**PowerBI-Quality Analysis Dashboard**

**Problem Statement**

As a Data Analyst, the task is to analyze and derive insights from a dataset containing various

features related to tasks, samples, defects, errors, and employee information within a company.The company operates in multiple departments (Sales, Finance, Backoffice) and different countries (United Kingdom, China, United States), focusing on maintaining high-quality task execution.  
However, variations in defect rates and error rates across departments and employees pose challenges in maintaining a consistently high quality score.

**Analysis Objectives**

**1.Task Performance Analysis:** Evaluate the frequency and types of tasks

performed over time. Identify trends in task completion rates and variations

across departments and auditors.

2. **Employee Productivity and Performance:** Analyze employee performance

based on task completion rates, defects, and errors. Identify high-performing

employees and areas for improvement.

3. **Managerial Oversight:** Evaluate the effectiveness of managers in overseeing

tasks and addressing defects and errors. Assess managerial responsiveness to

issues identified during tasks.

4. **Departmental Efficiency:** Compare the performance and efficiency of different

departments based on task completion rates, defects, and errors. Identify

departments that may require additional resources or process improvements.

5. **Auditor Performance:** Assess the performance of auditors in identifying defects

and errors during tasks. Determine whether certain auditors consistently perform

better than others.

6. **Location-Based Analysis:** Explore variations in task performance, defects, and

errors across different office locations. Identify potential factors contributing to

location-specific trends

**Key Measures Used**

|  |  |
| --- | --- |
| **Measure Name** | **DAX Formula** |
| **All Task Total** | SUM('Data Sampling'[All Task]) |
| **Sample Total** | SUM('Data Sampling'[Sample]) |
| **Defects Total** | SUM('Data Sampling'[Defects]) |
| **Errors Total** | SUM('Data Sampling'[Errors]) |
| **Defect %** | DIVIDE(SUM('Data Sampling'[Defects]), SUM('Data Sampling'[All Task]), BLANK()) \* 100 |
| **Error %** | DIVIDE(SUM('Data Sampling'[Errors]), SUM('Data Sampling'[All Task]), BLANK()) \* 100 |
| **Sample %** | DIVIDE(SUM('Data Sampling'[Sample]), SUM('Data Sampling'[All Task]), BLANK()) \* 100 |
| **Quality Score** | IF([Defect %] = BLANK(), BLANK(), 1 - ([Defect %] / 100)) |

**Analysis Insights**

**Key Performance Indicators (KPIs)**

* **All Task Total**: 44K
* **Sample Total**: 11K (24.21% sampling rate)
* **Defects Total**: 2001 (4.57% defect rate)
* **Errors Total**: 821 (1.88% error rate)
* **Overall Quality Score**: 0.95 (on a scale of 1)

**Error % and Defect % by Month**

* The error and defect rates are visualized monthly.
* March shows relatively higher error rates compared to other months.
* Defect % fluctuates throughout the year, requiring month-on-month quality monitoring.

**Quality Details Based on Manager**

* **Highest Quality Scores**: Diana Mark (0.98), Karen Nathan(0.97),Nicholas Justin(0.97).
* **Areas of Concern**: Managers Evelyn Harry and Janice Keith have slightly lower quality scores (0.93).
* **Observation**: Sales department shows better quality under Diana Mark compared to other managers.

**Quality Details Based on Location**

* **United Kingdom**: Sample % 23.86%, Defect % 5.22%, Error % 1.56%.
* **China**: Sample % 24.47%, Defect % 4.5%, Error % 1.25%.
* **United States**: Sample % 24.17%, Defect % 4.02%, Error % 0.84%.
* **Australia:** Sample % 24.66 %, Defect % 3.27%, Error % 0.80%.

**Observation**:

Australia office location has the **lowest error % and defect %**, suggesting better process adherence compared to UK and China.

**Department and Manager Performance**

* The line chart shows fluctuations in quality scores across different managers and departments.
* The Finance department managers show relatively higher defect percentages compared to Backoffice and Sales.

**Quality Score by Employee Name**

* **Top Performing Employees**:
  + Anthony Noah (highest quality score)
  + Lauren Justin
  + Donna Roy
* **Employees Needing Improvement**:
  + Catherine Paul
  + Christina Jonathan

**Defect % and Error % by Department**

* **Backoffice**: Shows relatively higher defect and error percentages compared to Sales and Finance.
* **Sales Department**: Maintains a better balance with lower defects and errors.

**Final Thoughts**

1. **Overall Quality Health is Strong but not Perfect**
   * An overall **quality score of 0.95** is impressive and indicates **high task execution standards** across the organization.
   * However, the presence of **a 4.57% defect rate** and **1.88% error rate** indicates that **pockets of inefficiencies and inconsistencies** still exist.
2. **Significant Monthly Variations Require Attention**
   * **March** shows a **notable spike** in error rates, suggesting a possible **seasonal issue**, **process breakdown**, or **resource constraints** during that month.
   * Month-on-month variability in defect percentages suggests **lack of continuous process control**.
3. **Employee and Manager Performance is Uneven**
   * Some managers like **Diana Mark** and employees like **Anthony Noah** are achieving near-perfect quality scores.
   * In contrast, employees like **Catherine** and **Christina**, and managers such as **Evelyn Harry**, show lower scores, **dragging the average down**.
4. **Department-Wise Quality Gaps Exist**
   * The **Backoffice department** shows **higher defect and error percentages** compared to Sales and Finance.
   * This indicates **either process complexities** or **lower training effectiveness** in that department.
5. **Geographic Performance Varies**
   * **Australia** offices show **the lowest defect and error rates**, indicating **more mature operational controls**.
   * In contrast, **United Kingdom offices** need **significant attention**, especially due to a higher defect rate of **5.22%**.

**Recommendations**

1. **Launch Targeted Quality Improvement Initiatives**
   * Conduct **root cause analysis** specifically for March’s spike.
   * Introduce **monthly quality audits** and **corrective action plans** to reduce error and defect rates consistently across all months.
2. **Focused Employee and Manager Training Programs**
   * Design **personalized training and mentoring programs** for low-performing employees and managers.
   * Use **best practices from high performers** (e.g., Diana Mark, Anthony Noah) to **standardize successful behaviors**.
3. **Department-Specific Process Enhancements**
   * Investigate the **Backoffice department's workflows**.
   * Simplify, standardize, and automate where possible to **reduce error-prone manual interventions**.
4. **Location-Specific Quality Drives**
   * Focus improvement efforts first on the **United Kingdom office**, targeting known pain points.
   * Roll out **location-specific action plans** including **refresher training**, **local audits**, and **enhanced managerial oversight**.
5. **Strengthen Monitoring and Predictive Analytics**
   * Integrate **predictive quality models** that use historical data to **forecast months or departments at risk**.
   * Set **early warning thresholds** for key KPIs like defect rate >5% or error rate >2% to trigger automatic alerts.
6. **Recognition Programs for High Performers**
   * Implement a **Quality Champion Program** recognizing top-performing employees and managers quarterly.

This can **boost morale**, encourage **healthy competition**, and **raise overall standards**.