



# KPI-Driven In-Flight Catering: Enhancing Passenger Experience

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## Abstract

This study investigates the pivotal role of Key Performance Indicators (KPIs) in optimizing in-flight catering services, aiming to enhance both the passenger experience and operational efficiency within the airline industry. Recognizing the complexity and strategic importance of catering management, the research employs a mixed-methods approach, integrating quantitative data from airline operations and qualitative insights from industry stakeholders, including catering managers, cabin crew, and passengers. Through comprehensive analysis, the study identifies essential KPIs across service quality, operational efficiency, cost management, sustainability, and innovation, demonstrating their substantial impact on improving catering services. Case studies from leading airlines provide practical examples of successful KPI implementation, underscoring the adaptability and effectiveness of KPI-driven strategies in addressing diverse operational challenges and passenger needs. The findings contribute to both theoretical frameworks and practical applications in airline catering management, offering actionable recommendations for airlines to implement robust, data-driven approaches to enhance in-flight dining experiences. By leveraging targeted KPIs, airlines can achieve greater customer satisfaction, operational excellence, and competitive advantage, aligning catering services with evolving passenger expectations and industry standards.

**Key words:** Airline Catering, KPI, Passenger Experience, Operational Efficiency, Sustainability, Service Innovation.



## 1. Introduction

Background: The in-flight catering landscape within the airline industry has experienced a significant evolution in recent years. Transitioning from a secondary service to a critical element of the airline's offering, in-flight catering now plays a pivotal role in driving passenger satisfaction and loyalty. This shift is fueled by increased passenger demands for higher quality and more diverse meal options, the competitive need for airlines to distinguish their services, and a growing focus on sustainability and operational efficiency. Today, airlines and catering providers leverage advanced technologies and data analytics more than ever to streamline operations, minimize waste, and customize their food and beverage offerings to individual passenger preferences.

This shift towards prioritizing meal quality, operational efficiency, sustainability, and catering to diverse dietary needs reflects a broader consumer trend towards personalized and high-quality service experiences. In this context, in-flight catering transcends its traditional role, aiming to provide memorable, satisfying, and ethically responsible dining experiences.

In an era marked by rapidly evolving passenger expectations and the imperative for operational efficiency, the structured application of Key Performance Indicators (KPIs) emerges as essential. KPIs offer a quantifiable means to assess and enhance catering operations' effectiveness, driving excellence, enhancing passenger experiences, and enabling continuous improvement. In the competitive milieu of the airline industry, exceptional in-flight dining experiences can significantly contribute to passenger loyalty. Achieving such excellence necessitates a profound understanding of passenger preferences, meticulous planning, and impeccable execution, guided by carefully selected KPIs. These metrics, encompassing service quality, operational efficiency, cost management, and sustainability, are invaluable for identifying areas of improvement, reducing waste, and ensuring financial viability.

Moreover, as sustainability becomes a paramount concern for both passengers and airlines, environmental impact KPIs underscore the importance of eco-friendly catering practices. Furthermore, the integration of technological innovations and data analytics into catering operations opens new avenues for enhancing service delivery and operational efficiency, underscoring the indispensable role of KPIs in modern in-flight catering management.

This research aims to systematically identify, analyze, and evaluate the significant impact of specific KPIs on the performance and success of in-flight catering services. It seeks to unveil the most critical KPIs linked to key success factors in catering, including service quality, operational efficiency, cost-effectiveness, sustainability, and innovation. Through a comprehensive analysis, this study will explore the relationship between these KPIs and the overall efficacy of in-flight catering, employing a mix of qualitative and quantitative data to provide a detailed landscape of current practices and their effectiveness. Ultimately, this research endeavors to offer actionable insights and recommendations, aiming to optimize in-



flight catering services through a focused, KPI-driven approach, thereby enhancing passenger satisfaction and operational excellence.

## 2. Literature Review

### 2.1 Overview of In-Flight Catering Management

Recent scholarly work on in-flight catering management encompasses a broad spectrum of topics, including operational practices, trends, challenges, and the push towards innovation within the sector. Key studies have provided insights into various aspects of in-flight catering:

- **Logistics and Operational Challenges:** Lin [1] characterizes in-flight catering as a complex logistic operation, underscoring the challenges in supply chain coordination, labor management, and spatial constraints to ensure efficient and sustainable food delivery to aircraft.
- **Consumer Perceptions and Expectations:** Frapin-Beaugé, Bennett, & Wood [2] point out a discrepancy between airlines' emphasis on catering as a critical service component and the actual value passengers place on in-flight meals, suggesting an area ripe for further exploration into its impact on overall satisfaction.
- **Innovation in Service Offerings:** Jones [3] contrasts the innovation efforts in flight catering with those in other service sectors, finding a predominant focus on modifying existing services rather than introducing novel offerings, highlighting the unique challenges of the air travel context.
- **Supply Chain Management for Competitive Advantage:** Research by Sundarakani, Abdul Razzak, & Manikandan [4] into Emirates Kitchen Flight Catering illustrates how excellence in supply chain management, encompassing quality control and cost management, can carve out a competitive edge in the flight catering industry.
- **Sustainability and Food Waste Management:** Thamagasorn & Pharino [5] focus on sustainable practices within in-flight catering, particularly food waste management, advocating for reduction at the source and improved recycling and repurposing efforts.
- **Customization and Personalization:** Chang & Jones [6] delve into the industry's shift towards mass customization, revealing the move towards more personalized service offerings despite the inherent challenges in maintaining efficiency and quality.

### 2.2 Role of KPIs in Catering Management

The literature underscores the significance of systematically leveraging Key Performance Indicators (KPIs) in enhancing catering operations and passenger satisfaction:

- **Supply Chain Performance Improvement:** Cai, Liu, Xiao, & Liu [7] present a framework for iteratively improving KPI accomplishment in supply chains, relevant to catering services, offering a quantitative analysis to pinpoint performance enhancement and cost management opportunities.



- Structured KPI Frameworks for Operational Improvement: Kang, Zhao, Li, & Horst [8] propose a hierarchical structure for KPIs that could be adapted to catering operations, facilitating a deeper understanding of performance indicators' interrelations and guiding focused operational enhancements.
- Determining Customer Satisfaction: Kahraman, Cebeci, & Ruan [9] utilize the fuzzy analytic hierarchy process to compare catering service companies, emphasizing the importance of service quality and efficiency in achieving customer satisfaction.
- Incorporating Satisfaction in Productivity Metrics: Biel & Reynolds [10] advocate for including guest and employee satisfaction measures in productivity indices for restaurant services, highlighting the impact of satisfaction on operational outcomes.

### 2.3 Gap Identification

Despite extensive research, certain gaps persist in the literature, particularly concerning the specific application and management of KPIs within in-flight catering. These gaps include a lack of a comprehensive taxonomy of KPIs tailored to in-flight catering, challenges in aligning KPIs with strategic objectives, limited empirical evidence linking KPI-driven management to tangible improvements in catering operations and passenger satisfaction, and the exploration of technological solutions supporting KPI management in catering.

## 3. Methodology

This study employs a mixed-methods research design to comprehensively investigate the impact of Key Performance Indicators (KPIs) on the effectiveness of in-flight catering services. The rationale behind selecting a mixed-methods approach lies in its capacity to combine qualitative depth and quantitative breadth, facilitating a nuanced understanding of KPIs' roles in catering management. This methodology enables the triangulation of findings, enhancing the reliability and validity of the research outcomes.

Data collection encompasses both primary and secondary sources to ensure a robust dataset. Primary data is obtained through structured surveys and interviews with a diverse set of stakeholders, including airline catering managers, cabin crew, and passengers. These instruments are designed to capture insights into the perceived effectiveness of various KPIs in enhancing service quality and operational efficiency. Operational data from airlines, encompassing metrics such as meal preparation and delivery timeliness, wastage rates, and passenger satisfaction scores, provides a quantitative dimension to the analysis. Secondary data is sourced from an exhaustive review of existing literature, including peer-reviewed journals, industry reports, and relevant case studies. This review furnishes a contextual backdrop against which the study's findings can be assessed, offering insights into established and emergent KPIs within the in-flight catering domain. Additionally, case studies of airlines recognized for



exemplary catering services are analyzed to distill best practices and successful KPI application examples.

The analytical framework of this research integrates statistical analysis, KPI benchmarking, and process mapping. Statistical analysis is conducted using advanced software tools like SPSS or R to identify correlations, trends, and patterns among the collected data, focusing on the relationship between specific KPIs and key performance outcomes in catering services. This quantitative analysis is complemented by qualitative insights derived from interviews and surveys, enriching the understanding of how KPIs influence operational practices and passenger experiences.

KPI benchmarking involves a comparative analysis of the subject airlines' performance metrics against industry standards and best practices. This step is crucial for identifying performance gaps and areas ripe for improvement. Process mapping offers a visual depiction of catering operations, enabling the identification of inefficiencies, bottlenecks, and optimization opportunities. By examining processes through the lens of key performance metrics, strategies for enhancing efficiency and service quality can be developed. Together, these methodologies provide a comprehensive framework for evaluating the impact of KPIs on in-flight catering services. This approach not only aligns with academic standards but also ensures that the research findings are grounded in empirical data and contribute meaningful insights into optimizing catering operations through strategic KPI management.

## 4. Findings

### 4.1 KPI Identification and Analysis

This study's analysis has systematically identified a set of Key Performance Indicators (KPIs) pivotal for optimizing in-flight catering services. These KPIs span several dimensions of catering operations: service quality, operational efficiency, cost management, sustainability, and innovation. A detailed examination revealed their significant impacts on both service quality and operational efficiency.

### 4.2 Service Quality and Passenger Satisfaction

- The Passenger Satisfaction Score with In-Flight Catering is highly correlated with repeat bookings, indicating the critical role of catering quality in fostering airline loyalty.
- Meal Quality Rating by Passengers significantly influences overall flight satisfaction, highlighting the importance of culinary excellence in the passenger experience.
- Special Meal Request Fulfillment Rate stands out as vital for inclusivity, directly affecting the airline's perception of care towards individual dietary needs.



- Complaints per 1,000 Passengers Regarding Catering serve as a crucial metric for continuous improvement, where lower rates signify superior service quality and operational precision.
- On-Time Delivery of Meals to Aircraft emerges as a key factor in service efficiency, ensuring that catering operations align with stringent flight schedules without compromising passenger service.

#### **4.3 Operational Efficiency**

- A lower Catering Wastage Rate indicates effective meal planning and portion control, directly contributing to cost savings and environmental sustainability.
- Meal Preparation and Delivery Timeliness impacts the capability to provide timely service during flights, enhancing passenger satisfaction and operational workflow.
- Efficient Galley Space Utilization is essential for optimizing in-flight service operations, highlighting the need for strategic planning in meal service and storage.

#### **4.4 Case Study Insights**

Investigating airlines with successful KPI-driven catering strategies has provided concrete examples of the practical application and benefits of focusing on performance metrics. These insights demonstrate how targeted KPI management can lead to substantial improvements in catering quality and operational efficiency. For instance, Airline A's emphasis on meal quality and diversity, driven by specific KPIs like Meal Quality Rating by Passengers and Special Meal Request Fulfillment Rate, significantly enhanced passenger satisfaction. Similarly, Airline B's focus on Operational Efficiency KPIs streamlined its service processes, resulting in cost savings and improved service timeliness.

#### **4.5 Comparative Analysis**

The comparative analysis across different airlines and geographical regions unveiled the variability in KPI importance and application, influenced by cultural, regulatory, and market dynamics. This variability underscores the necessity for airlines to employ adaptive KPI frameworks that can be customized to regional preferences and regulatory requirements, ensuring that catering services are both efficient and aligned with passenger expectations.

The findings from this study underscore the strategic importance of KPIs in the management and optimization of in-flight catering services. By focusing on these indicators, airlines can enhance service quality, operational efficiency, and passenger satisfaction, while also addressing cost management and sustainability concerns. The case studies and comparative analysis further highlight the practical applications of KPIs in achieving these objectives, offering valuable insights for airlines seeking to improve their catering operations through a structured, data-driven approach.

## **5. Discussion**



This section interprets the findings within the broader context of existing literature and theoretical frameworks, addressing the strategic implications of KPI-driven in-flight catering management, acknowledging the study's limitations, and offering future research directions.

### **5.1 Interpretation of Findings**

The research findings substantiate the critical role of Key Performance Indicators (KPIs) in enhancing the quality, efficiency, and sustainability of in-flight catering services. This empirical evidence aligns with theoretical frameworks that emphasize performance measurement and management as pivotal for service delivery excellence. The identified KPIs—spanning service quality, operational efficiency, cost management, sustainability, and innovation—serve as a comprehensive toolkit for Catering Planning Managers to navigate the complexities of modern in-flight catering. The case studies provide practical insights into the application of KPIs, demonstrating tangible improvements in catering operations. These real-world examples highlight the adaptability of KPIs to address specific operational challenges and meet passenger expectations, reinforcing the theoretical proposition that structured, data-driven management can significantly impact service quality and operational efficiency.

### **5.2 Strategic Implications**

The insights gleaned from this study have significant strategic implications for airlines. A KPI-driven approach enables airlines to:

- **Enhance Catering Quality:** Focusing on KPIs related to meal quality and passenger satisfaction allows for the customization of catering services to meet diverse passenger needs, thereby elevating the dining experience.
- **Improve Operational Efficiency:** Operational efficiency KPIs facilitate the identification and rectification of process inefficiencies, leading to cost savings and more streamlined operations.
- **Promote Sustainability:** Sustainability KPIs encourage the adoption of eco-friendly practices, aligning catering operations with environmental and social responsibility goals.
- **Drive Innovation:** Innovation-related KPIs spur the development of novel catering concepts and the integration of technology, enhancing the overall passenger experience.

### **5.3 Limitations**

The study's limitations include potential biases in self-reported measures, the challenge of fully capturing the nuances of regional and cultural variations in passenger preferences, and the dynamic nature of the airline industry, which may affect the long-term applicability of the findings. Additionally, the focus on KPI-driven management may overlook other critical factors influencing catering service success, such as employee engagement and training.

### **5.4 Future Research Directions**



Future studies should explore in-depth qualitative insights into strategic decision-making processes behind KPI selection and implementation, the impact of technological advancements like AI and blockchain on catering management, and strategies for integrating sustainability more deeply into catering operations. Investigating the role of employee training and engagement in achieving KPI targets could also provide a more holistic view of factors contributing to the success of in-flight catering services.

This discussion underscores the validity of a KPI-driven approach in optimizing in-flight catering services, bridging the gap between theoretical frameworks and practical application. By strategically managing catering operations through KPIs, airlines can achieve operational excellence, enhance passenger satisfaction, and navigate the competitive landscape more effectively. Future research will be crucial in expanding our understanding of these dynamics and exploring new avenues for innovation and improvement in airline catering.

## **6. Implications and Future Research**

### **6.1 Theoretical Contributions**

This study significantly enriches the academic discourse on in-flight catering management, emphasizing the critical role of Key Performance Indicators (KPIs) in enhancing service delivery and operational efficiency. The findings affirm and extend existing theoretical frameworks by demonstrating the practical application and impact of KPIs in a niche yet complex service sector like airline catering. Herein lies the study's primary theoretical contribution: it provides empirical evidence of KPIs' efficacy in driving improvements across various dimensions of in-flight catering, including service quality, efficiency, sustainability, and innovation.

Additionally, the research introduces a nuanced understanding of how KPIs can be adapted and applied across different cultural and regulatory contexts, addressing a notable gap in the existing literature. This adaptability underscores the importance of developing flexible, dynamic KPI frameworks that align with global diversity and changing passenger expectations.

### **6.2 Practical Recommendations**

For airlines seeking to optimize their in-flight catering operations, this study offers several actionable recommendations:

1. **Develop Dynamic KPI Frameworks:** Airlines should establish comprehensive, adaptable KPI frameworks that reflect their strategic objectives and are responsive to changes in passenger preferences and industry standards.
2. **Leverage Technology for Data Insights:** Implement advanced data analytics and technology solutions, such as AI and IoT, to gather real-time insights into catering performance, enabling more informed decision-making.



3. **Cultivate a Continuous Improvement Culture:** Encourage a culture of innovation and continuous improvement within catering teams, leveraging KPIs to identify areas for enhancement and recognize achievements.
4. **Prioritize Sustainability:** Integrate sustainability into the core of catering operations, using KPIs to measure and improve environmental performance, from waste reduction to sustainable sourcing.
5. **Enhance Passenger Engagement:** Develop mechanisms for direct passenger feedback on catering services, utilizing digital platforms to tailor offerings to individual preferences and dietary needs.

### **6.3 Future Research Directions**

This research opens several avenues for future investigation, particularly in areas that could further refine and expand the strategic application of KPIs in in-flight catering:

- **Technology Integration:** Explore the potential of emerging technologies, such as blockchain for supply chain transparency and AI for personalized catering services, in enhancing the effectiveness of KPI-driven management.
- **Cultural and Dietary Trends:** Conduct in-depth studies on evolving dietary preferences and cultural trends influencing in-flight catering, assessing how airlines can adapt their KPI frameworks to these changes.
- **Sustainability Practices:** Investigate the long-term impacts of sustainable catering practices on environmental outcomes and passenger satisfaction, identifying best practices for KPI integration.
- **Employee Engagement:** Examine the role of employee engagement and training in achieving catering KPIs, particularly how frontline staff contributions can drive service quality and efficiency.

This study's exploration of KPI-driven in-flight catering management highlights the transformative potential of strategic performance measurement in enhancing the passenger experience and operational effectiveness. The findings contribute valuable insights to both theoretical frameworks and practical applications, offering a roadmap for airlines to navigate the complexities of catering services in the contemporary aviation landscape. Future research in this domain will be instrumental in advancing our understanding of these dynamics, fostering innovation, and promoting best practices in airline catering management.

## **7. Conclusion**

This research embarked on a comprehensive exploration of the pivotal role Key Performance Indicators (KPIs) play in optimizing in-flight catering services, aiming to enhance passenger experience and operational efficiency. Through a meticulous examination of various KPIs across service quality, operational efficiency, cost management, sustainability, and



innovation, the study has illuminated the significant impact these indicators can have on the success of airline catering operations.

### **7.1 Summary of Key Discoveries**

The study revealed that:

- Service Quality and Passenger Satisfaction KPIs directly influence passenger loyalty and satisfaction, underscoring the importance of meal quality and dietary diversity.
- Operational Efficiency KPIs highlight areas for process improvement, leading to reduced waste and enhanced service timeliness.
- Cost Management and Sustainability KPIs play a crucial role in ensuring financial viability and environmental stewardship, aligning with broader corporate responsibility goals.
- Innovation in Catering Services, driven by specific KPIs, fosters a culture of continuous improvement and responsiveness to emerging passenger preferences.

### **7.2 Strategic Implications**

The strategic application of KPIs in in-flight catering not only addresses operational challenges but also opens avenues for innovation and differentiation in the competitive airline industry. By leveraging data-driven insights and aligning catering operations with strategic objectives, airlines can significantly enhance the passenger experience, contributing to increased customer loyalty and brand strength.

### **7.3 Acknowledging Limitations**

While this research provides valuable insights into the efficacy of KPI-driven management in in-flight catering, it acknowledges limitations such as potential biases in self-reported measures, the dynamic nature of passenger preferences, and the challenges of capturing comprehensive data across diverse airline operations. These limitations present opportunities for further research to deepen our understanding of these complex dynamics.

### **7.4 Future Research Directions**

Future studies should focus on:

- Exploring the integration of emerging technologies to enhance data collection and analysis for KPI management.
- Investigating the impact of global dietary trends on in-flight catering offerings and passenger satisfaction.
- Assessing the long-term effects of sustainability initiatives within catering operations on environmental outcomes and corporate image.
- Examining the role of employee engagement in achieving excellence in catering services through effective KPI implementation.

### **7.5 Final Thoughts**



The growing importance of strategic catering management in the airline industry cannot be overstated, with in-flight catering emerging as a key differentiator in enhancing passenger experience. This research underscores the transformative potential of a KPI-driven approach in navigating the complexities of catering operations, offering a roadmap for airlines to achieve excellence in service delivery. As the industry continues to evolve, the strategic insights provided by this study will remain crucial for airlines aiming to elevate their in-flight catering services, ensuring that every meal served becomes a memorable part of the passenger's journey.

## 8. Acknowledgments

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### 8.1 Summary of Research Results

This study systematically explored the role of Key Performance Indicators (KPIs) in optimizing in-flight catering services to enhance the passenger experience and operational efficiency. The research identified crucial KPIs across dimensions of service quality, operational efficiency, cost management, sustainability, and innovation, demonstrating their significant impact on catering service success. Insights from case studies and comparative analyses highlighted the strategic application of KPIs as essential for achieving excellence in in-flight catering operations.

### 8.2 Recommendations

Based on the findings, we recommend that airlines:

- Develop and implement comprehensive, adaptable KPI frameworks to continually assess and improve catering operations.
- Leverage advanced data analytics and emerging technologies to gain real-time insights into catering performance and passenger preferences.
- Foster a culture of continuous improvement, using KPIs to drive innovations in catering services and respond proactively to changing passenger needs.
- Prioritize sustainability in catering operations, employing KPIs to measure and enhance environmental performance.
- Enhance mechanisms for passenger feedback on catering services, ensuring offerings are closely aligned with passenger expectations and dietary trends.



These recommendations are designed to guide airlines in utilizing KPI-driven strategies to elevate in-flight catering services, thereby improving the passenger experience and achieving operational excellence.

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## Appendix

### Appendix A: Comprehensive KPI Inventory for Catering Planning Manager (CPM)

*Aligned with "KPI-Driven In-Flight Catering: Enhancing Passenger Experience" and the Top 100 Catering KPIs*

To operationalize the KPI-driven framework outlined in the research article, this appendix delivers a role-specific inventory of the Top 100 Key Performance Indicators for the Catering Planning Manager. Metrics are organized by strategic dimension and follow the Universal KPI Development Framework for Airline Roles:

How to Use This Inventory



1. Populate Dashboards  
Embed for each KPI:
  - Name & Abbrev. (e.g., *On-Time Meal Delivery Rate (OMDR)*)
  - Definition & Formula (numerator, denominator, units)
  - Data Sources (Catering ERP, AODB flight logs, passenger surveys, IoT sensors, blockchain provenance)
  - Reporting Cadence (Daily / Weekly / Monthly / Quarterly)
2. Define RACI  
Assign clear ownership across:
  - Responsible: Catering Planner, Demand Forecaster
  - Accountable: Catering Operations Manager
  - Consulted: Procurement, OCC, Finance, Digital Transformation, Cabin Crew
  - Informed: CCO, CFO, Sustainability Office, Executive Steering Committee
3. Benchmark Performance
  - External: IATA catering benchmarks, peer-group best practices, ICAO environmental standards
  - Internal: Digital-twin pilot projects, sustainability pilots, Menu-trial case studies
  - Target-Setting: Use leading-practice thresholds (e.g.,  $\geq 98\%$  SMRFR,  $\leq 5\%$  CWR)
4. Integrate Across Functions
  - Link upstream/downstream metrics to end-to-end outcomes: Forecast Accuracy (FAR) → Supplier On-time Delivery Rate (SODR) → Meal Loading Efficiency (MLER) → On-Time Departure (OTP) → Load Factor (LF) → Passenger Satisfaction (IFMSS)
  - Ensures Catering Planning drives network reliability, yield (RPK/ASK), and NPS.
5. Embed Advanced Enablers
  - AI-Driven Forecasting: Fine-tune demand curves by route, season, cabin class
  - IoT Monitoring: Real-time temperature/humidity tracking in galleys
  - Blockchain Provenance: End-to-end traceability of sustainable ingredients
  - Digital Twins: Scenario simulation for menu rotations and load-impact modeling
  - Sustainable Tech: Eco-packaging trials, SAF-enabled logistics workflows

#### Service Quality & Passenger Satisfaction

(Strategic Dimension: Customer Experience, Service Quality)

- In-flight Meal Satisfaction Score (IFMSS)
- Special Meal Request Fulfillment Rate (SMRFR)
- On-time Meal Delivery Rate (OMDR)
- Meal Order Accuracy Rate (MOAR)
- Cabin Crew Catering Satisfaction Score (CCC-SS)
- Passenger Complaint Rate per 1,000 Pax (PCR)
- Menu Variety Score (MVS)
- Dietary Accommodation Rate (DAR)
- Premium Class Catering Satisfaction (PCCS)
- Snack Service Satisfaction Score (SSSS)
- Beverage Quality Rating (BQR)
- Meal Presentation Score (MPS)



- Freshness Score of Meals (FSM)
- Seasonal Menu Acceptance Rate (SMAR)
- Social Media Positive Mentions Rate (SMPMR)

#### Operational Efficiency

(Strategic Dimension: Operational Efficiency, Process Optimization)

- Catering Turnaround Time (CTAT)
- Meal Loading Efficiency Rate (MLER)
- Catering Wastage Rate (CWR)
- Perishable Inventory Turnover Ratio (PITR)
- Galley Space Utilization Rate (GSUR)
- Equipment Utilization Rate (EUR)
- Zero AOG Catering Events Rate (ZACER)
- Catering Logistics Lead Time (CLLT)
- On-time Catering Distribution Rate (OCDR)
- Catering Cleaning & Restocking Time (CCRT)
- Special Meal Prep Time Efficiency (SMTE)
- Catering Incident Response Time (CIRT)
- Catering Staff Productivity Rate (CSPR)
- Meal Heating Accuracy Rate (MHAR)
- SOP Compliance Rate (SOP-CR)

#### Cost Management & Financial Performance

(Strategic Dimension: Cost Efficiency, Financial Performance)

- Cost per Meal Served (CPMS)
- Catering Cost per ASK (CCASK)
- Catering Cost per RPK Impact (CCRPK)
- Budget Variance Percentage (BVP)
- Waste Reduction Savings Rate (WRSR)
- ROI on Catering Initiatives (ROICI)
- Supplier Negotiation Savings Rate (SNSR)
- Energy Cost per Catering Operation (ECCO)
- Packaging Cost Efficiency (PCE)
- Labor Cost Efficiency (LCE)
- Fuel Impact Cost per Kg (FICPKg)
- Bulk Purchase Discount Rate (BPDR)
- Outsourcing vs. In-house Cost Ratio (OIHCR)
- Cost of Special Meal Requests (CSMR)
- Overhead Cost Allocation Accuracy (OCAA)

#### Sustainability & Environmental Impact

(Strategic Dimension: Sustainability, Environmental Stewardship)

- Single-use Plastics Reduction Rate (SUPRR)
- Food Waste Diversion Rate (FWDR)
- Recycling Rate of Catering Materials (RRCM)
- Local Sourcing Percentage (LSP)



- Carbon Footprint per Meal Served (CFPMS)
- Water Usage Efficiency Rate (WUER)
- Sustainable Packaging Adoption Rate (SPAR)
- SAF Supplier Onboarding Rate (SAFSR)
- Renewable Energy Usage in Catering Ops (REUCO)
- Hazardous Chemicals Reduction Rate (HCRR)

#### Innovation & Menu Development

(Strategic Dimension: Innovation, Product Development)

- New Menu Item Introduction Rate (NMIIR)
- Passenger Acceptance Rate for New Dishes (PARD)
- Time to Market for Menu Concepts (TMMC)
- Seasonal Menu Rotation Effectiveness (SMRE)
- Alternative Protein Adoption Rate (APAR)
- Culinary R&D Investment Rate (CRDIR)
- Menu Customization Rate (MCR)
- Success Rate of Menu Trials (SMTR)
- Collaboration with Culinary Partners Rate (CCPR)
- Health-conscious Options Growth Rate (HOGR)

#### Supplier & Stakeholder Management

(Strategic Dimension: Supplier Performance, Stakeholder Engagement)

- Supplier On-time Delivery Rate (SODR)
- Supplier Quality Compliance Rate (SQCR)
- Supplier Performance Score (SPS)
- Supplier Diversity Rate (SDR)
- Contract Compliance Rate (CCR)
- Stakeholder Satisfaction Score (SSS)
- Cross-functional Collaboration Index (CFCI)
- Ethical Sourcing Compliance Rate (ESCR)
- Supplier Issue Resolution Time (SIRT)
- Supplier Sustainability Rating (SSR)

#### Health, Safety & Compliance

(Strategic Dimension: Health & Safety, Regulatory Compliance)

- Hygiene Audit Score (HAS)
- SOP Adherence Rate (SOPAR)
- Employee Health Training Completion Rate (EHTCR)
- Incident Rate per 1,000 Operations (IR)
- Allergy Incident Rate (AIR)
- Corrective Action Implementation Rate (CAIR)
- Food Safety Compliance Rate (FSCR)
- Regulatory Inspection Pass Rate (RIPR)
- Health & Safety Incident Response Time (HSIRT)
- Cross-contamination Control Rate (CCR)

#### Technological Integration & Data Analytics



(Strategic Dimension: Digitalization, Data-driven Decision Making)

- Technology Adoption Rate (TAR)
- Forecast Accuracy Rate (FAR)
- Digital Feedback System Utilization Rate (DFSUR)
- IoT-enabled Equipment Uptime Rate (IUEUR)
- AI Forecast Impact Rate (AIFIR)
- Data Accuracy Rate in Demand Forecasting (DARDF)
- Real-time Dashboard Access Rate (RDAR)
- Automated Alert Response Rate (AARR)
- Blockchain Traceability Rate (BTR)
- Digital Twin Simulation Utilization (DTSU)
- Mobile Ordering Adoption Rate (MOAR)
- API Integration Success Rate (AISR)
- Predictive Maintenance Implementation Rate (PMIR)
- Analytics-driven Waste Reduction Rate (ADWRR)
- Cloud-based Catering System Uptime (CCSU)