Gain a Quick Insight to Audit Reports

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Agenda

• Introduction

• Expected Takeaways

• Audit Report with Data Visualization

• Example of Use Case

• Summary
Introduction
The Motivation

• Quick Insights
• Story Telling
• Efficiency

Question:
What can you tell from this picture?
Expected Takeaways
The Application

• Use effective data visualization in appropriate context of audit report

• Draw summary and details insights from the visualization

• Explore technologies for effective use of data visualizations.
Audit Report

With

Data Visualization
Data Visualization with Descriptive and Inferential Statistics

Audit Report

- Background
- Result
- Major Findings
- Corrective Actions
Audit Reports

• Background
  – Location
  – Audited Organization
  – Auditing Organization
  – Prior Audit History
  – Objective and Scope
  – Audit Criteria
  – …..

• Data Visualization
  – Geo Chart
  – Organization Chart

XYZ AUDIT

Lead Auditor: ____________

Team Member: ____________
Audit Reports

• Audit Result
  – Executive Summary

• Data Visualization
  – Pareto Analysis Chart
  – Slope Chart

Pareto Chart

Cumulative Counts

Service: Attire
Service: Café Cleaness
Service: Delivery Time
Service: Food Hygiene
Service: Food Quality
Service: Others

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Audit Reports

• Major Findings
  – Nature of Findings
  – Supporting Documentations

• Data Visualization
  – Bubble Chart
  – Scatter Plot
  – Pie or Donut Chart
  – Cluster Dendogram
Audit Reports

• Corrective Actions
  – Discrepant Condition
  – Root Cause
  – Action to Correct
  – Action to Prevent Recurrence

• Data Visualization
  – Box Plot
  – Histogram
Example of Use Case
Audit Reports

• Background
  – ‘Bread with Coffee’ Café (*) serves coffee, tea, and breads at 3 convenient locations nationwide.
  – The audit objective:
    • Evaluate the operational efficiency in all three café locations.

* Names and data set used in this use case are not actual.
Audit Reports

• Background
  – Audited organization chart
  – Key contact person.
Audit Reports

• Background
  – Auditing organization chart
  – Key contact person
Audit Reports

• Audit Result
  – Executive Summary

• Data Visualization
  – Pareto Analysis Chart
  – Slope Chart
Audit Reports

• Audit Result
  – Executive Summary: Audit was performed on 3 cafe locations and 6 major non-conformances were observed:
    • Service: Attire
    • Service: Café Cleanness
    • Service: Delivery
    • Service: Food Hygiene
    • Service: Food Quality
    • Service: Others
Audit Summary

Bar Chart

Non-Conformance Findings

- Service: Attire
- Service: Café Cleanliness
- Service: Delivery Time
- Service: Food Hygiene
- Service: Food Quality
- Service: Others

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Audit Summary

Pareto Chart

Cumulative Counts

Service: Attire
Service: Café Cleanliness
Service: Delivery Time
Service: Food Hygiene
Service: Food Quality
Service: Others

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Audit History: Non-Conformances by Time

Slope Chart

Time 1 (2016)
- Service: Attire, 35
- Service: Café Cleannes, 20
- Service: Food Hygiene, 12
- Service: Delivery, 10
- Service: Food Quality, 8
- Service: Others, 5

Time 2 (2017)
- Service: Attire, 26
- Service: Café Cleannes, 15
- Service: Delivery, 12
- Service: Food Hygiene, 9
- Service: Food Quality, 6
- Service: Others, 3

Number of Non Conformances
Audit Reports

• Major Findings
  – Charts to show if there is any correlation among various operational attributes.

• Data Visualization
  – Bubble Chart
  – Scatter Plot
  – Pie or Donut Chart
  – Cluster Analysis Dendogram
Scatter Plot

Scatterplot with overlapping points
Total: Staff vs NonConformances

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Audit Reports

- A bubble chart to show
  - The number of staff in each shift time and the resulted output of service items.
Audit Reports

- Supporting Fact
  - The Texas and California cafes share the same cluster.
Audit Reports

• Supporting Fact
  – A pie chart to show Total Service Staff by Shift Time

![Pie Chart: Total Service Staff by Shift Hours]

- 8-10 AM 18.4%
- 10-12 PM 19.4%
- 12-14 PM 12.2%
- 14-16 PM 10.2%
- 16-18 PM 9.2%
- 6-8 AM 15.3%
- 20-22 PM 7.7%
Audit Reports

- Supporting Facts
  - A donut chart to show Total Service Staff by Shift Time
Audit Reports

- **Corrective Actions**
  - Discrepant Condition
  - Root Cause
  - Action to Correct:
    - Improve Customer Satisfaction
    - Improve Employee Satisfaction
  - Action to Prevent Recurrence
    - Establish control and procedures on preventing non-conformance issues.

- **Data Visualization**
  - Box Plot
  - Histogram
Audit Reports

• Supporting Fact
  – Customer Satisfaction Histogram Chart
Audit Reports

- Supporting Fact
  - Employee Satisfaction Histogram Chart
Audit Reports

• Supporting Fact

![Box plot of total visits per month survey of 16 customers.](image_url)
Audit Reports

• Supporting Fact: A Predicted Outcome Based on Trained Data

Customers are likely to come back if Survey Score > 5
Summary
Charts are used to assist in:

- Descriptive and inferential statistics:
  - The background information
  - The priority of findings
  - The relationship of attributes or variables
  - The trends
  - The supporting facts
  - The summary
  - The future or predicted outcome – *this is nice to have one!*

Try to ask this question: *What insights can I learn from the chart?*
Final Thoughts

• Draw summary and insightful information
  – Discover patterns, trends, relationship, correlation, preferences from the analysis

• Explore technologies to capture, store, analyze, search, share, transfer, and visualize data. Options are unlimited:
  – Open source framework
  – Software vendors
Comments? and Questions?