Year) that equals 1 only on June 30 dates. This enables special EOFY reporting.
> For quarters, I mapped them to the financial year: Q1 is July-September, Q2 is October-December, Q3 is January-March, Q4 is April-June. Notice Q1 starts in July, not January.
> I validated the logic by filtering to December 2023 and manually summing July through December revenue in Excel. This matched Power BI's YTD Revenue measure exactly. I also checked that YTD resets on July 1—in June 2024 it shows $45M (full year), in July 2024 it resets to $3.8M (one month). That reset confirms the fiscal year logic is correct.
> Getting this right is critical because CFOs track performance against fiscal year budgets, not calendar year."

Q5: "What accessibility features did you implement?"

Answer:

> "Accessibility ensures the dashboard works for users with visual, motor, or cognitive impairments. I followed WCAG 2.1 Level AA standards.
> First, color contrast. I used a contrast checker to verify that all text meets a 4.5:1 ratio against backgrounds. For example, my dark gray text (#2C3E50) on white background has a 6.8:1 ratio—well above the 4.5:1 minimum. I avoided light gray text because it often fails contrast tests.
> Second, I didn't rely on color alone to convey meaning. For budget achievement, I used both color and icons: green checkmark for over budget, orange warning for close to budget, red X for under budget. Color-blind users can understand the status from the icons.
> Third, I added alt text to every visual. For example, the revenue trend line's alt text reads: 'Line chart comparing current year revenue to prior year revenue over 12 months, showing 8.6% year-over-year growth.' Screen readers announce this text to visually impaired users.
> Fourth, keyboard navigation. Users can tab through visuals, use arrow keys to scroll tables, and press Enter to activate drill-through. I tested the entire dashboard with my mouse disconnected to ensure keyboard-only navigation works.
> Fifth, I designed a mobile layout with larger touch targets—at least 44x44 pixels for buttons and slicers. Small touch targets frustrate mobile users.
> Accessibility isn't optional—many government and enterprise clients require WCAG compliance. It also improves usability for everyone: larger text, higher contrast, and clear labels benefit all users, not just those with disabilities."

Q6: "Describe your process for user acceptance testing."

Answer:

> "User acceptance testing validates that the dashboard meets business needs. I don't just hand over the dashboard and hope it works—I involve users throughout.
> For FreshMarket, I invited three executives: the CFO, Head of Operations, and CMO. I gave them specific scenarios to complete:
>
> 1. 'Show me NSW revenue for Q3 FY2024'

2. 'Which products are under budget?'
3. 'Drill into Store 15's performance'

I observed them using the dashboard without assistance. This revealed usability issues I hadn't anticipated. For example, the CFO tried to click the revenue trend line to drill through, but there was no drill-through configured. He expected it based on experience with other dashboards. I added drill-through from the trend line to a monthly revenue details page.
I asked open-ended questions: 'What works well?' The Head of Operations loved the store performance matrix because she could quickly identify the bottom 10 stores. 'What's missing?' The CMO wanted to see online vs in-store revenue trends over time, not just current totals—I added a stacked area chart to the operational details page. 'What's confusing?' The CFO was confused why clicking a state on the map filtered the KPI cards—he expected KPIs to always show totals. I reconfigured cross-filtering so KPIs are isolated.
After incorporating feedback, I repeated UAT with a broader group—five users including frontline managers. This caught edge cases like date slicers not respecting Australian date format (DD/MM/YYYY vs MM/DD/YYYY).
The final validation: I measured time to insight. Before UAT, users took 2-3 minutes to answer business questions. After iteration, they answered in under 30 seconds—a 4-6x improvement.
UAT is essential because the dashboard is for users, not for me. If they can't use it, it doesn't matter how technically impressive it is."

CONCLUSION

You have successfully completed **Video 3: End-to-End Dashboard Design**!

What You Built

✅ **Two-page executive dashboard** (Executive Summary + Operational Details)
✅ **7-8 visuals per page** (KPIs, trends, maps, tables, charts)
✅ **Professional UI/UX** (corporate colors, consistent layout, accessibility)
✅ **Interactive features** (slicers, drill-through, bookmarks, tooltips)
✅ **Optimized performance** (2.1 seconds page load)
✅ **Published to Power BI Service** (scheduled refresh, RLS, mobile layout)

Final Checklist

Design:

- ✅ KPI cards show key metrics (revenue, margin, budget, growth)
- ✅ Visuals aligned to grid with consistent spacing

- ✅ Corporate brand colors applied (Fresh Green, Corporate Blue)
- ✅ Conditional formatting highlights status (green/red)

Interactivity:

- ✅ Cross-filtering configured (KPIs isolated from filters)
- ✅ Drill-through to store details page
- ✅ Bookmarks for quick views
- ✅ Reset Filters button

Performance:

- ✅ Page load time <3 seconds
- ✅ Visual count ≤8 per page
- ✅ Performance Analyzer shows no bottlenecks

Accessibility:

- ✅ Color contrast ≥4.5:1
- ✅ Alt text on all visuals
- ✅ Keyboard navigation works

Deployment:

- ✅ Published to workspace
- ✅ Scheduled refresh configured (3x daily)
- ✅ Row-level security implemented
- ✅ Mobile layout created

Business Impact

Metric	Before	After
Reporting time	8 hours/week	5 minutes/day
Data freshness	48 hours old	Real-time (3x daily refresh)
Executive adoption	20%	95%

Metric	Before	After
Time to insight	30 minutes	30 seconds

Outcomes:

- ✅ Identified 3 underperforming stores → 12% margin improvement
- ✅ Optimized top 5 product inventory → 6% revenue lift
- ✅ Reallocated marketing spend to NSW → Maintained 8% over-budget momentum

Portfolio Assets Created

1. ✅ **Power BI Dashboard** (FreshMarket_Dashboard_v1.pbix)
2. ✅ **Screenshots** (7 images for portfolio)
3. ✅ **GitHub README** (project overview with technical details)
4. ✅ **User Guide** (end-user documentation)
5. ✅ **Technical Design Doc** (architecture and DAX formulas)

Next Steps

For Your Career:

- Add dashboard to portfolio website
- Upload screenshots to LinkedIn
- Update resume: "Built Power BI dashboards reducing reporting time by 97%"
- Practice interview answers using the 2-minute technical deep dive

For Continuous Learning:

- Explore advanced visuals (Python/R visuals, custom visuals)
- Learn Power BI Embedded (embedding dashboards in web apps)
- Study Power BI Premium features (deployment pipelines, dataflows)
- Practice with new datasets (build 2-3 more dashboards for portfolio)

For FreshMarket (Hypothetical Next Phases):

- Add predictive analytics (forecast future revenue)

- Integrate marketing campaign data (correlate spend to revenue)
- Build inventory optimization dashboard (stock levels vs demand)
- Create customer segmentation dashboard (RFM analysis)

Congratulations! You've completed the FreshMarket Power BI training series. You now have production-ready skills in:

- ✅ ETL Pipeline Design (Video 1)
- ✅ Data Modeling & DAX (Video 2)
- ✅ Dashboard Design & Deployment (Video 3)

These skills position you for **Business Intelligence Analyst, Data Analyst, and Analytics Engineer** roles in Australian enterprises.

End of Video 3 Playbook