

# 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

## 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.

## 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

## 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