Operations & Service Performance Analytics

Project Overview

*This project delivers an interactive **Power BI** dashboard that consolidates operational and service-performance data from multiple sources into an accessible analytic framework. The dataset includes asset-level incident logs, change management records and reference tables for **time**, **systems**, **teams** and **severity levels**. By blending these tables, the model exposes key metrics like service level agreement (SLA) breaches, change success rate, mean time to repair (MTTR) and incident counts. The aim is to give executives and operations teams a single source of truth for monitoring fleet health, identifying process bottlenecks and guiding continuous improvement initiatives.*

*The report is divided into four pages—Executive Fleet Health, Operational Excellence, Process Improvement and Asset Details—each tailored to a different audience. Users can filter by year, system type or region using slicers, drill into specific assets and export data for further analysis. The dashboard is built on **Power BI's data model** and uses interactive visuals such as cards, maps, bar and line charts, scatter plots and pivot tables. The report can be refreshed as new incidents and change records are recorded, ensuring that stakeholders always have an up-to-date view of service performance.*

Data Model and Key Metrics

*The underlying data model comprises several dimension tables (**Dim_Asset**, **Dim_Time**, **Dim_System**, **Dim_Team**, **Dim_Severity**) linked to a fact table that aggregates incident and change data. Below are definitions of the primary metrics used throughout the report:*

- ***SLA Breach %** – The percentage of incidents that did not meet their agreed service targets. An SLA defines the expected response or resolution time for a service; if a target such as response time or resolution time is exceeded, this constitutes an SLA breach[1]. Breaches may be due to response delays, slow resolution or availability problems[2].*
- ***Change Success %** – A measure of the effectiveness of change management. It is calculated as the number of changes implemented without causing incidents or degradations divided by the total number of changes[3]. This percentage helps identify processes that successfully deploy updates without disrupting operations.*
- ***MTTR (Hours)** – Mean Time to Repair; the average time required to repair a system, including both the repair work and any testing time. The clock only stops when the system is fully functional[4]. MTTR is computed by summing the total repair time in a period and dividing by the number of repairs[5].*
- ***Total Incidents** – The count of incident records for a given asset, system or time period.*
- ***Average Incidents per Change** – The ratio of total incidents to the number of change events for a system, highlighting the risk of change-related failures.*

- ***Utilisation*** *– A performance indicator that compares the actual time an asset is in service to the available time; high utilisation may correlate with increased incident rates.*

Together, these metrics allow the organisation to monitor reliability, responsiveness and process maturity from multiple perspectives.

Dashboard Pages

Executive Fleet Health

This page gives senior leaders a high-level overview of fleet performance. Two card visuals provide at-a-glance figures for ***SLA Breach %*** *and* ***Change Success %****, enabling executives to quickly assess whether service commitments are being met. A* ***map visual*** *displays the geographic distribution of incidents by region, highlighting hotspots where service performance may be slipping. An interactive* ***line chart*** *plots SLA Breach % over months, revealing whether service reliability is improving or deteriorating over time. A* ***year slicer*** *allows users to focus on a specific period. Together, these visuals help executives prioritise improvement initiatives, allocate resources and communicate performance to stakeholders.*

Operational Excellence

The second page drills into system-level performance to support operations managers. A ***clustered bar chart*** *compares* ***MTTR*** *across different system types, making it easy to spot which systems are hardest to repair. A* ***stacked area chart*** *shows incident volume by* ***severity*** *over time; rising high-severity incidents may indicate underlying process issues or resource gaps. Slicers for year, system type and region provide flexible segmentation. By monitoring MTTR and severity distributions, operations teams can benchmark processes, identify chronic problems and adjust staffing or training accordingly. The metrics emphasise reducing repair times and maintaining a high level of service stability[6].*

Process Improvement

This page evaluates the effectiveness of change management and highlights opportunities for improvement. A ***scatter chart*** *plots* ***Change Success %*** *against* ***Average Incidents per Change*** *for each system. Systems in the lower-right quadrant (high incidents per change and low success rate) represent pain points where process refinement or additional testing is needed. A* ***treemap*** *ranks systems by* ***Total Incidents****, quickly revealing the largest contributors to incident volume. Filters for year, system type and region enable deeper analysis. Together, these visuals encourage a culture of continuous improvement by revealing correlations between change processes and operational outcomes.*

Asset Details

The final page provides detailed information at the individual asset level. A ***line chart*** *plots* ***MTTR*** *over time for selected assets, making trends in repair efficiency visible. A* ***pivot table*** *summarises metrics such as* ***MTTR****,* ***utilisation*** *and incident counts by asset and year. Users can drill into specific assets to understand why certain systems may be experiencing frequent outages or slow recovery times. An* ***action button*** *facilitates navigation or resets filters to default values.*

This page empowers asset managers to identify poorly performing devices, schedule preventive maintenance and justify investment decisions.

Insights and Use Cases

The dashboard supports a range of operational and strategic use cases:

- ***Monitoring SLA compliance:*** *With real-time SLA Breach % and trend analysis, leaders can detect recurring violations, investigate root causes (e.g., staffing gaps or process issues[7]) and implement corrective actions.*
- ***Optimising change management:*** *By tracking Change Success % and average incidents per change, the organisation can pinpoint systems where change deployment is risky. Improving testing, standardising procedures or automating deployments can raise the success rate and reduce incident volumes.*
- ***Geographic and team performance:*** *The map and region slicers highlight areas that need targeted support, while team filters can expose operational discrepancies across regions.*
- ***Severity management:*** *Monitoring the mix of high- and low-severity incidents over time helps prioritise resources and ensures critical issues are addressed promptly.*
- ***Asset-level diagnosis:*** *Detailed metrics enable root-cause analysis at the equipment level, supporting preventive maintenance and investment planning.*

Conclusion

*The **Operations & Service Performance Analytics** dashboard provides a comprehensive view of service reliability and process efficiency. By combining SLA compliance, change management performance and repair efficiency into a single analytical environment, it enables data-driven decision making. Stakeholders can quickly identify trends, isolate problem areas and measure the impact of improvement initiatives. The result is a more resilient service organisation that continuously learns from operational data and delivers higher levels of customer satisfaction.*

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[1] [2] [7] SLA Breach: What happens & how to avoid mistakes

https://scrumbyte.com/sla-breach/

[3] Change Success Rate - Software Engineering KPI Examples

https://kpiexamples.operately.com/software-engineering/change-success-rate

[4] [5] [6] Common Incident Management Metrics | Atlassian

https://www.atlassian.com/incident-management/kpis/common-metrics