

Idea to Innovation: How the San Francisco 49ers Use Real-Time Analytics to Enhance the Fan Experience

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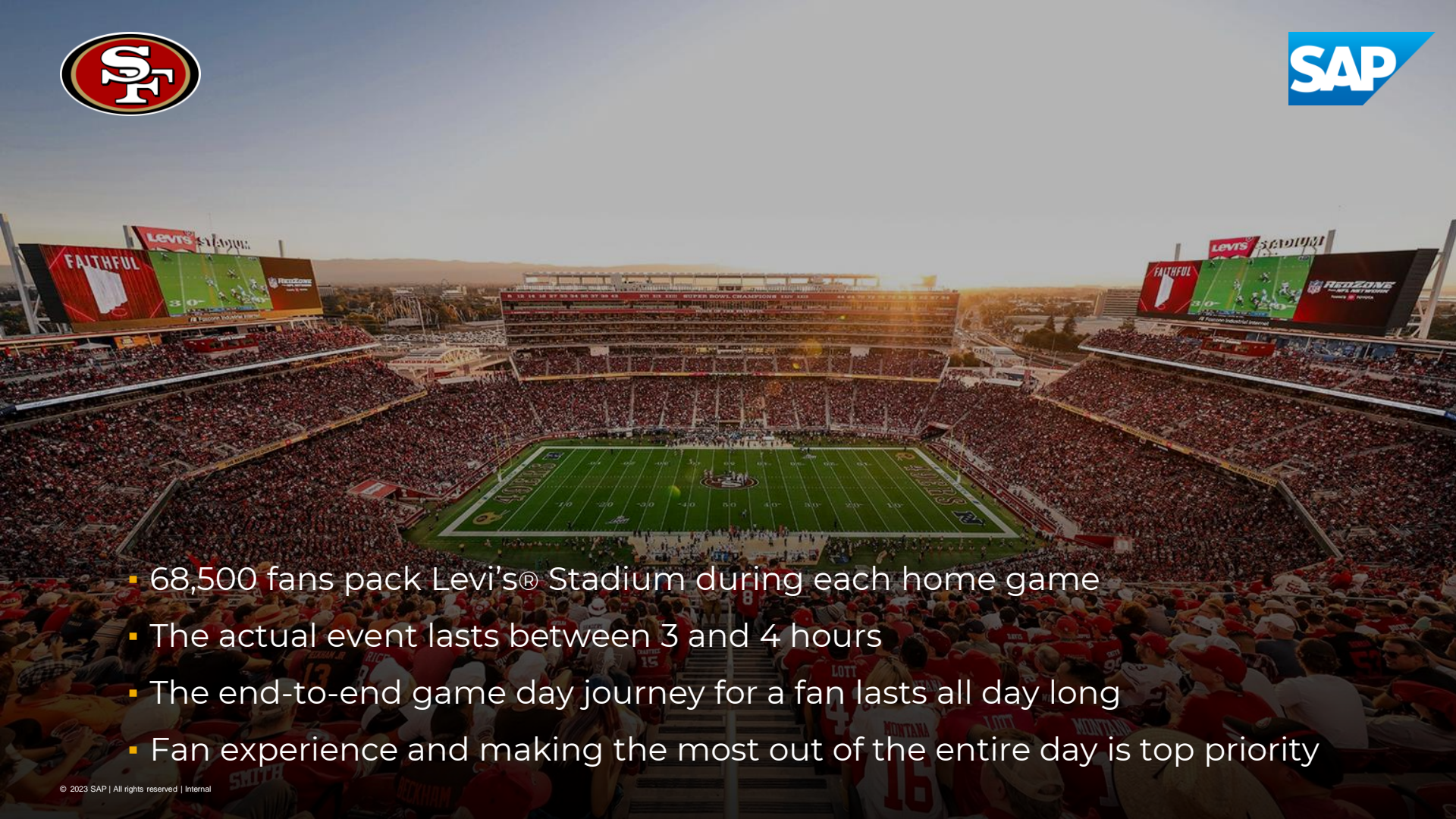


Historic franchise NFL team seeks to delight fans throughout their game day journey with an **intelligent venue.**

- San Francisco 49ers
- Operating in Levi's® Stadium
- 70+ years in business
- Multiple Super Bowl championships
- Hosting 68,500 fans on game day





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- An aerial view of Levi's Stadium during a game, showing the field, the stands filled with fans, and the large scoreboards on the sides. The stadium is packed with fans, and the field is green with white yard lines. The scoreboards on the sides display 'FAITHFUL' and 'REDZONE' advertisements.
- 68,500 fans pack Levi's® Stadium during each home game
 - The actual event lasts between 3 and 4 hours
 - The end-to-end game day journey for a fan lasts all day long
 - Fan experience and making the most out of the entire day is top priority



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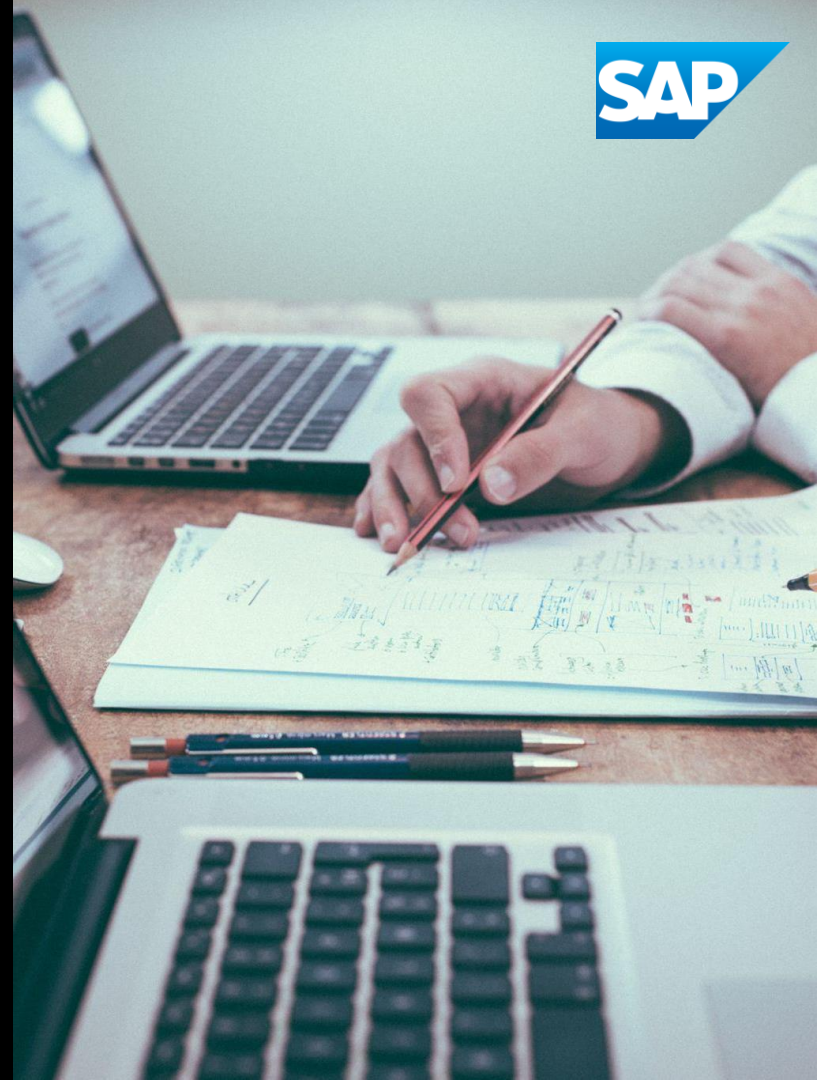
Our surveys are great...but is there any way to operate in real-time. We only have 10 days a year. If we miss one one game, the best we can do 90%. Are we OK with that?”

Al Guido
President
San Francisco 49ers



The 49ers had no consolidated insights until **3 days after an event.**

With only 10 home games per season, it was incredibly difficult to **iterate and improve** in a way that was impactful to fan experience.





Life Before SAP BTP

- An existing consolidated data warehouse - Amazon Redshift
- HappyorNot Terminals throughout the stadium; first step into real-time resolution
- Fan surveys issued and analyzed post gameday
- No real-time integration or connectivity





Action Plan:

- Found a great partner team with SAP
- Headed up the road to SAP Labs in Palo Alto
- Discussed end-to-end game day opportunities
- “Art of the Possible” design approach
- Limitations and technical solutioning were not discussed



From Idea to Implementation:

- The Executive Huddle was born
- Determined Integration Suite could pull source data
- Confirmed SAP HANA could persist data in real-time
- Addressed cross-database replication with the Data Provisioning Agent
- Began design of dashboards and visualizations



EXECUTIVE
HUDDLE

Presented by





ticketmaster®

Attendance

Reference Event (1)
22GWAS

Comparison Event (1)
22GKC

Attendance Scans

TM Event (Ref)1 (1)
22GWAS

TM Event (Comp)1 (1)
22GKC

Pre Paid Parking

TM Event (Ref) (1)
22PKWAS

TM Event (Comp) (1)
22PKKC

parkhub

Transactions

Event (Reference) (1)
22PKWAS

Event (Comparison) (1)
22PKKC



VENUENEXT

Transactions

Event MIM (Ref) (1)
22GWAS

Event MIM (Comp) (1)
22GKC

HAPPYORNOT®

Responses

Event HON (Ref) (1)
22GWAS

Event HON (Comp) (1)
22GKC



Fanatics

Transactions

Event Fan (REF) (1)
22GWAS

Event Fan (COMP) (1)
22GKC



Volley Water

Readings

/x Event WAT (Comp) (1)
22GLAC



qualtrics

Responses

/x Event Qual (Ref) (1)
22GTB

/x Event Qual (Comp) ...
22GKC

Data Acquisition:

Parking to Stadium

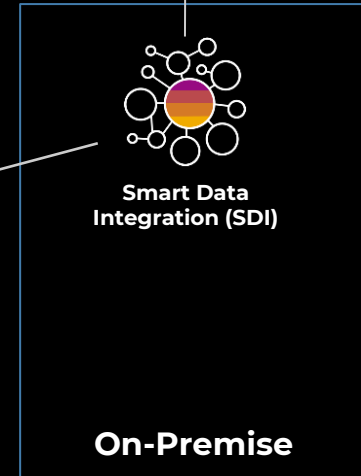
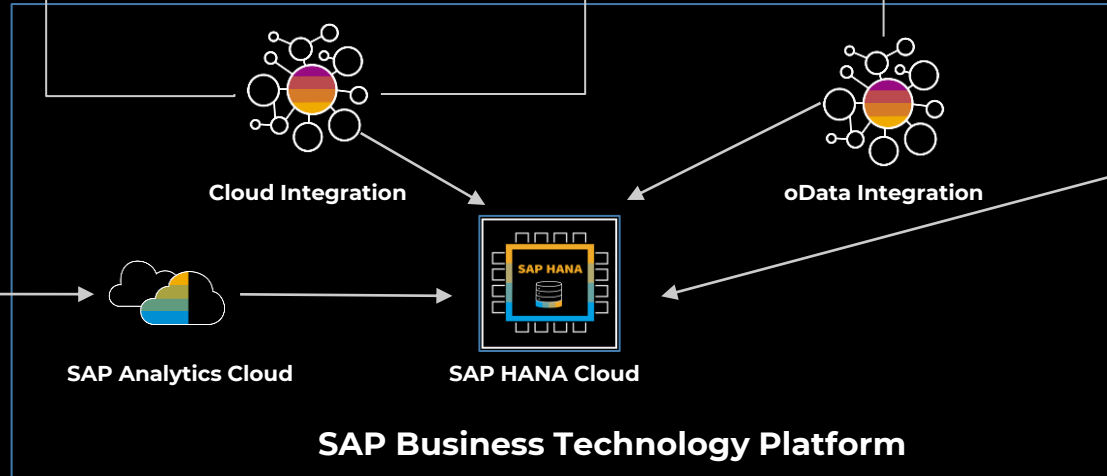
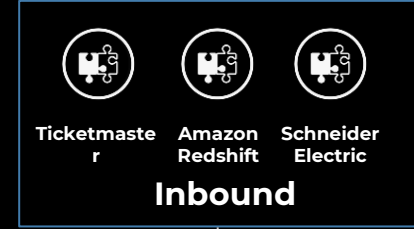
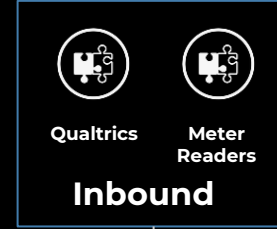
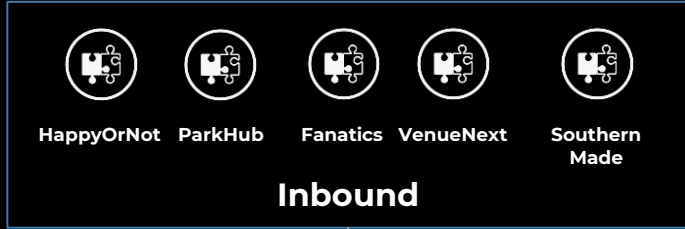
- The 49ers do not own any venue-related data
- Acquiring the data was a key component of the Executive Huddle
- Multiple data sources presented unique challenges
- API complexity and data delivery induced creative, **out-of-the-box solutioning**

SAP



The Executive Huddle Build-Out:

- Control room layout perched above the 50-yard line in a converted suite
- A 65" touchscreen, large format interactive monitor + three separate overhanging 55" displays
- SAP Analytics Cloud Storyboards auto-refreshed ceiling mounted monitors
- Parking, attendance, merchandise, concessions, and fan feedback **all displayed live**





The Executive Huddle: Areas of Focus



Ticket scan by location



Parking scans & capacity



Food & Beverage



Retail & Team Store



HappyOrNot real-time feedback



Notify account reps of arriving VIPs



Mobile ticketing & security



Weather data to predict fan needs



Concessions receipt survey real-time qualitative feedback



Sustainability efforts monitoring water, gas, and electric consumption



Dashboards: Parking



Parking

Refresh (Min)

1

Reference: SBPK0129
Comparison: FNPk0409

616% (+11%)
Capacity

101,140 (+11%)
Scan Count

40,660 (+11%)
Day Of Purchases

68% (0%)
Pre-Paid Show Rate

114,920 (-9%)
Pre-Paid Sold

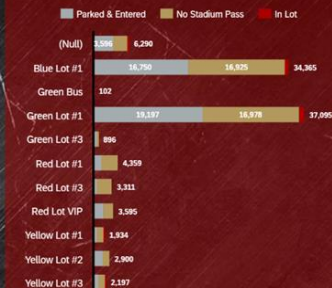
78,680 (-9%)
Pre-Paid Scanned

49,733
In Lot Not Entered

47,563
Entered

		Capacity	Capacity Var	Scan Count	Errors	Errors Var
Blue Lot #1	Eligible	842 %	11 %	32,410	1,150	11 %
Green Bus	Non-Eligible	340 %	11 %	340	20	11 %
Green Lot #1	Eligible	757 %	11 %	30,640	10,840	11 %
Green Lot #3	Non-Eligible	668 %	11 %	5,060	260	11 %
Red Lot #1	Eligible	120 %	11 %	5,990	420	11 %
Red Lot #4	(Null)	—	—	6,180	200	11 %
Yellow Lot #1	Non-Eligible	881 %	11 %	15,840	1,720	11 %
Yellow Lot #2	Eligible	960 %	11 %	2,240	140	11 %
Yellow Lot #3	Eligible	528 %	11 %	2,240	80	11 %

Parking to Stadium



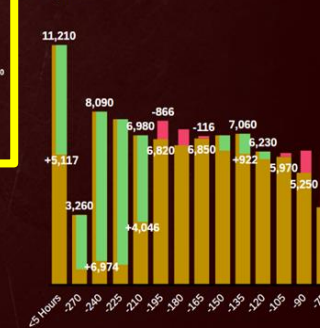
Lot Group



Error Types



Scans by Time





Dashboards: Concessions



MIM

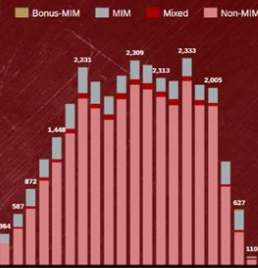
Refresh (Min)
1

Reference: SBG0129
Comparison: FNG0409

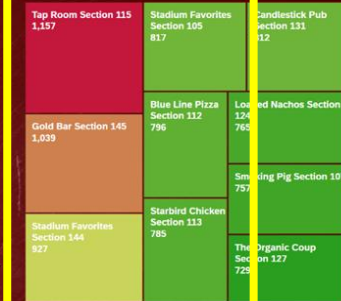
\$ 386,429 (-48%) Sales	31,986 (-29%) # Transactions	106,152 (-31%) Items
\$ 3.12 (-53%) Revenue Per Cap	15% (+23%) % MIM Transactions	39,043 (-39%) MIM Items
\$ 12.08 (-27%) Revenue Per Trans	4,793 (-13%) # MIM + Mixed Transactions	67,109 (-26%) NON MIM

Rev. Center Name	# Transactions	MIM Items	MIM p/ Trans	Sales (\$)	% MIM Transact...
Tap Room Section 115	1,157	302	0.26	15,547	1 %
Gold Bar Section 145	1,039	16	0.02	18,191	-
Stadium Favorites Section 144	927	3,483	3.76	8,188	48 %
Stadium Favorites Section 105	817	2,897	3.55	5,273	58 %
Candlestick Pub Section 131	812	139	0.17	14,545	-
Blue Line Pizza Section 112	796	399	0.50	9,890	4 %
Starbird Chicken Section 113	785	313	0.40	9,968	2 %
Loaded Nachos Section 124	765	1,414	1.85	8,037	32 %
Smoking Pig Section 107	757	296	0.39	11,970	1 %
Stadium Favorites Section 129	729	2,310	3.17	6,028	47 %
The Organic Coup Section 127	729	564	0.77	12,937	2 %
Links Section 109	694	1,522	2.19	8,529	32 %
Tostitos Section 305	679	2,253	3.32	6,200	37 %
Stadium Favorites Section 126	674	2,298	3.41	4,292	59 %

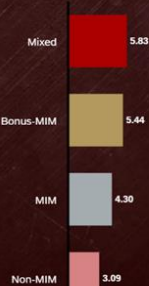
Order Volume



Top 10 Stands by Transactions



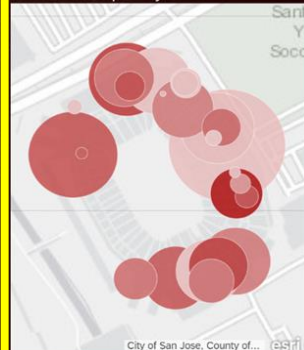
Items p/ Trans



Bottom 10 Stands

Stand Name	# Transactions
Links Section 324	1
South Tower Bar	1
Craft Beer Section 123	2
Safeway Section 128	2
Loaded Nachos Section 306	4
BNY Mellon West Beer	5
Stadium Favorites Section...	5
Craft Beer Section 126	8
Peer's Section 310	54
App49 Section 306	65

% MIM Redemption by Stand





Dashboards: Fan Feedback



Fan Feedback

Reference: SBG0129
Comparison: FNG0409

Refresh (Min)

1



63%

% Very Happy

112,680

Very Happy



9%

% Happy

15,675

Happy



4%

% Sad

7,740

Sad



23%

% Very Sad

41,490

Very Sad

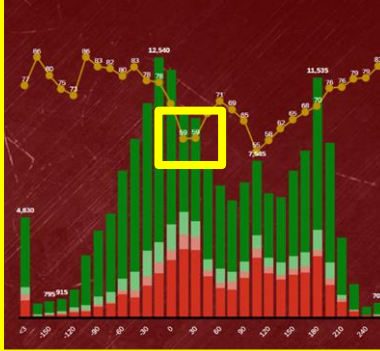
71 (0)

Index

177,585

Records

Index Score Time Series



Bottom 10 Terminals

Level 2 Name (1)

Concessions

	Index	Change	Records
AMPM-1	86	0	810
BBQ 3107-1	78	0	855
BBQ 3127-1	75	0	630
BBQ 7307-1	76	0	615
Burgers 3118-1	83	0	630
Burgers 7319-1	56	0	915
Burgers/Chicken 7309-1	75	0	855
Burgers/Loaded Tots 3118-1	73	0	1,095
Chicken 3121-1	75	0	960
Chicken/Franks 3122-1	89	0	675

	Index	Change	Records
~ (all)	71	0	177,585
> Concessions	72	0	41,985
> Guest Services	73	0	5,700
> Restrooms	65	0	34,710
> Retail	78	0	24,510
> Screening	69	0	66,630
> Suites/Clubs	86	0	4,050

MRR 110

20

MRR 127

100

MRR 302

78

MRR 311

100

MRR 318

100





Dashboards: Concessions Feedback



Qualtrics

Refresh (Min)

13,823

Total Satisfaction Index Score

63.2 (+28.7)

Total # of Responses

17 (-60%)

Food & Bev.
Quality

73.5
(+24.7)

Food & Bev.
Variety

67.6
(+15.3)

Speed of
Service

64.7
(+29.6)

Concessions
Personnel

77.9
(+17.8)

Scan & Pay
(49ers App)

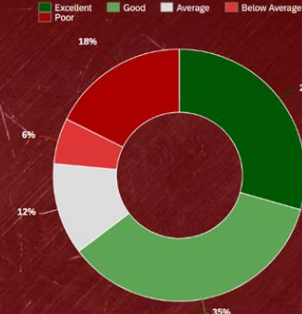
64.7
(+35.5)

Index Score by Event (Satisfaction)



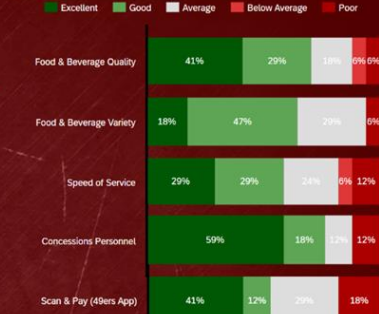
Survey Count by Overall Satisfaction Rating

How satisfied were you with your Levi's® Stadium Food and Beverage order?



Food & Beverage Experience

How would you rate your Food & Beverage experience?

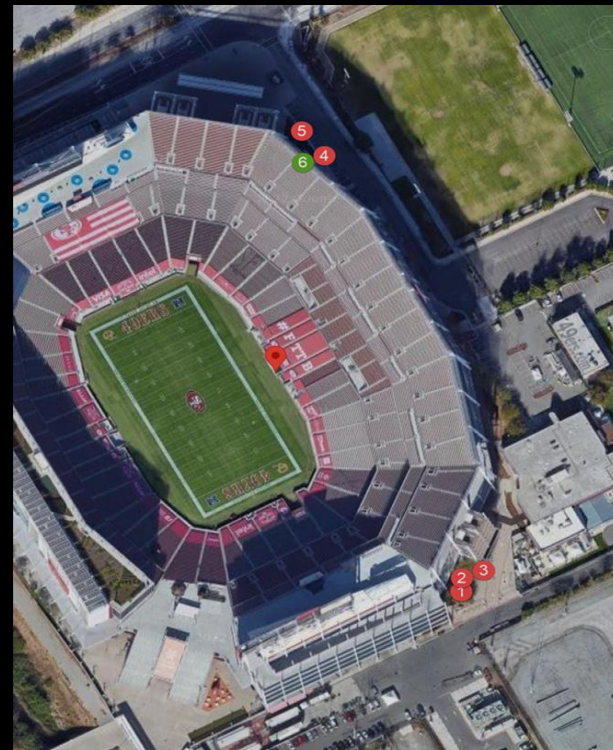


Comments

Comments section for feedback.



Dashboards: Sustainability





Executive Huddle: Beyond Gameday



DATA ANALYTICS



Find the Ratio of Staff to Fans

Divide both numbers by the smallest total
 $30,100 \div 25$ and $25 \div 25$

Get
1,204 and 1

Now we know there are 1,204 guests
for every 1 staff member

That amount resulted in a score of 59
which is well below the target of 80

It will be the same process for each gate:
Divide both numbers by the staff number
(lowest)

	# OF FANS	# OF STAFF	RATIO	
GATE A	30,100	25	1,204	59
GATE B	5,270	25		97
GATE C	8,005	25		90
GATE F	25,125	25		65

*Data are for 49ers EDU purposes only

The Executive Huddle and SAP are integrated into the 49ers EDU Virtual Lesson Series with a dedicated lesson on data science and analytics. In addition, the Virtual Lesson Series brings the Levi's® Stadium field trip experience directly to students where they visit the Executive Huddle in-person.



The Outcome:

- **First and only Venue Digital Boardroom**
45 + events supported
- **Optimized fan experience by addressing feedback in real-time**
<10 minutes or less to solve issues
- **Uncovered opportunities across retail, concessions and stadium operations**
200+ issues resolved
- **Obtained insights across the fan's game day journey**
+43% increase in fan satisfaction



Key Takeaways

- Acquiring data is the “long pole in the tent”
- Iterative development is key
- This use case applies **beyond professional sports**
- An Intelligent Venue can be realized in as little as 3-4 months



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