

# Facility Cleaning Management Dashboard Documentation

## Project Overview

This Power BI project consists of two interactive dashboards designed to monitor and manage facility cleaning operations. The dashboards provide insights at two levels: **Management View** (strategic/financial focus) and **Operations View** (tactical/day-to-day focus). Together, they enable data-driven decision-making for facility management.

## Dashboard 1: Management View

### Purpose

The Management View dashboard is designed for **senior management and executives** to monitor high-level financial metrics, cost efficiency, compliance rates, and resource utilization across the facility. It helps answer questions like:

- Are we staying within budget?
- Which building wings are most expensive to maintain?
- How are costs trending over time?

### KPI Cards (Top Row)

Visual	Metric	Purpose
Total Cleaning Cost by Date	534. 46	Displays the total cleaning expenditure for the selected date/period. Helps track overall spending.
Cost per SqM by Date	0. 07	Shows cleaning cost efficiency per square meter. Lower values indicate better cost efficiency.
Hygiene Compliance % by Date	0.67 (67%)	Indicates the percentage of areas meeting hygiene standards. Critical for quality assurance.
Budget Variance by Date	0.41	Shows deviation from planned budget. Helps identify over/under-spending.
Consumable Cost by Date	29.48K	Tracks spending on cleaning consumables (supplies). Useful for procurement planning.

**Note:** Each KPI card includes a sparkline showing the trend over time, enabling quick identification of patterns.

### Detailed Visuals

#### 1. Cost per SqM and Cost per SqM by Building\_Wing (Line Chart)

- Type:** Line Chart with two series
- X-Axis:** Building\_Wing (Admin Block, South Wing, Cafeteria, North Wing)
- Y-Axis:** Cost per Square Meter
- Purpose:** Compares cleaning cost efficiency across different building wings. Helps identify which areas are more expensive to clean and may need process optimization.

#### 2. Sum of Labour\_cost and Sum of Material\_cost by Building\_Wing (Bar Chart)

- Type:** Stacked/Clustered Horizontal Bar Chart
- Axis:** Building\_Wing
- Values:** Labour Cost (teal) and Material Cost (gold)
- Purpose:** Breaks down costs into labour and materials by location. Helps management understand cost drivers—whether spending is driven by workforce or supplies.

#### 3. Sum of Quantity\_used by Resource\_Type (Bar Chart)

- Type:** Vertical Bar Chart
- X-Axis:** Resource\_Type (Floor Cleaner, Trash Bags, Paper Towels, Liquid Soap, Sanitizer)
- Y-Axis:** Quantity Used
- Purpose:** Tracks consumption of cleaning resources. Helps with inventory management and identifying high-usage items for bulk purchasing or conservation efforts.

#### 4. Passed Inspections (Gauge Chart)

- **Type:** Gauge/Speedometer Chart
- **Value:** 69 out of 138
- **Purpose:** Visualizes inspection pass rate at a glance. The gauge shows current performance against the total possible, helping management quickly assess quality compliance status.

5. Total Cleaning Cost, Sum of Labour\_cost and Sum of Material\_cost by Month (Line Chart)

- **Type:** Multi-line Time Series Chart
- **X-Axis:** Month (January - December)
- **Y-Axis:** Cost Values
- **Series:** Total Cleaning Cost (teal), Labour Cost (gold), Material Cost (brown)
- **Purpose:** Shows cost trends throughout the year. Helps identify seasonal patterns, budget planning, and anomaly detection (e.g., unexpected cost spikes).

6. Total Issues Reported and Total Inspections by Month (Stacked Bar Chart)

- **Type:** Stacked Bar Chart
- **X-Axis:** Month
- **Y-Axis:** Count
- **Series:** Total Issues Reported (teal), Total Inspections (gold)
- **Purpose:** Correlates inspection activity with issues found. Helps determine if more inspections lead to more issue discovery, or if certain months have quality problems.

## Dashboard 2: Operations View

### Purpose

The Operations View dashboard is designed for **operations managers and supervisors** to monitor daily activities, staff performance, task completion, and issue resolution. It helps answer questions like:

- Are tasks being completed on time?
- Which staff members are most productive?
- What issues are occurring and how quickly are they resolved?

### KPI Cards (Top Row)

Visual	Metric	Purpose
Tasks Completed by Date	1000	Total number of cleaning tasks completed. Measures operational throughput.
Hygiene Compliance % by Date	0.67 (67%)	Same as Management View - ensures consistency across dashboards.
Avg Response Time (Mins) by Date	16.00	Average time to respond to reported issues. Key service level indicator.
Open Tickets by Date	1	Number of unresolved issues. Low numbers indicate efficient issue resolution.
Staff On Duty by Date	20	Current staffing level. Helps with workforce management and capacity planning.

### Detailed Visuals

1. Count of Task\_ID by Status (Donut Chart)

- **Type:** Donut/Pie Chart
- **Categories:** Completed (801, 80.1%), Planned (153, 15.3%), Missed (46, 4.6%)
- **Purpose:** Provides a quick overview of task completion rates. The high completion rate (80.1%) indicates good operational efficiency. Missed tasks (4.6%) highlight areas needing attention.

2. Avg Response Time (Mins) by Issue\_type (Bar Chart)

- **Type:** Horizontal Bar Chart
- **Y-Axis:** Issue Type (Broken Fixture, Leakage, Bin Overflow, Spill)
- **X-Axis:** Average Response Time in Minutes
- **Purpose:** Identifies which issue types take longest to resolve. Helps prioritize training or resource allocation. For example, "Broken Fixture" has the highest response time (~35 mins), suggesting need for faster maintenance protocols.

3. Total Issues Reported by Building\_Wing and Floor (Matrix/Heatmap)

- **Type:** Matrix Heatmap
- **Rows:** Building Wings (South Wing, Admin Block)
- **Columns:** Floors (Cafeteria, North Wing sections)
- **Values:** Issue counts with color intensity
- **Purpose:** Quickly identifies problem areas in the facility. Darker colors indicate more issues. Helps target cleaning resources and preventive measures to high-issue locations.

4. Area Cleaned per Hour and Productivity (Tasks per Hour) by Name (Combo Chart)

- **Type:** Combination Chart (Bar + Line)
- **X-Axis:** Staff Names
- **Primary Y-Axis (Bars):** Area Cleaned per Hour (square meters)
- **Secondary Y-Axis (Line):** Productivity (Tasks per Hour)
- **Purpose:** Compares individual staff performance on two metrics. Helps identify top performers for recognition and underperformers who may need additional training or support.

5. Ticket Details Table

- **Type:** Table/Matrix
- **Columns:** Ticket\_ID, Issue\_type, Location\_ID, Status, Sum of Response\_time\_mins, Staff\_assigned
- **Purpose:** Provides granular, drill-down data on individual tickets. Operations managers can:
  - Track specific issues
  - Monitor staff assignments
  - Identify patterns in issue types or locations
  - Follow up on "In Progress" tickets

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## Key Insights & Business Value

From Management View:

1. **Cost Control:** The Admin Block has the highest combined labour and material costs, suggesting focus area for optimization.
2. **Resource Management:** Floor cleaner has the highest consumption rate—consider bulk purchasing or usage monitoring.
3. **Quality Metrics:** 69/138 passed inspections (50%) indicates room for improvement in cleaning quality.
4. **Seasonal Trends:** Costs appear relatively stable across months with slight variations.

From Operations View:

1. **High Task Completion:** 80.1% completion rate demonstrates strong operational performance.
2. **Response Time Concerns:** Broken fixtures take ~35 minutes average response time—maintenance team coordination needed.
3. **Problem Areas:** The heatmap reveals certain floor/wing combinations have higher issue frequency.
4. **Staff Performance:** Visible variance in staff productivity enables targeted management interventions.

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## Technical Implementation Notes

Data Sources

- CSV files containing:
  - Cleaning task records
  - Cost data (labour, materials, consumables)
  - Inspection results
  - Issue/ticket tracking
  - Staff information
  - Building/location master data

Key Measures Created (DAX)

- Total Cleaning Cost = Labour\_cost + Material\_cost
- Cost per SqM = Total Cleaning Cost / Total Area
- Hygiene Compliance % = Passed Inspections / Total Inspections
- Budget Variance = Actual Cost - Budgeted Cost
- Avg Response Time = AVERAGE(Response\_time\_mins)
- Productivity = Tasks Completed / Hours Worked

Interactivity Features

- **Date Slicers:** All KPIs are filterable by date
- **Cross-filtering:** Clicking on any visual filters related visuals
- **Drill-down:** Ability to explore data at different granularity levels

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## Interview Discussion Points

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Be prepared to discuss:

**1. Why two dashboards?**

- Different audiences have different needs. Management needs financial overview; Operations needs tactical details.

**2. Choice of visualizations:**

- Gauges for quick status assessment
- Line charts for trends over time
- Bar charts for comparisons
- Heatmaps for spatial analysis
- Tables for detailed drill-down

**3. Actionable insights:**

- The dashboards don't just show data—they enable decisions about budgeting, staffing, training, and resource allocation.

**4. Data model considerations:**

- Relationships between fact tables (tasks, costs, issues) and dimension tables (locations, staff, dates)

**5. Future enhancements:**

- Real-time data refresh
- Predictive analytics for issue prevention
- Mobile-friendly views for supervisors on the floor