



Figure 1: AI-Assisted Power BI for Business Analytics

Lab 3: AI-Powered Root Cause Analysis

Module 3: Discovering Insights with AI Visuals

Duration: 35 minutes **Dataset:** SupportInsights (Microsoft Customer Support Analytics) **Deliverable:** Executive summary (1 page)

Learning Objectives

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

- Use Key Influencers visual to identify drivers of outcomes
- Apply Anomaly Detection to spot unexpected patterns
- Generate Smart Narratives for automated summaries
- Translate AI-discovered insights into business recommendations

Before You Begin

Required Reading

1. **SupportInsights BRD** - View BRD
 - Understand the business context: VP of Customer Support Operations
 - Note the key questions about CSAT drivers and case patterns
2. **SupportInsights Data Dictionary** - View Data Dictionary
 - Understand the star schema structure
 - Note key measures: CSAT Score, Resolution Time Hours, First Contact Resolution

Business Context

“Customer satisfaction scores dropped 8% last quarter. Leadership needs to understand what’s driving low CSAT so they can take action. You have 150,000 support cases to analyze.”

Hidden Reality: These 150K cases represent only customers who contacted support. Research shows only 4% of dissatisfied customers actually complain — the other 96% silently defect to competitors without ever telling you why.

```
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```

block-beta

```
  columns 3
  space:3
  block:visible:3
    A[" 4% WHO COMPLAIN"]
  end
  space:3
  block:hidden:3
    B[" 96% WHO STAY SILENT"]
    C[" Silent Defection"]
    D[" Lost Forever"]
```

end

```
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style B fill:#f8f9fa,stroke:#d0d7de,color:#4a5568
style C fill:#f8f9fa,stroke:#d0d7de,color:#4a5568
style D fill:#f8f9fa,stroke:#d0d7de,color:#4a5568
```

The VoC Iceberg: 150K complaints likely represent 3.75M dissatisfied customers.

Traditional analysis would take weeks. With AI visuals, you'll find answers in minutes.

AI Root Cause Workflow

```
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    subgraph Input["Data"]
        A[ 150K Cases/]
    end

    subgraph AI["AI Visuals"]
        B[ Key Influencers/]
        C[ Anomaly Detection/]
        D[ Smart Narratives/]
    end

    subgraph Output["Insights"]
        E[ Root Causes/]
        F[ Recommendations/]
    end

    A --> B & C & D
    B --> E
    C --> E
    D --> F
    E --> F

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    style AI fill:#f0f7ff,stroke:#c7d8ed
    style Output fill:#edf6ee,stroke:#c2dbc8
```

Lab Instructions

Part 1: Set Up Your Analysis Report (5 minutes)

- 1. Access the SupportInsights Report**
 - Navigate to app.powerbi.com
 - Open the course workspace
 - Find and open **SupportInsights - Analysis Template**
 - This report has the data model connected; you'll add AI visuals
- 2. Create a New Page for AI Analysis**
 - Click the + to add a new page
 - Rename it: **AI Root Cause Analysis**
- 3. Review the Data Available**
 - In the Data pane, expand each table

- Note the fields you'll use:
 - **Fact_Support_Cases:** CSAT Score, Resolution Time Hours, Reopen Count
 - **Dim_Channels:** Channel Name
 - **Dim_Products:** Product Name, Product Family
 - **Dim_Agents:** Skill Level

Part 2: Key Influencers - What Drives CSAT? (12 minutes)

The Key Influencers visual uses AI to identify what factors most impact an outcome.

Step 1: Add the Visual

1. From the **Visualizations pane**, select **Key Influencers** (icon looks like a key with sparkles)
2. Resize it to take up most of the page

Step 2: Configure the Analysis

1. **Analyze:** Drag **CSAT Score** to the “Analyze” well
2. **Explain by:** Drag these fields to “Explain by”:
 - **Channel Name** (from **Dim_Channels**)
 - **Support Plan** (from **Dim_Customers**)
 - **Skill Level** (from **Dim_Agents**)
 - **Product Family** (from **Dim_Products**)
 - **Resolution Time Hours** (from **Fact_Support_Cases**)
 - **Reopen Count** (from **Fact_Support_Cases**)
3. **Set the analysis type:**
 - Click the dropdown next to “What influences CSAT Score”
 - Select “**Decrease**” (we want to know what causes LOW CSAT)

Step 3: Interpret the Results The visual will show influencers ranked by impact. Answer these questions:

1. **What is the #1 factor that decreases CSAT?**
 - Factor: _____
 - By how much? _____
2. **What are the top 3 influencers?**
 - #1: _____
 - #2: _____
 - #3: _____
3. **Click on “Top Segments”**
 - What customer segment has the worst CSAT?
 - How many cases are in this segment?

Screenshot #1: Capture your Key Influencers visual showing top factors

Part 3: Anomaly Detection - Find Unusual Patterns (8 minutes)

Anomaly Detection automatically identifies data points that deviate from expected patterns.

Step 1: Create a New Page

1. Add another page
2. Name it: **Anomaly Detection**

Step 2: Add a Line Chart

1. Add a **Line Chart** visualization
2. Configure it:
 - **X-axis:** Case_Created_Date (by Month)
 - **Y-axis:** Case_ID (Count)
3. This shows case volume over time

Step 3: Enable Anomaly Detection

1. With the line chart selected, go to the **Analytics pane** (magnifying glass icon)
2. Expand **Find anomalies**
3. Toggle it **On**
4. Set sensitivity to **75%** (medium-high)

Step 4: Investigate Anomalies

1. Look for dots/markers on the line indicating anomalies
2. Click on an anomaly point
3. Review the explanation panel that appears

Answer these questions:

1. **How many anomalies were detected?** _____
 2. **What month had the biggest spike?** _____
 3. **What explanation does the AI suggest?** _____
-

Screenshot #2: Capture an anomaly with its explanation

Part 4: Smart Narratives - AI-Generated Summary (5 minutes)

Smart Narratives automatically write text summaries of your data.

Step 1: Return to Your AI Analysis Page

1. Go back to the AI Root Cause Analysis page
2. Make space for a new visual

Step 2: Add Smart Narrative

1. From Visualizations, select **Smart Narrative** (icon looks like text/paragraph)
2. Place it on the page
3. The AI will automatically generate a summary

Step 3: Customize (Optional)

1. Click on the Smart Narrative
2. Try editing to add specific insights
3. You can type to add your own commentary alongside AI text

Record the key points from the Smart Narrative:

- _____
- _____
- _____

Part 5: Synthesize Findings (5 minutes)

Now connect the dots from all three AI visuals:

AI Visual	Key Finding	Business Implication
Key Influencers		
Anomaly Detection		
Smart Narrative		

The Story: Based on AI analysis, what is causing low CSAT and what should the VP do about it?

Lab Deliverable

Submit: A 1-page executive summary for the VP of Customer Support Operations

Executive Summary Template

Use the Executive Summary Template or follow this structure:

- 1. Executive Overview** (2-3 sentences) - What was analyzed and why - The headline finding
- 2. Key Findings** (bullet points) - Finding 1: [From Key Influencers] - Finding 2: [From Anomaly Detection] - Finding 3: [Additional insight]
- 3. Recommendations** (numbered list) - Recommendation 1: [Action to take] - Recommendation 2: [Action to take] - Recommendation 3: [Action to take]
- 4. Supporting Evidence** - Include 1-2 screenshots from your AI visuals - Reference specific numbers/percentages

Example Opening

“Analysis of 150,000 customer support cases using AI-powered visuals reveals that resolution time exceeding 24 hours is the primary driver of customer dissatisfaction, reducing CSAT scores by an average of 23 points. Anomaly detection identified unusual case volume spikes during product release weeks, which correlate with the lowest satisfaction scores.”

Submission Format

- **File Name:** Lab3_ExecSummary_[YourName].docx or .pdf
- **Length:** 1 page maximum
- **Include:** At least 1 screenshot of AI visual findings
- **Submit via:** Canvas → Assignments → Lab 3

Completion Checklist

Before submitting, confirm you have:

- Created Key Influencers visual analyzing CSAT
- Identified top 3 factors influencing low CSAT
- Added Anomaly Detection to case volume
- Found and investigated at least one anomaly
- Generated Smart Narrative summary
- Written 1-page executive summary with recommendations
- Included screenshots of AI visual findings
- Submitted via Canvas

Key Takeaways

1. **Key Influencers** reveals “**what**”: It identifies which factors most impact your outcome
2. **Anomaly Detection** reveals “**when**”: It spots unusual patterns you might miss
3. **Smart Narratives** explain “**so what**”: They translate data into readable summaries
4. **AI accelerates, humans decide**: AI finds patterns; you determine what to do about them
5. **Validate with domain expertise**: Always sanity-check AI findings against business knowledge

AI Visual Quick Reference

Key Influencers

Use When	Configuration Tips
You want to know WHY something happens	Put the outcome in “Analyze”
Analyzing categorical or numeric outcomes	Add multiple potential factors to “Explain by”
Looking for customer segments	Check “Top Segments” tab

Anomaly Detection

Use When	Configuration Tips
Analyzing time series data	Only works with line charts
Looking for unexpected spikes/drops	Adjust sensitivity (higher = more anomalies)
Investigating incidents	Click anomalies for AI explanation

Smart Narratives

Use When	Configuration Tips
Need executive-friendly summary	Works best with complete reports
Automating report commentary	Can customize and edit text
Making reports accessible	Great for non-technical audiences

Preparation for Next Lab

- Complete Prompting Journal entry #3
- Review: Your CloudRevenue report from Lab 2
- Think about: How could better column names have helped Copilot?

“AI finds the needle in the haystack. Your job is to decide what to do with it.”