Optimizing Venue Operations with Data-Driven Key Performance Indicators (KPIs) and Executive-Level Reporting

NCS⁴ Sports and Entertainment Technology Alliance

Technical Whitepaper

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Executive Summary

Sports and entertainment venues today are complex ecosystems requiring coordination across dozens of departments, from security and guest experience to maintenance and command center operations. Data-driven decision-making has become essential. As venues grow in scale and complexity, the ability to use data to anticipate challenges, rather than simply respond, has become a defining competitive advantage. This whitepaper introduces a practical framework for defining, tracking, and applying Key Performance Indicators (KPIs) that enhance safety, efficiency, and guest satisfaction, and integrates insights from leaders at SoFi Stadium, Kroenke Sports & Entertainment, the Kansas City Chiefs, Boise State University, the Texas Rangers, and 24/7 Software. This paper also outlines how operators are building measurable frameworks for accountability and adoption while exploring how Artificial Intelligence (AI) and interoperable systems support smarter, faster, and safer decisions.

Research Approach

Structured research interviews were conducted with key collaborators: Jeff Gillies (SoFi Stadium & Hollywood Park), Kelsey Cerrone (Kroenke Sports & Entertainment), Brandon Hamilton (Kansas City Chiefs), Nathan Burk (Boise State University), Katie Morgan (Texas Rangers), and Matthew Dobrosevic (24/7 Software).

Each collaborator shared detailed operational experiences around Key Performance Indicators (KPIs) implementation, system interoperability, and the evolving role of AI. These discussions revealed how strong data foundations, executive alignment, and cross-departmental reporting drive measurable outcomes. Their collective insights form the foundation for the best practices and framework presented throughout this paper.

1. Why KPIs Matter for Venue Operations

Modern venue operations rely on data to unify diverse teams under a shared definition of success. Well-designed KPIs align departments toward measurable outcomes, helping leaders identify gaps, benchmark progress, and make timely interventions. Rather than relying on anecdotal feedback, KPIs provide the clarity needed to continuously improve both operational performance and the guest experience. These metrics also encourage accountability by making performance visible across all levels of the organization, from frontline staff to executive leadership. Katie Morgan (Texas Rangers) noted that the most meaningful KPIs don't just measure efficiency; they enhance the fan experience. When data connects operational actions with guest outcomes, every fan benefits from a smoother, more personalized journey that feels thoughtfully designed for them.

2. Common Challenges in KPI Adoption

Despite growing recognition of KPIs' value, many venues face persistent challenges in adoption. Data often resides in silos across security, maintenance, and event systems, limiting its usefulness. Teams may be hesitant to engage with reporting tools if they don't understand how the data supports their day-to-day responsibilities. Collaborators emphasized that cultural buy-in, ensuring everyone understands why the data matters, is as critical as the technical setup.

3. Framework: From Data to Action

The framework below outlines how to translate data into meaningful action, supported by insights from venue operations leaders who have successfully embedded KPI practices within their teams.

Framework Step	Making KPIs Actionable	Practical Suggestions from Venue Leaders
1. Define What Matters	Identify outcomes aligned with organizational priorities, such as safety, efficiency, and fan experience. Limit KPIs to a few core measures per department to maintain focus.	Jeff Gillies (SoFi Stadium) emphasized that clarity drives early success. Teams perform best when they understand which metrics define success. Nathan Burk (Boise State University) added that clarity must extend across both athletics and university operations, aligning with state governance and campus-wide goals.
2. Select Meaningful KPIs	Choose metrics that reflect real-world performance, such as incident response time, preventive maintenance compliance, or guest satisfaction scores.	Brandon Hamilton (Kansas City Chiefs) uses KPIs to align staff behavior with operational priorities, quantifying improvements in training and communication. Nathan Burk (Boise State University) highlighted that in collegiate settings, metrics must also reflect campus safety and community impact, such as compliance response times or event activation readiness.
3. Capture All Data	Integrate data across incident management, maintenance, ticketing, and access systems to eliminate silos and create a unified operational picture.	Kelsey Cerrone (Kroenke Sports) highlighted that consistent data entry is the foundation of meaningful analysis. At Boise State University, data capture spans athletics, campus operations, and public events, requiring unified systems to ensure transparency and public accountability.

4. Visualize for Impact	Create role-based dashboards that highlight performance indicators relevant to each user group. Visual cues such as color coding, alerts, or trends, enhance understanding.	Displaying real-time metrics in SoFi Stadium's command center improved system adoption and reporting accuracy. Jeff Gillies (SoFi Stadium) noted that visual indicators often prompt faster responses than the underlying data. When teams see a dashboard item shift to yellow or red, they act immediately, demonstrating how clear visual cues can drive action more than the metric itself.
5. Act & Improve	Use recurring reviews to identify patterns, allocate resources, and refine operational processes. Link KPI reviews to team meetings for visibility and accountability.	Venue leaders agreed that visible dashboards and weekly summaries drive engagement. Matthew Dobrosevic (24/7 Software) emphasized that dashboards encourage ongoing adoption by providing instant feedback on performance progress. Boise State University holds weekly reviews to refine emergency protocols.

4. Using Data to Drive Adoption and Accountability

KPI dashboards play a critical role in encouraging consistent usage of operational systems such as incident management, maintenance, and guest service platforms. At SoFi Stadium, response-time dashboards motivated teams to engage with the system more consistently, improving both accuracy and timeliness of reporting. Kelsey Cerrone (Kroenke Sports) described how visualizing task completion metrics created a 'self-reinforcing loop' of improvement, where accurate reporting led to better insights and more targeted action. Brandon Hamilton explained that at the Kansas City Chiefs, KPI dashboards are used to measure training compliance and ensure mobile technology adoption across departments. Katie Morgan (Texas Rangers) shared that real-time KPI dashboards have become part of game-day operations, allowing executives to monitor ingress and operations in real time. According to Matthew Dobrosevic (24/7

Software), this behavioral shift is the key to analytics maturity. When teams see value in data, system usage naturally follows.
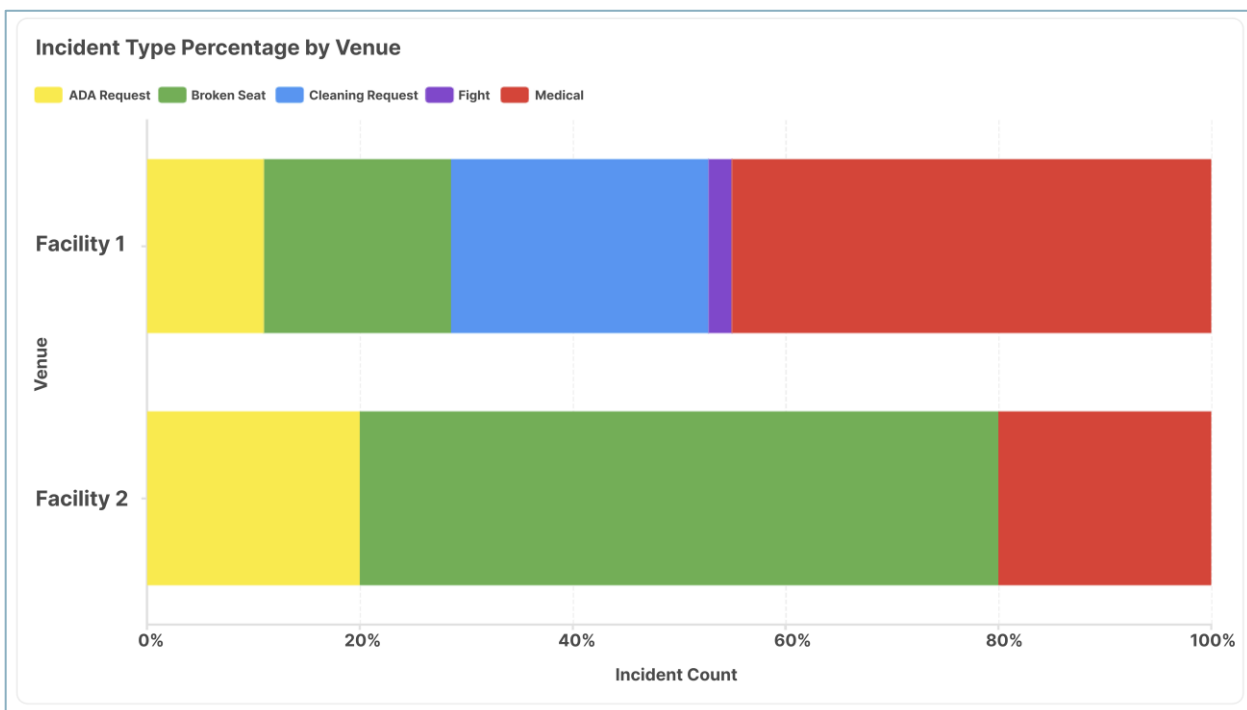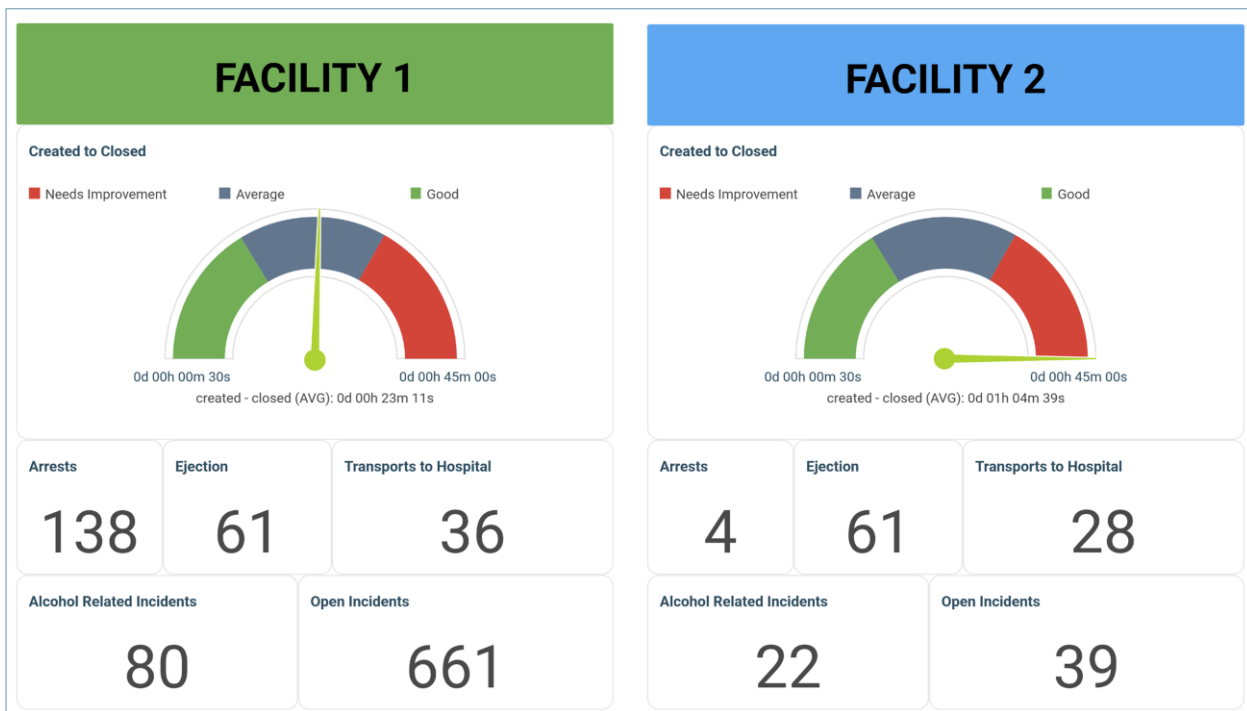
5. Executive-Level Reporting

Executives need clear, concise reporting that links operational activity to strategic goals. The best executive dashboards simplify complex data into trends, exceptions, and meaningful insights, giving leaders an immediate understanding of how their venue is performing across events and departments. At the Kansas City Chiefs, for example, sustainability and waste diversion metrics have been added to executive dashboards to support environmental accountability and organizational reporting.

AI-assisted tools increasingly help summarize incidents, flag anomalies, and reduce the time required for executive updates. As Matthew Dobrosevic (24/7 Software) noted, the strongest dashboards act as both management tools and adoption drivers. When executives routinely review key performance indicators, engagement across supervisors and frontline staff increases significantly.

A consistent theme across the leadership interviews is that the most effective executive metrics are also relevant to managers and frontline personnel. Response times are a good example: executives use them to assess staffing levels and resource allocation, managers use them to monitor team performance during events, and frontline staff use them as clear, actionable measures of success. Because the metric resonates across the entire organization, it becomes easier to operationalize and reinforce.

To demonstrate how these concepts come to life, the images below show examples of executive response time dashboards. These practical illustrations highlight how operational data can be organized into a straightforward visual that helps leaders quickly identify patterns, evaluate event performance, and reinforce expectations across all levels of the organization.

FACILITY 1

Created to Closed

■ Needs Improvement   ■ Average   ■ Good

0d 00h 00m 30s   0d 00h 45m 00s
created - closed (AVG): 0d 00h 23m 11s

Arrests	Ejection	Transports to Hospital
138	61	36

Alcohol Related Incidents	Open Incidents
80	661

FACILITY 2

Created to Closed

■ Needs Improvement   ■ Average   ■ Good

0d 00h 00m 30s   0d 00h 45m 00s
created - closed (AVG): 0d 01h 04m 39s

Arrests	Ejection	Transports to Hospital
4	61	28

Alcohol Related Incidents	Open Incidents
22	39

Incident Type Percentage by Venue

■ ADA Request   ■ Broken Seat   ■ Cleaning Request   ■ Fight   ■ Medical

Venue — Facility 1, Facility 2

Incident Count: 0% 20% 40% 60% 80% 100%

6. The Importance of Interoperability and AI-Driven Insights

The average venue now employs dozens of software systems supporting a wide range of functions. These include everything from incident management to communication tools that improve the guest experience to Internet of Things (IoT) sensors for facilities management to access control and video management systems that enhance safety and security. Providing interoperability between these disparate systems remains one of the defining challenges in venue operations.

When these systems are integrated into a unified "single pane of glass," teams can automate workflows and gain visibility across departments, facilities, and response teams. Leveraging the data those systems share unlocks even greater value. As Matthew Dobrosevic (24/7 Software) explained, *"Integrated data is more powerful than data aggregated separately into third-party tools because integrated data comes with context. For example, an alert from a video analytics provider can tell us if a line was too long, or a weapons detection system can tell us if a knife was detected. But only when those alerts are tied to an automated incident do we know whether an action was taken to reduce that line—or whether that knife was confiscated, by whom, and if that individual was still granted entry."*

When aggregated into analytics dashboards, these contextual data points create real situational awareness—transforming operations from reactive to proactive management.

Artificial Intelligence adds another layer of capability by making it easier to extract insights and identify trends. AI can recognize recurring patterns, such as when lines typically form or which corrective actions most effectively reduce wait times. These insights enable preventive measures that accelerate ingress, improve fan satisfaction, and reduce operational strain.

AI can also assist by summarizing data from systems such as incident reports, maintenance logs, or activity records, helping teams spot anomalies more quickly. However, as several contributors emphasized, AI should complement human expertise rather than replace it. Jeff Gillies (SoFi Stadium) underscored the importance of maintaining audit trails to ensure AI-generated observations can withstand operational and legal scrutiny. He noted that AI should be used to support human responses and reporting—not to create or alter them.

Across the industry, these capabilities are helping operators evolve from reactive management toward predictive, insight-driven operations—where technology amplifies human judgment, improves communication, and drives continuous improvement.

7. Risk Reduction, Liability Management, and Vendor Selection

Accurate KPI reporting plays a critical role in documenting compliance, demonstrating operational diligence, and reducing liability exposure. Risk managers look for objective metrics showing that a venue is actively identifying and addressing potential issues. For example, tracking near misses—such as repeated slips or close calls near an elevator—demonstrates to insurers that the venue is monitoring risk and taking it seriously. Showing that corrective actions are taken when patterns emerge, such as assigning additional staff to a high-traffic elevator bank, reinforces a commitment to preventing incidents. These insights can be clearly displayed in a dashboard summarizing key risk indicators and the steps taken to mitigate them.

AI can support this process by monitoring when certain risk conditions rise and by suggesting possible mitigation steps. Operators can then use their experience and judgment to evaluate these prompts and determine the best response. Jeff Gillies (SoFi Stadium) emphasized the importance of maintaining strong audit trails to ensure AI-generated observations withstand operational review or legal scrutiny. His guidance reflects a shared principle across contributors: AI should enhance human expertise by improving speed and clarity, not replace the decision-making of trained operators.

Risk reduction also depends on demonstrating that action plans are fully implemented. Tracking how those plans are converted into "protocols to handle" specific incident types shows adherence to DHS SAFETY Act standards. Working with DHS SAFETY Act Designated vendors adds another layer of legal protection and helps ensure systems meet rigorous security and operational requirements.

Across interviews, contributors agreed that strong KPI reporting supports far more than daily operations. It enhances insurance readiness, strengthens audit and accreditation performance, and provides the documentation needed to demonstrate responsible risk management. Clear, consistent reporting enables venues to show they have the processes, oversight, and operational discipline required to maintain a safe, well-managed environment.

8. The Collegiate Perspective: Building Data-Driven Culture in Higher Education

Boise State University exemplifies how collegiate venues are adapting KPI and AI methodologies to diverse operational landscapes. Managing over 18 facilities and 1,800 events annually, from football games and concerts to student parades, Boise State integrates emergency management with athletics operations. This includes activating emergency command centers for spontaneous events such as influencer gatherings or community protests. Nathan Burk (Boise State University) highlighted that, without data tracking, institutions risk being "under a magnifying glass." KPIs and reporting not only improve readiness but also strengthen communication between athletics, public safety, and academic leadership.

9. Best Practices and Implementation Tips

The table below summarizes practical best practices and collaborator insights for successful KPI adoption and operational excellence.

Item	Practical Best Practice	Suggestions from Collaborators
Define and Communicate KPIs	Ensure all staff understand the 'why' behind each metric to build engagement.	Jeff Gillies (SoFi Stadium) recommends sharing visual scoreboards to motivate improvement. Katie Morgan (Texas Rangers) mentioned that security leaders want real-time, actionable metrics. By working with these teams and identifying which insights drive action, she works backwards to determine the KPI that reflects that action.
Align Technology & Metrics	Tie KPI tracking directly to platform adoption to measure utilization.	Matthew Dobrosevic (24/7 Software) notes that executive dashboards accelerate adoption when leadership reviews them consistently. Boise State University is applying similar principles across academic and operations teams to encourage technology adoption campus-wide.
Training & Accountability	Use KPI data to identify skill gaps and adjust training programs accordingly.	Brandon Hamilton (Kansas City Chiefs) uses dashboards to guide refresher training.

		Nathan Burk (Boise State University) emphasized that in collegiate environments, training must include faculty, students, and operations staff to ensure holistic preparedness.
Data Quality & Consistency	Establish review loops for data accuracy and completeness.	Kelsey Cerrone (Kroenke Sports) recommends pre-close checks on all incident reports. Nathan Burk (Boise State University) shared that for colleges, cross-departmental audits also ensure compliance with public reporting standards.
Executive Visibility	Deliver automated summaries that highlight key trends and anomalies.	Nathan Burk (Boise State University) highlights that university executives benefit from real-time summaries that can be escalated to boards and state offices during major events.

10. Conclusion

The future of venue operations will be defined by organizations that transform data into decisive action. KPI-driven performance management bridges the gap between day-to-day operations and long-term strategic goals, helping venue leaders better measure, communicate, and continuously improve outcomes that matter most — safety, efficiency, and guest experience.

The insights shared by leaders across SoFi Stadium & Hollywood Park, Kroenke Sports & Entertainment, the Kansas City Chiefs, Boise State University, the Texas Rangers, and 24/7 Software reinforce a clear message: true operational excellence is achieved through culture, consistency, and collaboration. When data becomes a shared language across teams, organizations can align priorities, strengthen accountability, and make more confident, informed decisions.

This paper, developed in partnership with NCS⁴, underscores the importance of continued education and knowledge sharing across our industry. By convening venue professionals, researchers, and technology partners, NCS⁴ continues to advance the standards for operational readiness and data-driven decision-making.

The lessons captured here are intended to serve as a foundation for learning and progress, helping venue operators of every size take meaningful steps toward more connected, transparent, and high-performing operations. Together, through education and collaboration, we can continue to raise the bar for how venues operate safely, efficiently, and intelligently.

Acknowledgements

Research Interview Summaries

Jeff Gillies (SoFi Stadium & Hollywood Park) – Strategies for adoption of incident systems; interoperability and AI auditability as core priorities.

Kelsey Cerrone (Kroenke Sports & Entertainment) – Emphasized complete, accurate data and anonymous reporting for accountability.

Brandon Hamilton (Kansas City Chiefs) – Showed how KPI dashboards support digital transformation and operational calm in the command center.

Nathan Burk (Boise State University) – Provided NCAA insights on transparency, multi-stakeholder coordination, and AI governance in campus settings.

Katie Morgan (Texas Rangers) – Emphasized executive-level visibility, real-time KPI tracking, and using data to enhance the fan experience through personalized, seamless operations.

Matthew Dobrosevic (24/7 Software) – Focused on interoperability, AI readiness, and dashboards as adoption catalysts.

Justin King (24/7 Software) – Contributed strategic and industry-wide insights on KPI alignment, adoption strategy, and data-driven leadership practices within venue operations.

Thank you