

BPIC 2019 Data Analysis Report

MANAGEMENT SUMMARY

Actionable Plan for Process Improvement

Key Categories & Dimensions

- **Top Performers:**
 - **MRQ (Components), Facility Management, Business Gifts & Promotional Items,

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Technical Services**

- **Low Performers:**

- **Surface Coaters & Additives, Plastic Containers & Lids, Drum Q**

- **High Variability:**

- **Products & Spares, Epoxidic Resins, Intermediate Bulk Containers (IBC)**

- **Consistent Categories:**

- **Laboratory Consumables & Services, Additives - Other**

Performance Metrics Summary:

- **Mean Score**

- **Score Equilibrium**

- **Score Exclusion**

- **Score Found Case ID**

- **Score Sequential Case ID**

- **Score Singular Case ID**

Detailed Plan

1. **Benchmark Best Practices**

- **Investigate top performers:** MRQ Components, Facility Management.

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- **Document successful strategies.**
- **Share insights across other categories.**

2. Targeted Improvements

- **Root Cause Analysis:**
 - Surface Coaters & Additives (Median Score: 0.3)
 - Plastic Containers & Lids (Median Score: 0.4)
- **Address Issues:**
 - Adherence to mandatory activities.
 - Exclusion of unwanted activities.

3. Reduce Variability

- **Standardize Processes:**
 - Products & Spares, Epoxidic Resins.
- **Develop Guidelines:**
 - Ensure consistent performance.

4. Continuous Monitoring

- **Real-time Tracking:**
 - Implement a continuous monitoring system.
- **Feedback Loops:**
 - Rapidly address issues.

5. Training and Education

- **For Low Performers:**

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- Conduct training on process adherence.
- **High Variability Categories:**
- Emphasize importance and impact of consistency.

6. Review and Adjust Metrics

- **Periodic Reviews:**
- Ensure alignment with business objectives.
- **Adjust Metrics:**
- Better reflect desired outcomes.

Specific Category Actions

High Performing Vendors (Score > 0.9)

- **Example Vendors:** vendorID_0110, vendorID_0111.
- **Action:** Benchmark and replicate successful strategies.

Low Performing Vendors (Score < 0.5)

- **Example:** vendorID_0188.
- **Action:** Deep-dive analysis to identify and correct underlying issues.

Immediate Actions

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1. ****Investigation:****

- ****Packaging Category:**** High variance; root cause analysis.

2. ****Workshops:****

- Cross-departmental sessions to discuss process improvement.

3. ****Implement Practices:****

- Start low-cost, high-impact changes identified from benchmarking.

Short-Term Goals (Next 1-3 Months)

1. ****Audit:****

- Deep-dive into Packaging and Logistics.

2. ****Focus on PR:****

- Improve consistency (Mean Score: 0.85).

3. ****Training:****

- Enhance process optimization skills.

Mid-Term Goals (3-6 Months)

1. ****Data Collection:****

- Complete data for missing categories.

2. ****Cross-Training:****

- Ensure employees are trained in multiple areas to foster versatility.

3. ****Automate Processes:****

- Identify and implement automation opportunities.

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Long-Term Goals (6-12 Months)

1. **Continuous Improvement:**

- Dynamic monitoring system.

2. **Annual Reviews:**

- Regular performance reviews and recalibration.

3. **Incentives:**

- Reward high-performing vendors to motivate continual excellence.

Monitoring & Metrics to Focus

- **Score Found Case ID:** Ensure all mandatory activities are present.
- **Score Sequential Case ID:** Correct order of activities.
- **Score Equilibrium Case ID:** Balanced activity distribution.
- **Score Singular Case ID:** Absence of duplicate activities.
- **Score Exclusion Case ID:** Eliminate unwanted activities.

Summary:

- **Targeted Improvements:** Focus on root causes in low-performance and high-variability categories.
- **Best Practices:** Benchmark top performers.
- **Consistent Monitoring:** Implement real-time tracking.
- **Training:** Enhance skills in low-performing sectors.
- **Automation:** Introduce process automation where feasible.

DETAILS OF ANALYSIS

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Category: cat_dim_2

Insights:

1. **Top Performers:**

- **MRQ (Components)**
- **Facility Management**
- **Business Gifts & Promotional Items**
- **Technical Services**

These categories consistently score high, indicating strong adherence to mandatory activities, correct sequencing, balanced distribution, absence of duplicates, and exclusion of unwanted activities.

2. **Low Performers:**

- **Surface Coaters & Additives**
- **Plastic Containers & Lids**
- **Drum Q**

These categories have low median scores and lower overall performance, suggesting significant issues in process adherence.

3. **High Variability:**

- **Products & Spares**
- **Epoxidic Resins**

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- **Intermediate Bulk Containers (IBC)**

These categories exhibit wide interquartile ranges and many outliers, indicating inconsistent process performance.

4. Consistent Categories:

- **Laboratory Consumables & Services**
- **Additives - Other**

These refer to categories with narrow interquartile ranges and minimal outliers, suggesting stable and predictable process performance.

Next Steps Plan:

1. Benchmark Best Practices:

- Investigate high-performing categories (e.g., MRQ Components, Facility Management) to identify best practices and successful strategies.
- Disseminate this information across other categories to drive improvement.

2. Targeted Improvements:

- Focus on low-performing categories (e.g., Surface Coaters & Additives, Plastic Containers & Lids) by conducting a root cause analysis.
- Implement targeted strategies to address specific issues such as mandatory activity adherence and unwanted activity exclusion.

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3. **Reduce Variability:**

- Standardize processes in high-variability categories (e.g., Products & Spares, Epoxidic Resins).
- Develop and enforce process guidelines to ensure more consistent performance.

4. **Continuous Monitoring:**

- Set up a continuous monitoring system to track process performance and quickly identify deviations in real-time.
- Implement feedback loops to rapidly address issues as they arise.

5. **Training and Education:**

- Provide comprehensive training to stakeholders in low-performing and high-variability categories.
- Emphasize the importance of process adherence and the impact on overall performance.

6. **Review and Adjust Metrics:**

- Periodically review the scoring metrics to ensure they accurately reflect the desired process performance outcomes.
- Adjust metrics if necessary to better align with business objectives and operational realities.

By following this plan, the organization can systematically improve process performance across various categories, leading to enhanced efficiency, reduced costs, and higher overall process reliability.

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Insights from the Heatmap:

1. **High-Performance Categories** (Average Scores > 0.80):

- **Aliphatic Solvents**
- **Closures**
- **Colorants**
- **Defoamers & Antifoams**
- **Inorganic Pigments**
- **Labels**
- **Light & Heat Stabilizers**
- **Metal Containers & Lids < 30L**
- **Neutralisation Agents**
- **Plastic Containers & Lids < 30L**
- **Polyamides & Polyamines**
- **Pure Acrylics**
- **Specialty Resins - Other**
- **Surfactants**
- **Trading Products (Old Structure)**
- **Vinyl Acetate Ethylene**

2. **Low-Performance Categories** (Average Scores < 0.50):

- **Business Gifts & Promotional Items (mean_score: 0.52)**
- **Opaque Polymers (mean_score: 0)**
- **Plasticizers (mean_score: 0.4)**
- **Process Automation & Instrumentation (mean_score: 0.12)**

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- **Rheology & Thixotropic Agents** (mean_score: 0.16)

3. **Specific Performance Issues**:

- **Opaque Polymers**: Underperforming across all attributes.
 - **Plasticizers**: Particularly low in 'score_equilibrium_case_id' (0.18) and 'score_sequential_case_id' (0.07).
- **Process Automation & Instrumentation**: Scores very low in 'score_found_case_id' (0.083) and 'score_sequential_case_id' (0.5).

4. **Top Performers in Specific Metrics**:

- **score_found_case_id**: Several categories achieved a perfect score (1) such as Colorants, Defaomers & Antifoams, Neutralisation Agents.
- **score_singular_case_id**: Most categories scored high, with many achieving a near-perfect score (1).
- **score_exclusion_case_id**: Few categories like Inorganic Pigments, Neutralisation Agents scored perfectly (1).

Next Steps Plan:

1. **In-depth Analysis**:

- Conduct root cause analysis for the low-performing categories, particularly Opaque Polymers, Process Automation & Instrumentation, and Plasticizers.
- Assess specific factors contributing to high performance in top-performing categories for potential best practices.

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2. **Targeted Interventions**:

- **For Opaque Polymers**: Re-evaluate the process structure and investigate the causes of low scores across all dimensions.
- **For Plasticizers**: Focus on improving the balance and distribution of activities (score_equilibrium_case_id - 0.18).
- **For Process Automation & Instrumentation**: Address the missing mandatory activities (score_found_case_id - 0.083) and ensure activities are correctly ordered (score_sequential_case_id - 0.5).

3. **Best Practice Implementation**:

- Extract and implement processes from high-performing categories, such as multiple verification steps seen in Aliphatic Solvents and Closures categories.

4. **Regular Monitoring**:

- Establish regular monitoring and re-evaluation cycles for consistent tracking of improvements and areas needing additional attention.

5. **Cross-Departmental Workshops**:

- Arrange workshops and knowledge-sharing sessions across different categories focusing on process improvement strategies.

Key Metrics to Focus:

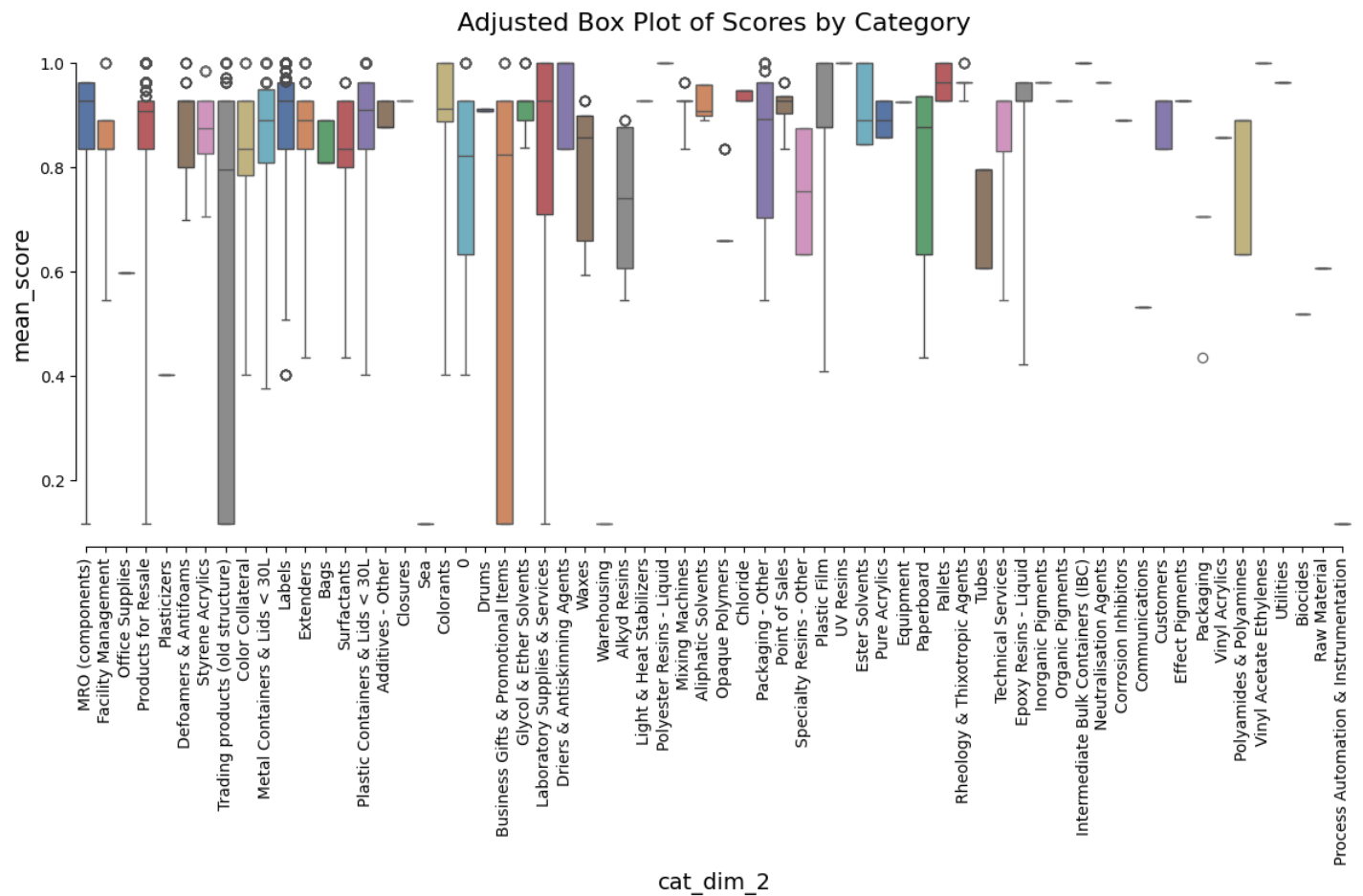
- **score_found_case_id**: Ensure all mandatory activities are present.
- **score_sequential_case_id**: Correct order of activities.
- **score_equilibrium_case_id**: Balanced activity distribution.

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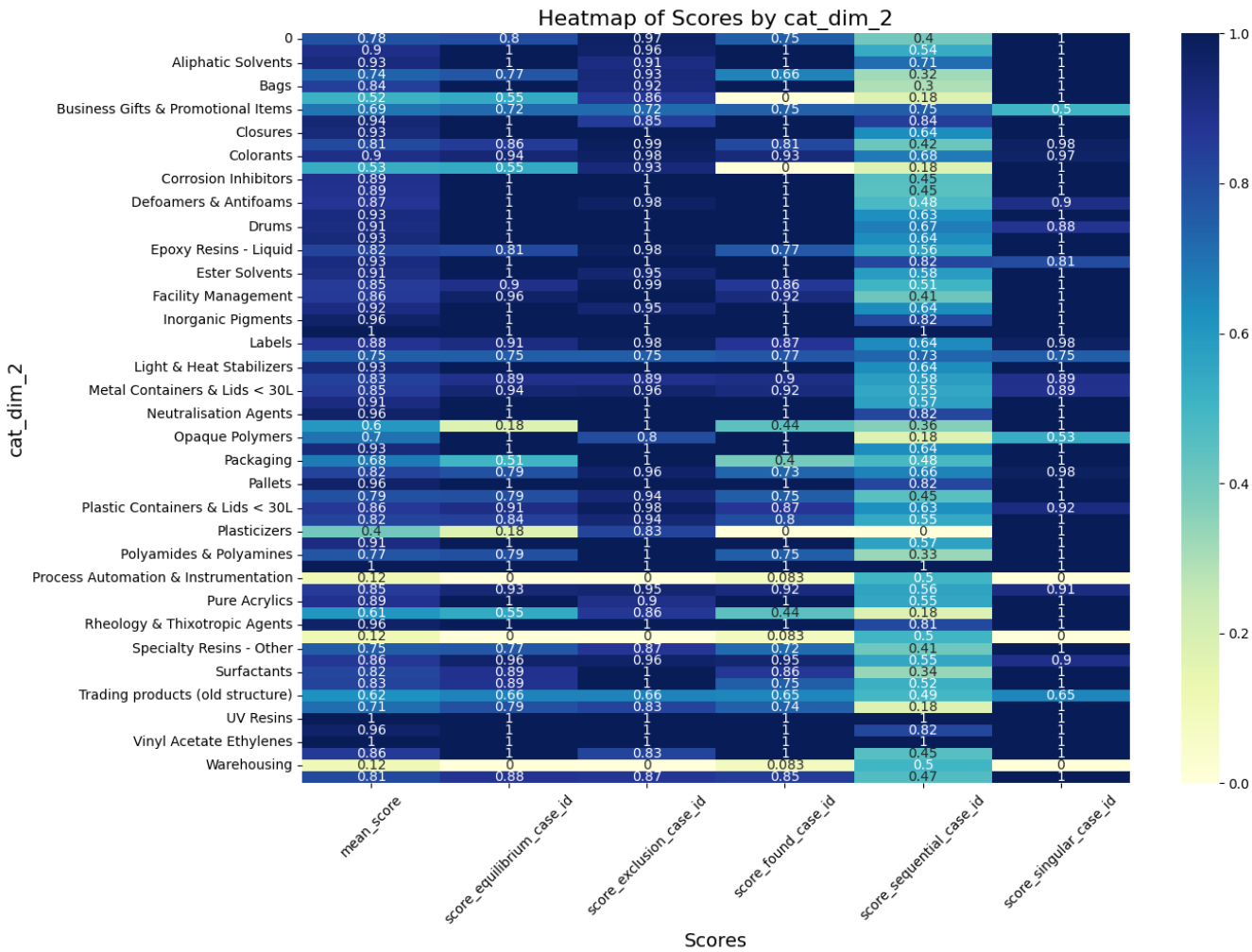
- **score_singular_case_id**: Absence of duplicate activities.
- **score_exclusion_case_id**: Eliminate unwanted, manual, or costly activities.

Conclusion:

- Prioritize improvements in low-performing categories for overall process optimization.
- Leverage insights from high-performing categories to enhance process standards and practices.



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Category: cat_dim_5

Insights from Box Plot

Category Performance Analysis:

1. **Marketing:**

- Range: ~0.60
- Consistent performance.

2. **Pigments & Colorants:**

- No data available.

3. **Logistics:**

- Range: ~0.60
- Consistent but low performance.

4. **Packaging:**

- Range: ~0.2 to ~1.0
- High variance suggests inconsistency; requires attention.

5. **Latex & Monomers:**

- Range: ~0.70 to ~0.85
- Moderate performance with some outliers.

6. **Sales:**

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- Range: ~0.75 (few outliers around ~1.0)
- Good performance with outliers suggesting potential for optimization.

7. **Additives:**

- Range: ~0.80
- High performance, consistent scores.

8. **CAPEX & SOCS:**

- No data available.

9. **Solvents:**

- Range: ~0.80
- Consistent and high performance.

10. **Others:**

- Range: ~0.85
- Consistent and very high performance.

Actionable Steps

Short-term:

1. **Investigate Packaging Category:**

- Identify root causes for high variance.
- Implement quality control measures.

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2. **Benchmark Additives and Solvents:**

- Understand best practices.
- Replicate successful strategies in other categories.

3. **Optimize Sales Process:**

- Address outliers to improve consistency.

4. **Standardize Logistic Procedures:**

- Develop and implement a structured logistic strategy for improvement.
- Engage with stakeholders for brain-storming and process mapping sessions.

Mid-term:

1. **Data Collection for Missing Categories:**

- Ensure complete data for "Pigments & Colorants" and "CAPEX & SOCS."
- Conduct audits to prevent data loss.

2. **Training Programs:**

- Skill enhancement for categories with lower scores like Marketing and Logistics.

3. **Process Automation:**

- Analyze the feasibility of introducing automation in lagging areas.

Long-term:

1. **Continuous Monitoring and Improvement:**

- Implement a dynamic monitoring system for real-time performance tracking.

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2. **Redefine KPIs for Underperforming Categories:**

- Evaluate and set new, achievable performance metrics.

3. **Annual Reviews:**

- Conduct annual process performance reviews and recalibrate strategies.

Summary:

- Focus on underperforming and inconsistent categories like "Packaging", "Logistics", and "Sales".
- Document success stories from high-performing categories and implement lessons learned.
- Ensure holistic improvement through training, process optimization, and continuous monitoring.

Next Steps

1. **Detailed Audit:**

- Perform a deep-dive audit particularly for Packaging and Logistics.

2. **Workshops:**

- Conduct workshops focusing on high-variance categories to identify bottlenecks.

3. **Implement Changes:**

- Begin immediate implementation of low-cost, high-impact changes.

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- Leverage insights from high-performing categories.

4. **Monitor and Report:**

- Establish a reporting system for regular updates and feedback loops.

By addressing these areas systematically, overall process performance can be enhanced significantly, leveraging both quick wins and strategic long-term changes.

Insights:

1. **High Performing Areas:**

- **CAPEX & SOCS:** Scores uniformly high across all metrics.
- **Solvents, Pigments & Colorants, Sales:** Perfect scores (1) in most metrics.
- **Packaging:** Strong performance, especially in process correctness and order.

2. **Areas Needing Improvement:**

- **Logistics:** Struggles particularly in the distribution of activities (score_equilibrium_case_id: 0.6) and costly/unwanted activities (score_exclusion_case_id: 0.21).

- **Marketing:** Lowest scores across multiple metrics, especially in the distribution of activities (score_equilibrium_case_id: 0).

3. **Moderate Performers:**

- **Additives:** Generally good, but lower scores in costly activities and balanced activities.

- **Others:** Inconsistent scores, notably lower in costly/unwanted activities.

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Key Metrics:

1. **Presence of Mandatory Activities (score_found_case_id)**:
 - High: Sales, Pigments & Colorants, Solvents.
 - Low: Logistics (0.21), Others (0.33).
2. **Correct Order of Activities (score_sequential_case_id)**:
 - High: Marketing, Packaging (both 1).
 - Low: Logistics (0.42), Latex & Monomers (0.5).
3. **Balanced Distribution (score_equilibrium_case_id)**:
 - High: Multiple categories achieve 1 (e.g., CAPEX & SOCS, Pigments & Colorants).
 - Low: Marketing (0), Logistics (0.6).
4. **Absence of Duplicates (score_singular_case_id)**:
 - High: CAPEX & SOCS, Pigments & Colorants, Solvents (all 1).
 - Low: Latex & Monomers (0.67), Sales (0.56).
5. **Absence of Costly/Unwanted Activities (score_exclusion_case_id)**:
 - High: Additives, CAPEX & SOCS, Solvents, Sales.
 - Low: Marketing (0), Logistics (0.21).

Next Steps:

1. **Focus on Low Performing Areas**:
 - **Logistics**: Investigate causes for low scores in distribution and unwanted

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activities.

- **Marketing**: Address root causes for poor performance in distribution and exclusion scores.

2. Targeted Improvements:

- **Logistics**: Enhance activity distribution methods and reduce costly activities.
- **Marketing**: Reevaluate process steps to eliminate unneeded activities and improve balance.

3. Consistency:

- Work towards maintaining high scores in already high performing categories.
- Ensure processes in categories like Additives and Others meet higher consistency standards.

4. Process Audits:

- Regular audits for categories with fluctuating performance scores to identify and rectify inconsistencies.

5. Training & Development:

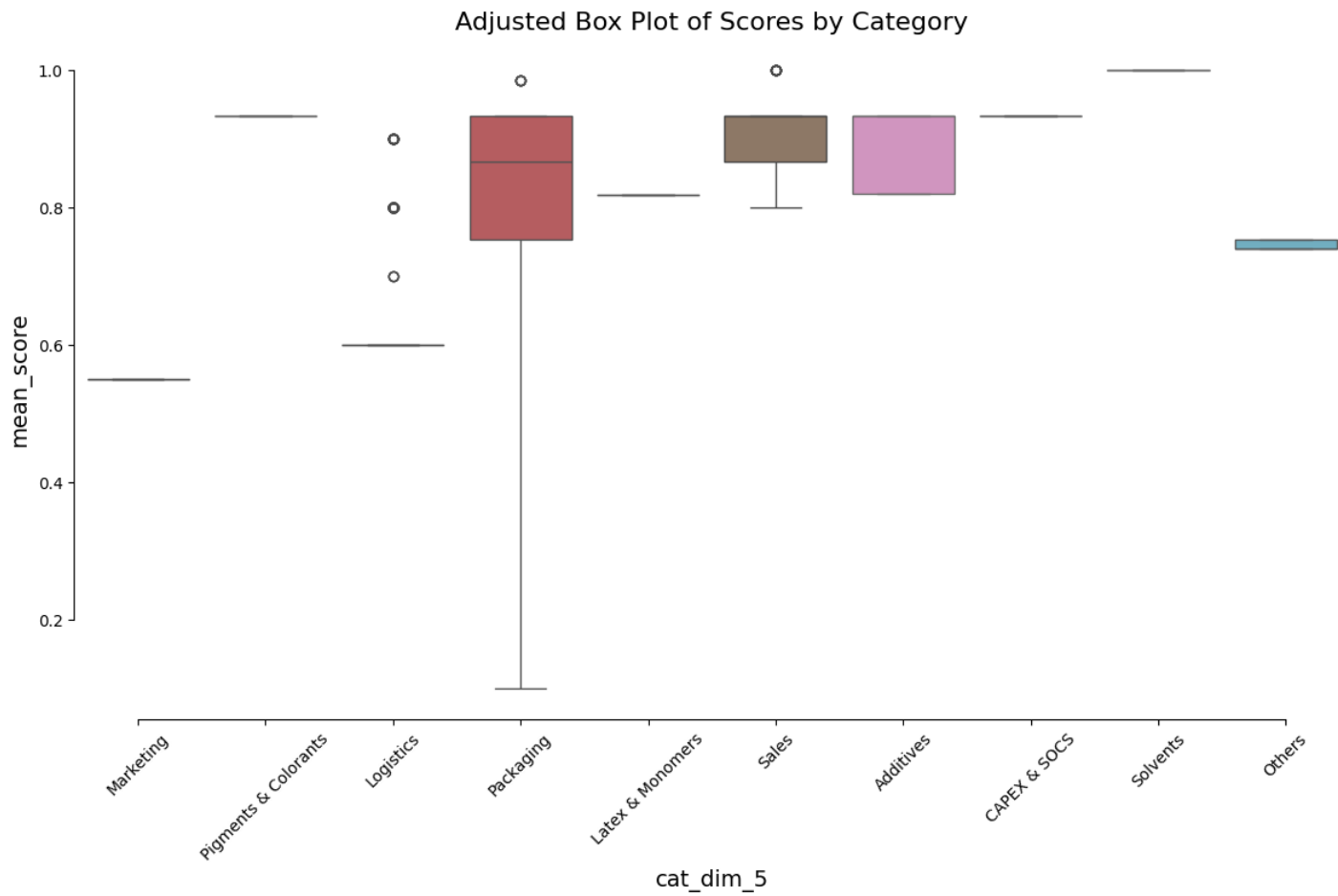
- Provide targeted training sessions focusing on balanced distribution and cost-efficient processes.

Conclusion:

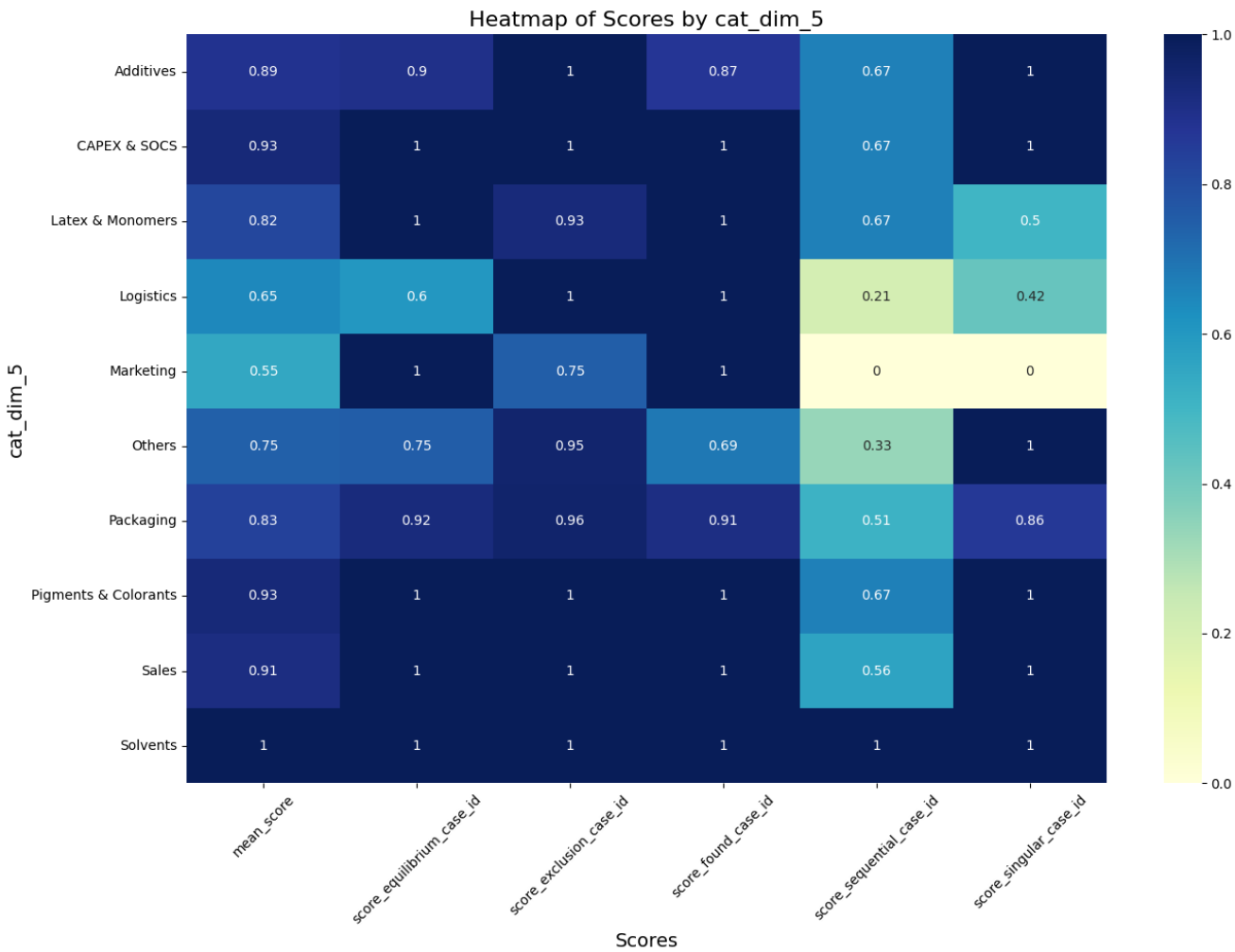
- **Success Areas**: Maintain and consistently evaluate high performing categories.
- **Improvement Focus**: Address process inefficiencies in Logistics and Marketing for

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better overall performance.



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Category: cat_dim_6

Insights from the Box Plot:

Categories & Dimensions:

1. **TM** (Team Management?):

- **Mean Score**: High (around 0.9)
- **Variation**: Low (narrow box)
- **Outliers**: Present at low score range (below 0.4)

2. **CM** (Case Management?):

- **Mean Score**: Moderate (around 0.7)
- **Variation**: High (wide box)
- **Outliers**: One outlier at the high score range (around 0.9)

3. **AC** (AC-related activity?), **H49** (?), **H8S** (?), **LLO** (Low-Level Operations?):

- **Mean Score**: Very low (around 0.1)
- **Variation**: Almost zero
- **Outliers**: None visible

Interpreting Scores:

- **High mean scores** indicate strong performance in respective features.
- **Low mean scores** suggest improvement areas.
- **Low variation** indicates consistency in performance across cases.
- **High variation** suggests inconsistency and potential process refinement opportunities.

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Performance Quantification:

- **TM**: Mean ~ 0.9 , consistent (low variation), some low outliers.
- **CM**: Mean ~ 0.7 , high variation, more variability with some high-outliers and low-scores.
- **Other categories (AC, H49, H8S, LLO)**: Mean ~ 0.1 , consistent (very low variation).

Actionable Steps:

1. **Focus on Low Performers (AC, H49, H8S, LLO)**:
 - Investigate specific reasons for low scores.
 - Review activities under these categories.
 - Identify bottlenecks or inefficiencies.
 - Implement process optimization or training.
2. **Stabilize High Variability Category (CM)**:
 - Analyze cases with low scores in this category.
 - Standardize processes and practices within Case Management.
 - Share best practices from high scorers within this category.
3. **Maintain and Enhance High Performers (TM)**:
 - Recognize and reward high-performance team management.
 - Document effective practices and replicate them across similar categories.
 - Minimize outlier incidences by regular monitoring.

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4. ****Holistic Review****:

- Map the correlation between categories to identify interdependencies.
- Cross-train teams to ensure versatility and reduce dependency on specific functions.
- Regular audits and feedback loops for continuous improvement.

5. ****Refinement of Metrics****:

- Review if existing metrics accurately reflect process efficiency.
- Adjust scoring methodology if required to ensure balanced representation.

Conclusion:

The process performance shows strong performance in Team Management and moderate performance in Case Management but requires attention to other categories due to consistent low scores. Strategies should be aimed at enhancing the low-performing areas while stabilizing the variability in Case Management and maintaining high standards in Team Management.

Insights

****Performance Categories (Rows):****

1. ****Consignment****

- Mean Score: 0.1
- Equilibrium: 0
- Exclusion: 0
- Found: 0
- Sequential: 0.5

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- Singular: 0

2. ****Service****

- Mean Score: 0.59
- Equilibrium: 0.83
- Exclusion: 0.86
- Found: 1
- Sequential: 0.091
- Singular: 0.19

3. ****Standard****

- Mean Score: 0.87
- Equilibrium: 0.95
- Exclusion: 0.98
- Found: 0.94
- Sequential: 0.57
- Singular: 0.89

****Performance Dimensions (Columns):****

- ****Mean Score****
- ****Score Equilibrium Case ID****
- ****Score Exclusion Case ID****
- ****Score Found Case ID****
- ****Score Sequential Case ID****
- ****Score Singular Case ID****

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Key Observations

1. **Consignment:**

- Poor in all dimensions except for Sequential (0.5).
- Focus on improving presence of mandatory activities, exclusion of unwanted activities, and avoiding duplicates.

2. **Service:**

- High in Found (1), Equilibrium (0.83), and Exclusion (0.86).
- Low in Sequential (0.091) and Singular (0.19).
- Needs improvement in the order of activities and avoiding duplicates.

3. **Standard:**

- High scores across the board.
- More balanced and efficient than other categories.

Plan for Next Steps

Short-Term Actions:

1. **Consignment:**

- Prioritize improvement in mandatory activities, unwanted activities exclusion, and avoiding duplicate activities.
- Benchmark against "Standard" processes to identify gaps.

2. **Service:**

- Focus on improving the sequential order of activities.

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- Reduce duplication of activities.

3. **Standard:**

- Maintain current performance.
- Continuous improvement and monitoring.

****Long-Term Actions:****

1. **Root Cause Analysis:**

- Analyze reasons for low scores in Consignment and Service. Determine specific areas leading to poor performance.

2. **Training and Development:**

- Train process executors on correct order and required activities to ensure adherence to process requirements in Consignment and Service categories.

3. **Process Redesign:**

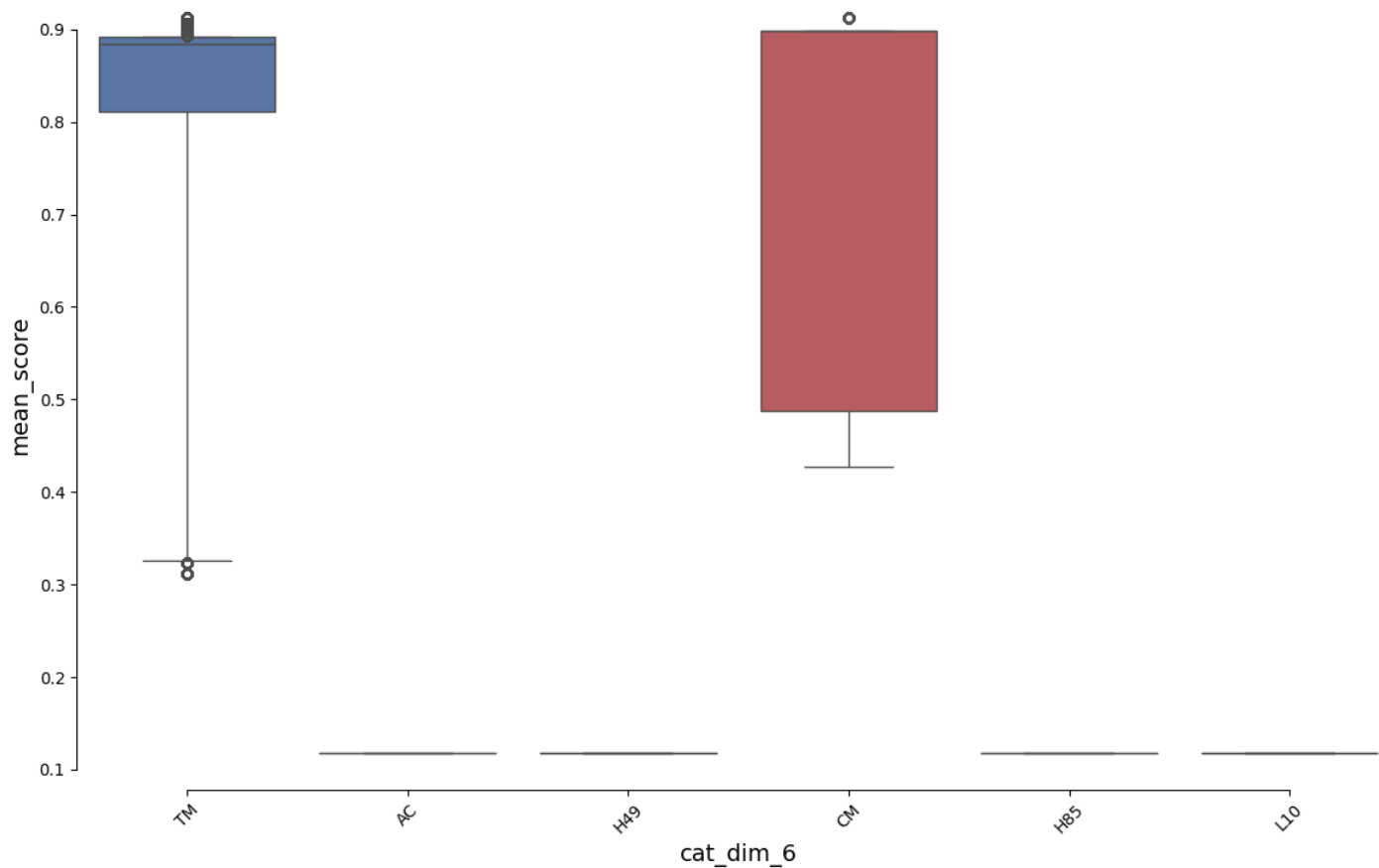
- Redesign workflows where necessary to eliminate redundant activities and ensure correct sequential flow.

****Monitoring and Review:****

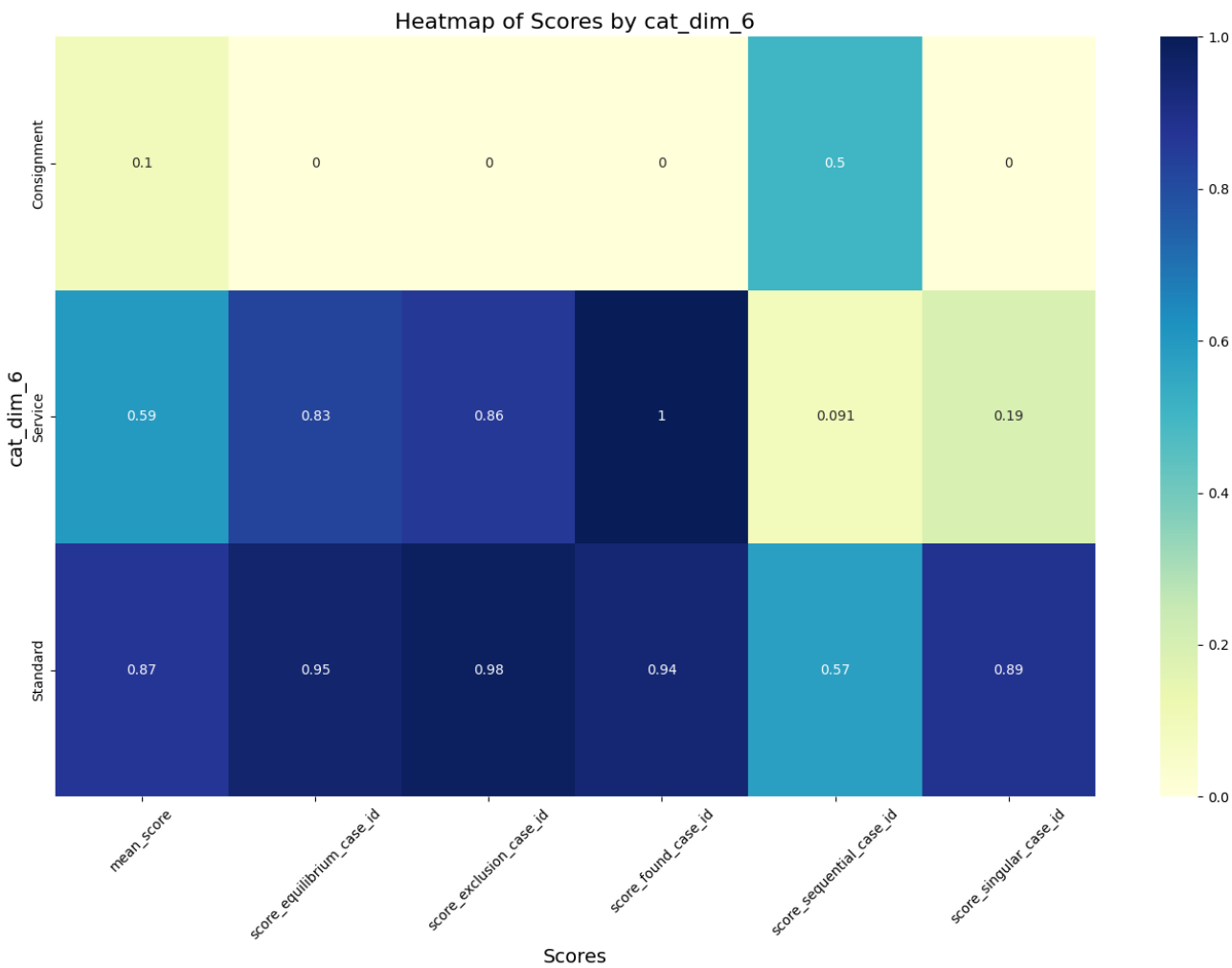
- Regularly monitor the process performance metrics.
- Review after implementing changes to ensure improvements are effective.

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Adjusted Box Plot of Scores by Category



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Category: cat_dim_8

Here is a concise analysis of the given data visualizations and next steps:

Heatmap Analysis:

1. **score_found_case_id**:
 - High scores indicate the mandatory activities are mostly present.
2. **score_sequential_case_id**:
 - High scores suggest activities are performed in the correct order.
3. **score_equilibrium_case_id**:
 - Balanced distribution of activities with generally high scores.
4. **score_singular_case_id**:
 - Generally good performance; few duplicate activities.
5. **score_exclusion_case_id**:
 - Indicates presence or absence of unwanted activities; performance varies.

Box Plot Analysis:

- **Category (cat_dim_8)**: Median score ~0.9.
- High concentration around 0.9 suggests consistent, high process performance.
- Few outliers around 0.1 highlight areas for improvement.

Insights:

1. **Strengths**:
 - High consistency in adhering to process guidelines.
 - Balanced distribution and correct order are strong points.

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2. **Weaknesses:**

- Occasional presence of unwanted activities (score_exclusion_case_id).
- Some outliers indicate room for eliminating duplicate activities and avoiding costly/manual activities.

Next Steps:

1. **Focus on Outliers:**

- Investigate the specific cases causing low scores.
- Implement corrective actions to align with desired process performance.

2. **Manual Activities Analysis:**

- Identify manual/costly activities and explore automation opportunities.
- Evaluate the impact of these activities on overall process efficiency.

3. **Training and Revision:**

- Conduct training sessions to reinforce correct process sequences and mandatory activities.
- Review and revise the process documentation if necessary.

4. **Monitoring and Feedback:**

- Implement continuous monitoring to ensure process adherence.
- Obtain regular feedback from process participants for ongoing improvements.

Report Summary:

High overall performance in mandatory activities and correct sequencing with areas for improvement in avoiding manual/costly activities and refining process execution to ensure uniformity.

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Insights:

1. **High Performance Vendors**:

- Many vendors show consistent high scores (≥ 0.90) across multiple categories: e.g., `vendorID_0110`, `vendorID_0111`, `vendorID_0189`, and `vendorID_0373`.

2. **Areas of Weakness**:

- `vendorID_0188` exhibits substantially lower scores (0) in `score_found_case_id`, `score_sequential_case_id`, `score_equilibrium_case_id`, and `score_exclusion_case_id`.

- Vendors like `vendorID_0364` and `vendorID_0366` show weaknesses in `score_equilibrium_case_id` (0.5), `score_found_case_id`, and `score_exclusion_case_id`.

3. **Mean Score Analysis**:

- The mean score provides an overall performance overview, with some vendors like `vendorID_0188` standing out negatively.

- Conversely, `vendorID_0110` and `vendorID_0189` consistently achieve a mean score of 1, indicating excellent performance.

4. **Balanced Distribution (`score_equilibrium_case_id`)**:

- Not uniform across all vendors; highlights where some processes have imbalanced activities.

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5. ****Correct Order (`score_sequential_case_id`)**:**

- Generally high among vendors, procured with wide variation in equilibrium and other metrics.

6. ****Absence of Duplicate Activities (`score_singular_case_id`)**:**

- Most vendors perform well in this category, except a few notable deviations like `vendorID_0211`, `vendorID_0364`, and `vendorID_0777`.

Next Steps:

1. ****Targeted Process Improvements**:**

- Focus on vendors with low scores. E.g., investigate `vendorID_0188` for systemic issues.

- Offer specialized training to vendors with low `score_equilibrium_case_id`, `score_sequential_case_id`, and `score_exclusion_case_id` metrics.

2. ****Deep Dive Analysis**:**

- Perform root cause analysis for vendors with inconsistent scores (e.g., `vendorID_0364`, `vendorID_0366`).

3. ****Best Practices Sharing**:**

- Identify best performers and build case studies to share their successful strategies and methodologies with other vendors.

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4. ****Periodic Performance Reviews****:

- Establish regular performance monitoring to track improvements, specifically focusing on lower-performing vendors.

5. ****Incentive Programs****:

- Implement a reward program to motivate vendors achieving high scores consistently.

6. ****Balanced Scorecard Development****:

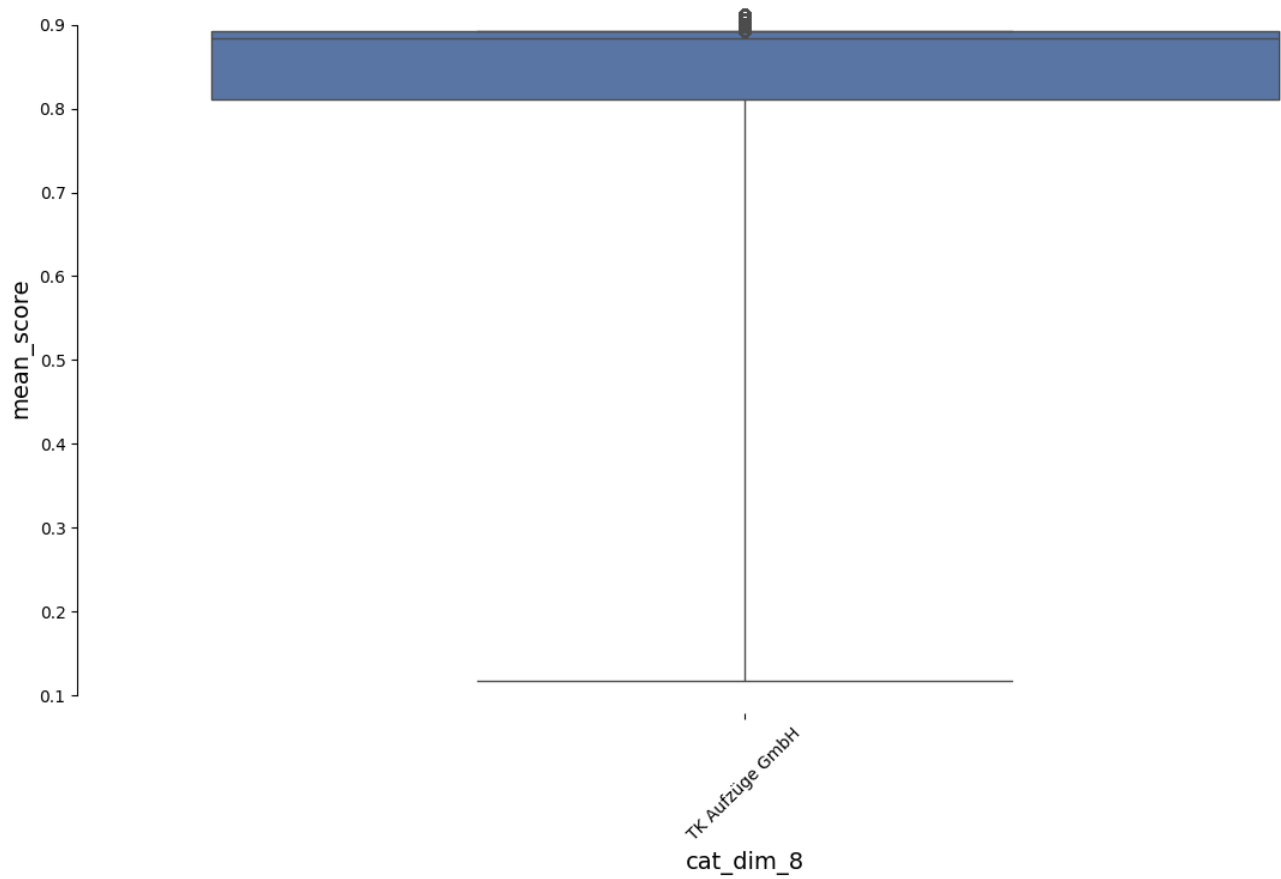
- Create a balanced scorecard approach to ensure not only overall performance but uniformity across all relevant metrics.

Summary:

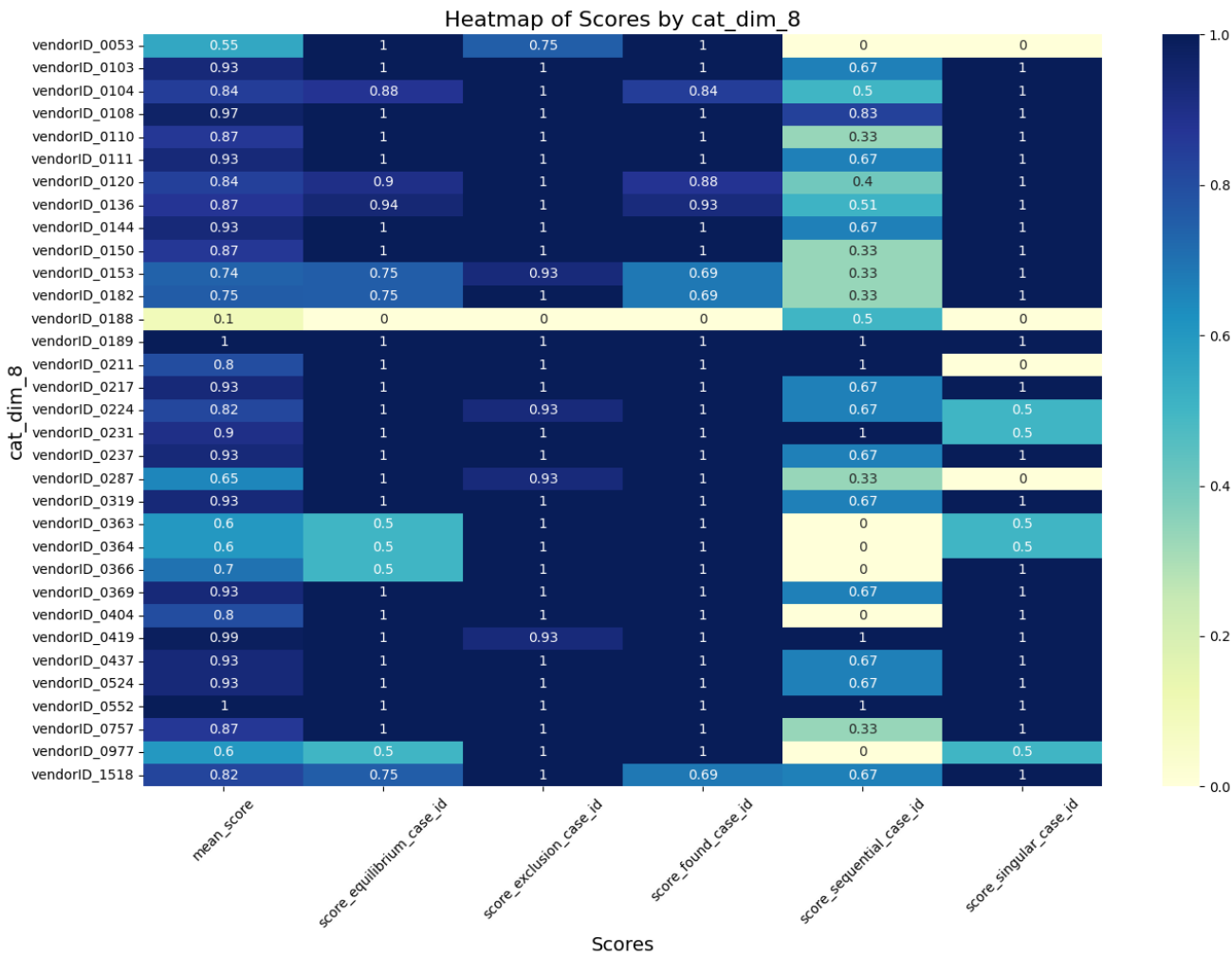
- Prioritize targeted support for struggling vendors.
- Draw from top vendors' strategies to set process improvement benchmarks.
- Regularly review and incentivize performance to drive continuous improvement across all dimensions.

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Adjusted Box Plot of Scores by Category



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Category: cat_dim_9

Insights from Box Plot of Scores by Category

Categories:

- PR (Process Relevant)
- NPR (Not Process Relevant)

Main Points:

- PR category has a median score close to 0.85.
- NPR category has a median score near 0.
- PR category has a higher interquartile range (IQR), extending from around 0.6 to nearly 1.0.
- PR category shows some outliers above 1.0.
- NPR category exhibits very low performance, consistently below 0.1.

Actionable Steps:

1. **Focus on PR Category:**

- **Consistency Improvement:** Although PR category performs well, there's room for improvement in consistency since scores dip to around 0.2.
- **Upper Outliers Analysis:** Investigate instances with scores higher than expected to understand best practices.

2. **Assess and Revise NPR Category:**

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- **Root Cause Analysis:** Identify reasons for low scores (manual, costly, and unwanted activities).

- **Process Optimization:** Remove or minimize activities that fall under NPR to improve overall performance.

3. Balanced Distribution & Correct Order:

- **Score Boosting:** Boost scores in dimensions where balanced distribution and correct order are low.

4. Monitor Metrics:

- Set targets for improving low-performing dimensions.
- Regularly monitor scores to track improvements and adjust processes accordingly.

5. Training & Education:

- Provide training on process optimization, focusing on mandatory activities and correct sequencing.

By targeting these areas, process efficiency can be improved significantly across dimensions measured.

Insights from Heatmap

Categories:

- NPR
- OTHER

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- PR

****Dimensions/Features (with scores between 0 and 1):****

1. ****Mean Score****

- NPR: 0.61
- OTHER: 0.75
- PR: 0.84

2. ****Score Equilibrium****

- NPR: 0.84
- OTHER: 0.75
- PR: 0.94

3. ****Score Exclusion****

- NPR: 0.87
- OTHER: 0.95
- PR: 0.96

4. ****Score Found Case ID****

- NPR: 1.00
- OTHER: 0.69
- PR: 0.93

5. ****Score Sequential Case ID****

- NPR: 0.12

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- OTHER: 0.33
- PR: 0.57

6. **Score Singular**

- NPR: 0.23
- OTHER: 1.00
- PR: 0.83

Key Insights:

- **PR category** shows consistently **high performance** across all dimensions, especially in `Score Exclusion` (0.96) and `Score Equilibrium` (0.94).
- **NPR category** struggles with `Score Sequential Case ID` (0.12) and `Score Singular` (0.23).
- **OTHER category** performs well in `Score Singular` (1.00) but moderately in `Score Found Case ID` (0.69) and low in `Score Sequential Case ID` (0.33).

Plan for Next Steps:

1. **Focus on Low Scores:**

- **NPR:**
 - Improve `Score Sequential Case ID` (0.12)
 - Enhance process to reduce unwanted activities (`Score Singular` 0.23)
- **OTHER:**
 - Improve sequencing of activities (`Score Sequential Case ID` 0.33)
 - Raise `Score Singular` to achieve more balance in activity distribution

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2. **Leverage High Performance Areas:**

- **PR:**

- Use as a benchmark to identify best practices for improving `NPR` and `OTHER`.

3. **Conduct Root Cause Analysis:**

- Identify specific activities causing low scores
- Develop and implement action plans to address identified root causes

4. **Implement Continuous Monitoring:**

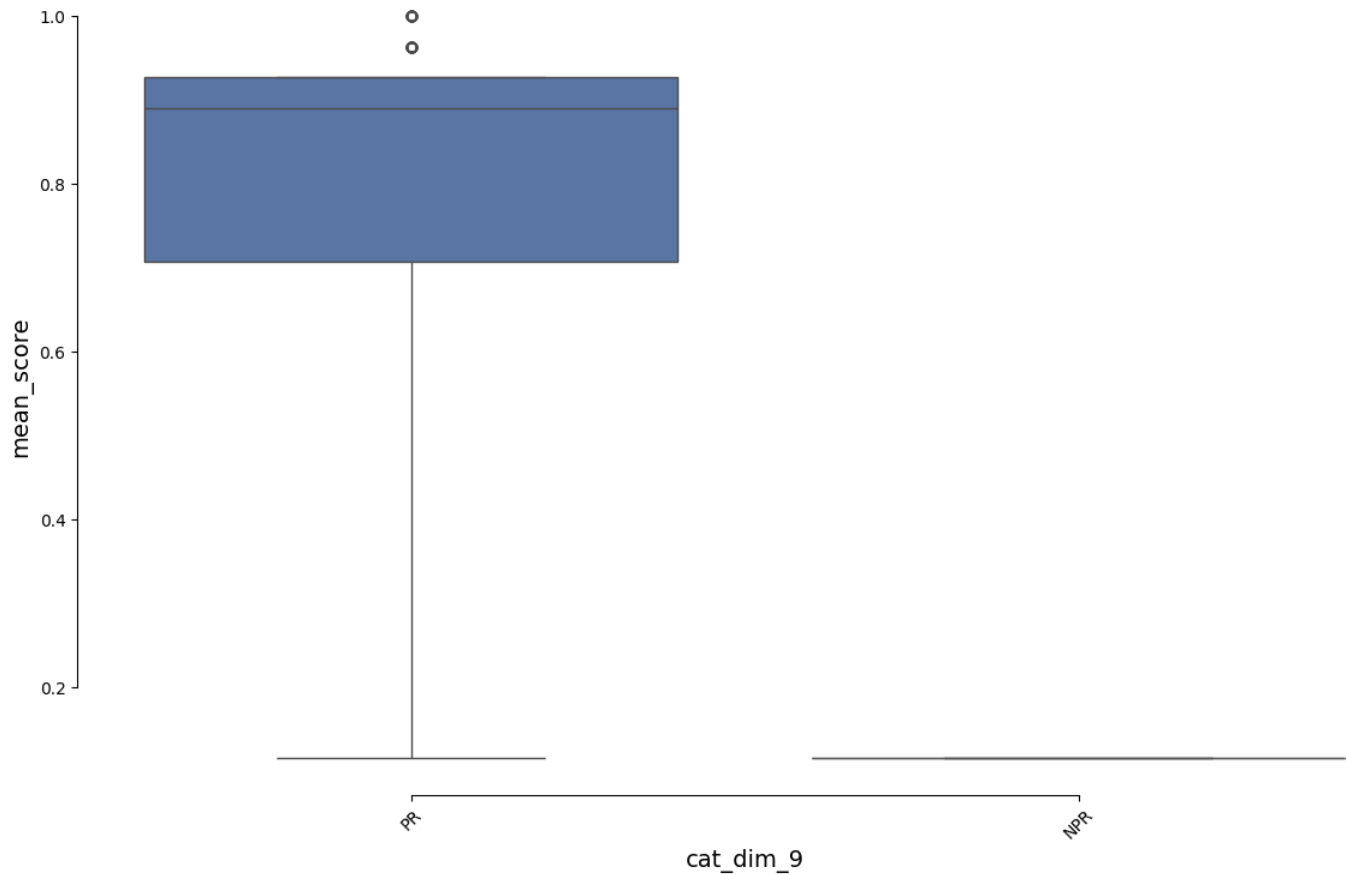
- Regularly track performance metrics
- Adjust strategies as needed based on real-time data

5. **Engage Stakeholders:**

- Share insights and action plans with process owners
- Foster collaboration to support improvement initiatives

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Adjusted Box Plot of Scores by Category



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