

Data Visualization

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Why We Are Here Today

- Change how you look at data
- Power of intuitive information
- Communicating across boundaries
- 24/7 access, multi-lingual



Transform How We Look & Process Data

'Gee Wiz' Things to Consider

- 400,000 customers / day
- 20 vehicles / aircraft turn
- 300+ Service Providers
- 9MM gallons of fuel / day
- 24MM LBs of freight / day



84,000 people – 24/7 – 5,000 Flights / Day

Challenges

- Reducing Impacts & Events
 - Safely
 - On Time
 - Reliably
 - Customer Satisfaction



Damages

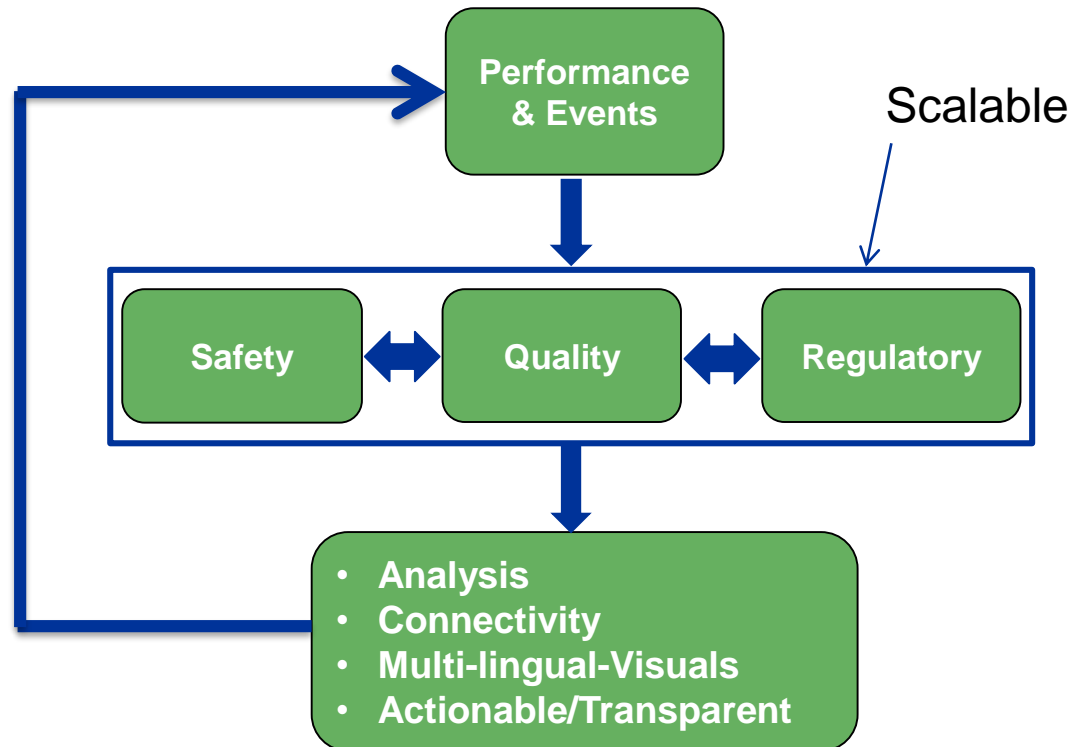


Injuries

Moving Forward – Construct Consolidated Quality, Regulatory & Safety

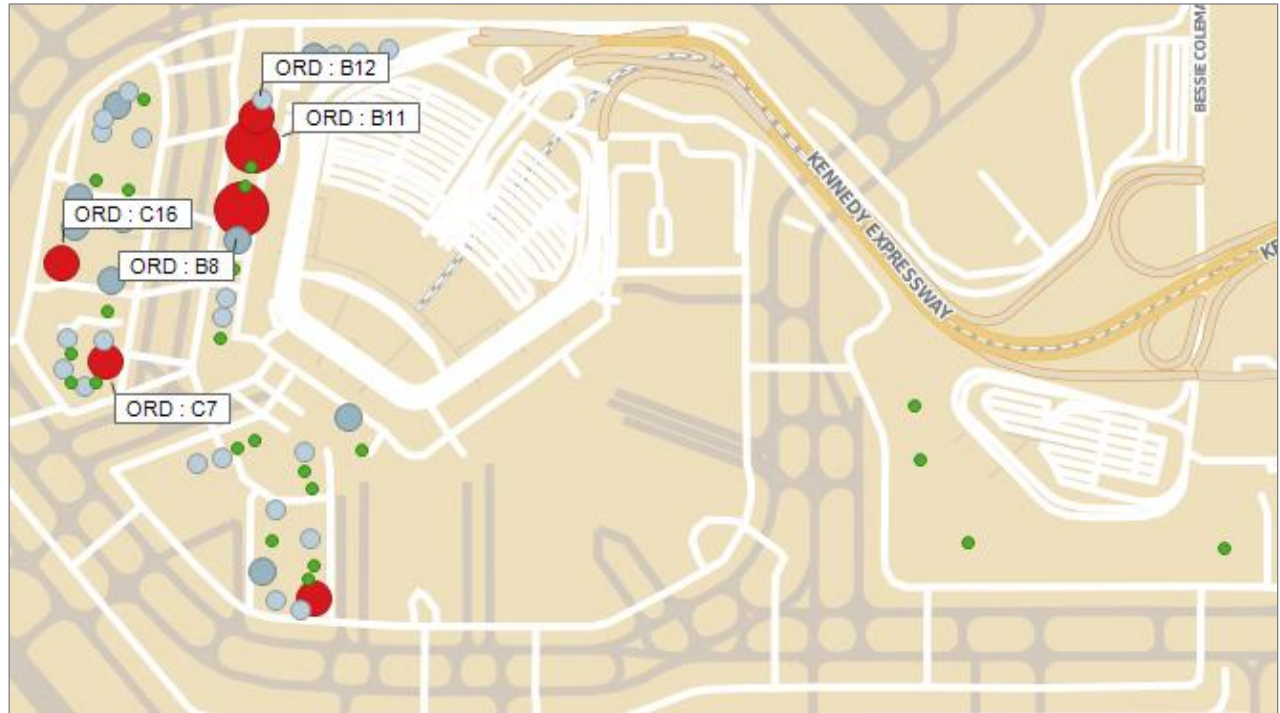
Approach

- Common Causes & Risk
- Universal Dashboards
 - Health/Intuitive/Cross-linked
- Group Efficiencies
 - Reports/Manpower
 - Automation
- Focused Messaging
- Increase Transparency
 - Actionable Data

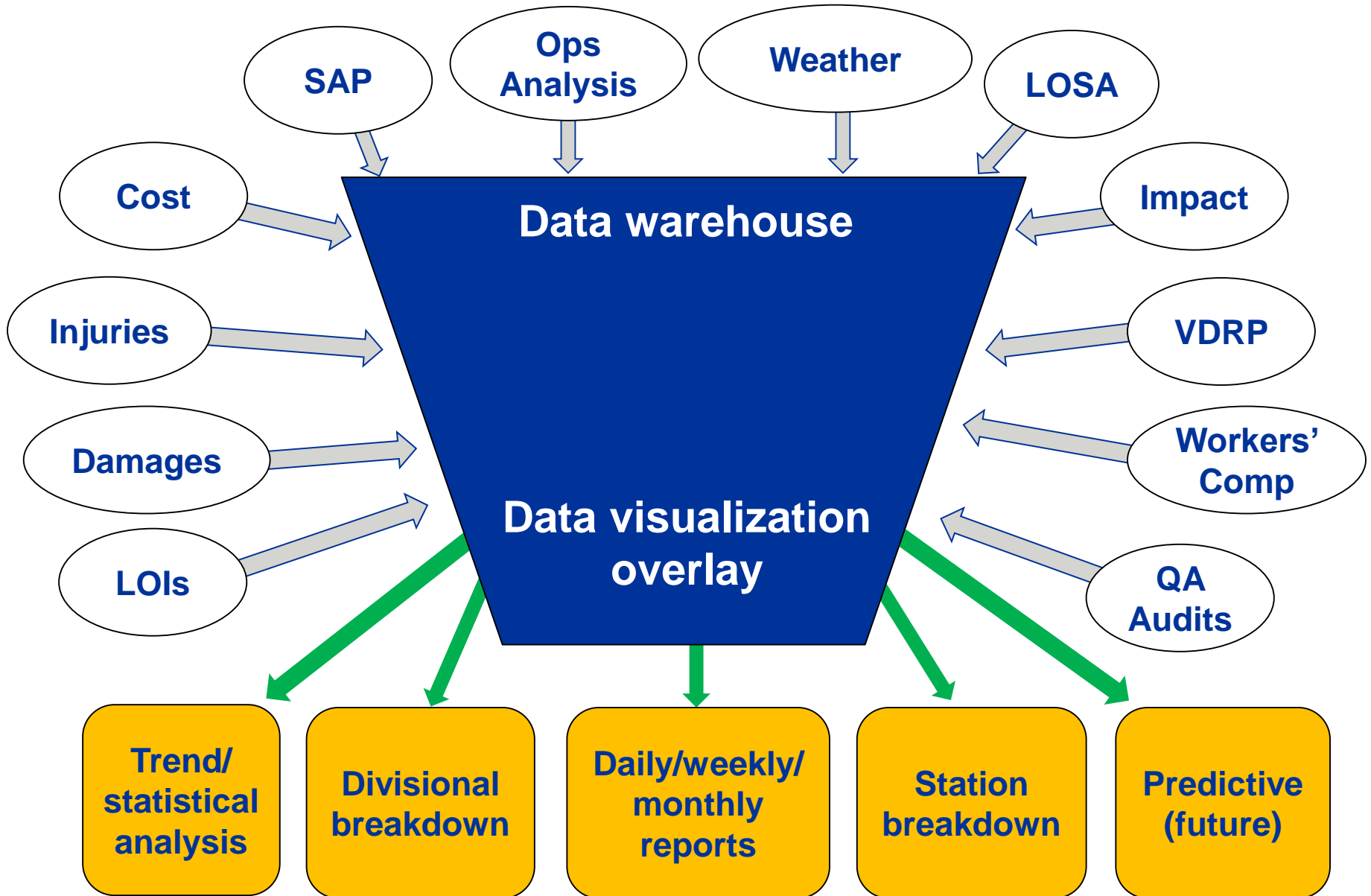


Data Visualization

- Complex > simplified
- Transparent
- Real-time access
- Power of a dot
- Data mining
- Universal



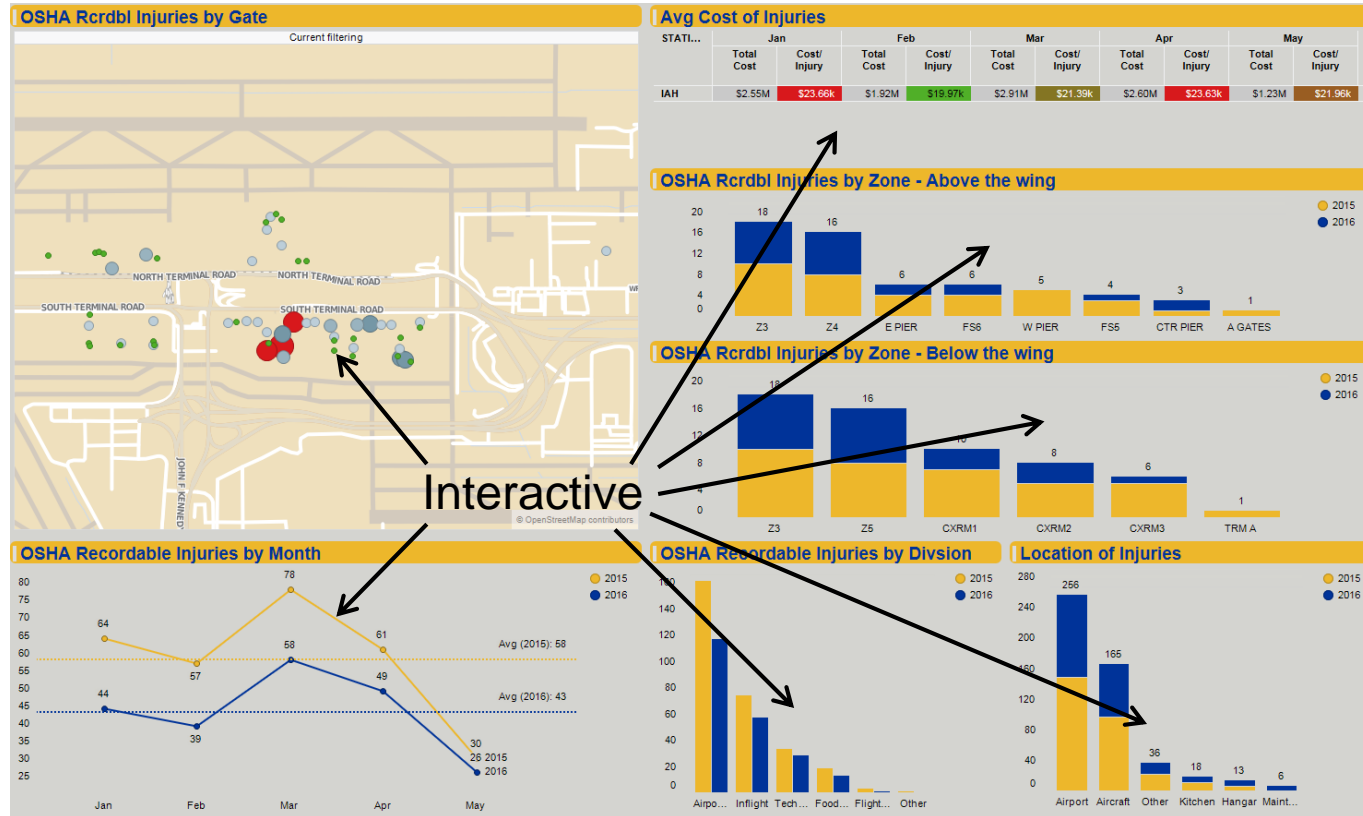
Approach



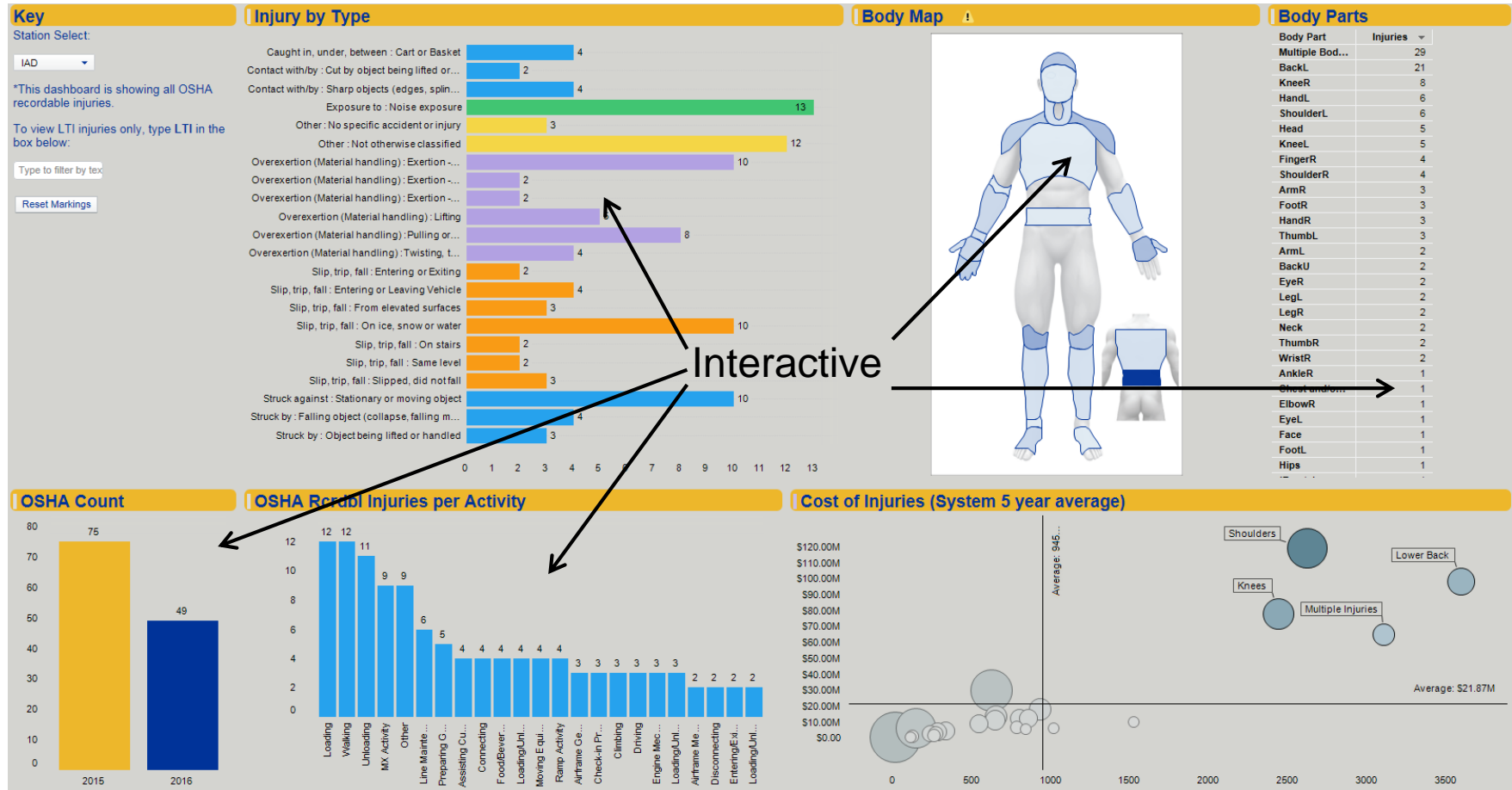
Station Map

Interactivity Explained

- This is a specific station map that is completely interactive
- You can select a specific data point such as 1 gate or multiple data points such as a range of gates
- Selecting any data point(s) will provide full interactivity to: injury counts, costs, location, injury types and more
- When you select a point or area, the entire dashboard updates to reflect data only pertinent to the selected data point(s)
- This interactivity allows users to answer their own questions and dial further into the data



Body Map of Injuries

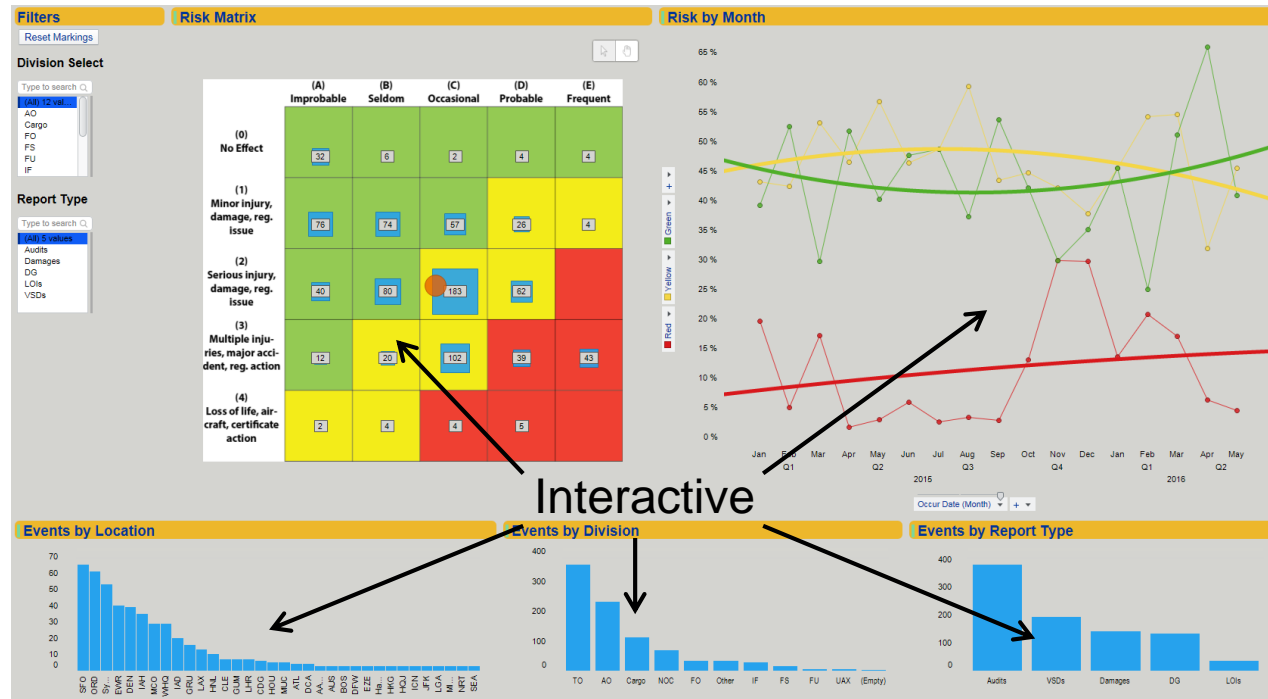


Safety Management System (SMS)

Risk Matrix and Trending

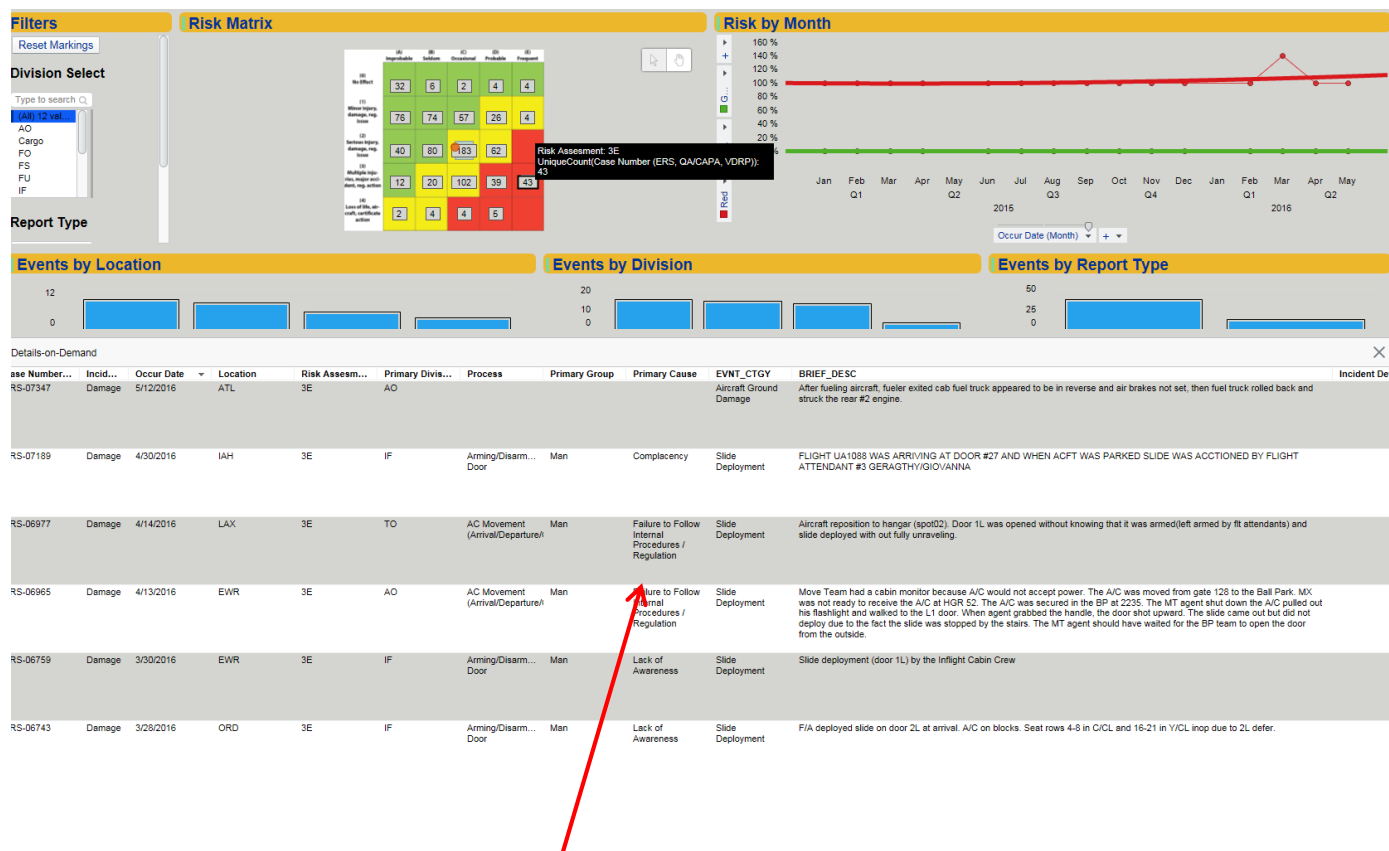
This is a screenshot of our SMS dashboard which is completely interactive and displays the following:

- Identified threats by division, location and event type
- Risk coding displayed on a risk matrix
 - Severity on the Y axis
 - Frequency on the X axis
- Risk trend over a 12-month period
- Filters to analyze by division and/or event type



Interactivity – Details on Demand

- Using our SMS Risk Matrix Dashboard, we selected the high risk events in red
- All of the charts and graphs update to reflect the data point(s) selected
- We can also see the raw data using the 'details on demand' function
- Details on demand allows users to see each individual event of the selected data point(s)



Details on Demand (raw data)

Daily Messaging

What happened with injuries yesterday?

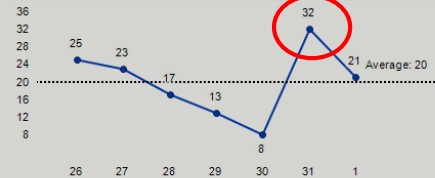
Reported Injuries by Hub/Div Last 7 Days

Div	DEN	E...	IAD	IAH	LAX	ORD	SFO	Ot...	Gr...
AO	6	6	1	12	---	12	---	12	57
TO	1	2	4	5	1	2	7	1	23
IF	1	10	4	3	8	4	1	2	43
FS	1	1	---	1	---	---	---	---	3
FO	---	1	---	---	2	---	---	1	4
Other	1	2	---	1	1	---	---	3	9
Gr...	10	22	9	22	12	18	28	18	139

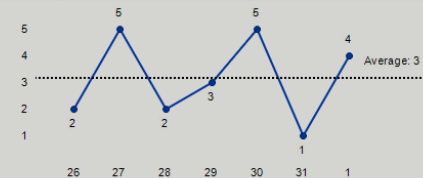
Damage Counts by Hub/Div Last 7 Days

Div	IAD	Ot...	Gr...
AO	1	---	1
Ot...	---	21	21
Gr...	1	21	22

Reported Injuries - Last 7 days



Damage Counts - Last 7 days



OSHA Recordable Injury Statistics - YTD

Div	OSHA Count	OSHA Rate	OSHA Target	LTI Count	LTI Rate	LTI Target
AO	705	8.70	9.58	180	2.22	3.54
IF	423	5.47	5.78	323	4.18	5.10
TO	242	5.67	6.17	81	1.90	2.23
FS	75	7.26	8.09	21	2.03	3.53
FO	8	0.17	0.32	8	0.17	0.29
CC	4	0.43	0.37	2	0.21	0.19
System	1,461	5.07	5.60	616	2.14	2.91

A4A Recordable Damage Statistics - YTD

D...	ML Dmg Count	ML Dmg Rate	ML Dmg Target	U... Dmg Coun	UAX Dmg Rate	UAX Dmg Target	Cons Dmg Count	C... Dmg Rate	Co... Dmg Target
AO	19	0.69	0.68	26	0.70	0.37	45	0.69	0.50
IF	4	0.14	0.08	0	0.00	0.00	0	0.00	0.00
TO	7	0.25	0.44	0	0.00	0.00	0	0.00	0.00
FS	0	0.00	0.05	1	0.03	0.03	1	0.02	0.04
FO	0	0.00	0.05	0	0.00	0.00	0	0.00	0.00
UAX	0	0.00	0.05	6	0.16	0.16	6	0.09	0.12
CC	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
Sy...	33	1.20	1.47	40	1.07	0.79	73	1.12	1.06

With the click of a button, you can see the details of each injury

Reported Injuries by Hub/Div Last 7 Days

Div	DEN	E...	IAD	IAH	LAX	ORD	SFO	Ot...	Gr...
AO	---	---	---	1	---	3	2	1	19
TO	1	---	1	---	---	---	---	---	4
IF	1	---	---	---	---	---	---	---	12
FS	1	1	---	---	---	---	---	---	2
FO	---	---	---	---	---	---	---	---	3
Ot...	---	---	---	---	---	---	---	---	1
Gr...	3	8	1	2	2	4	10	2	32

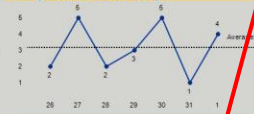
Damage Counts by Hub/Div Last 7 Days

Div	IAD	Ot...	Gr...
AO	1	---	1
Ot...	---	21	21
Gr...	1	21	22

Reported Injuries - Last 7 days



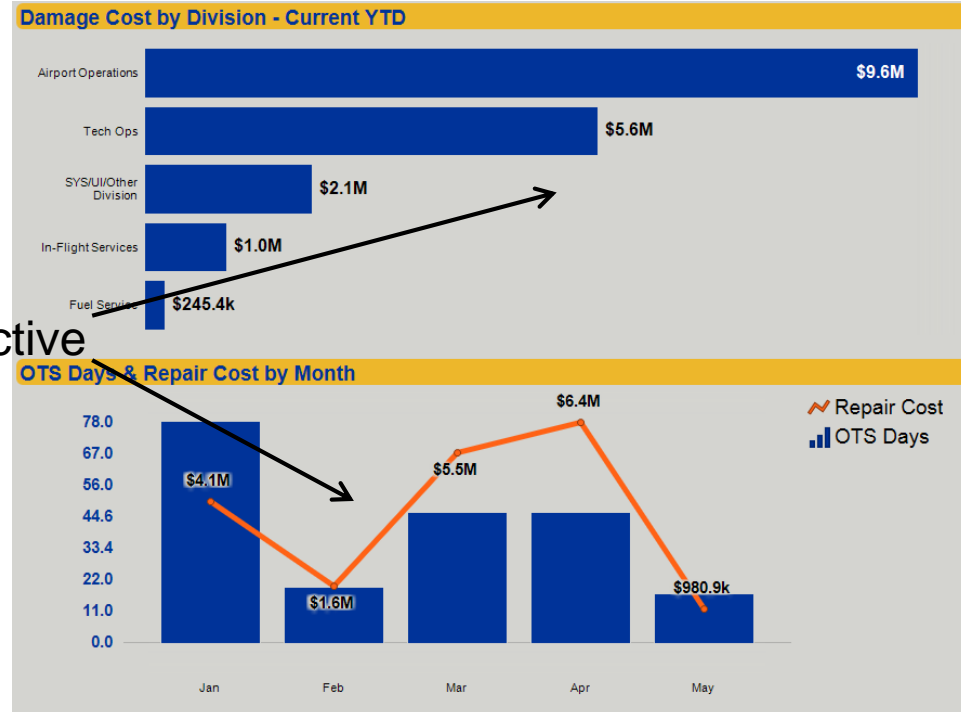
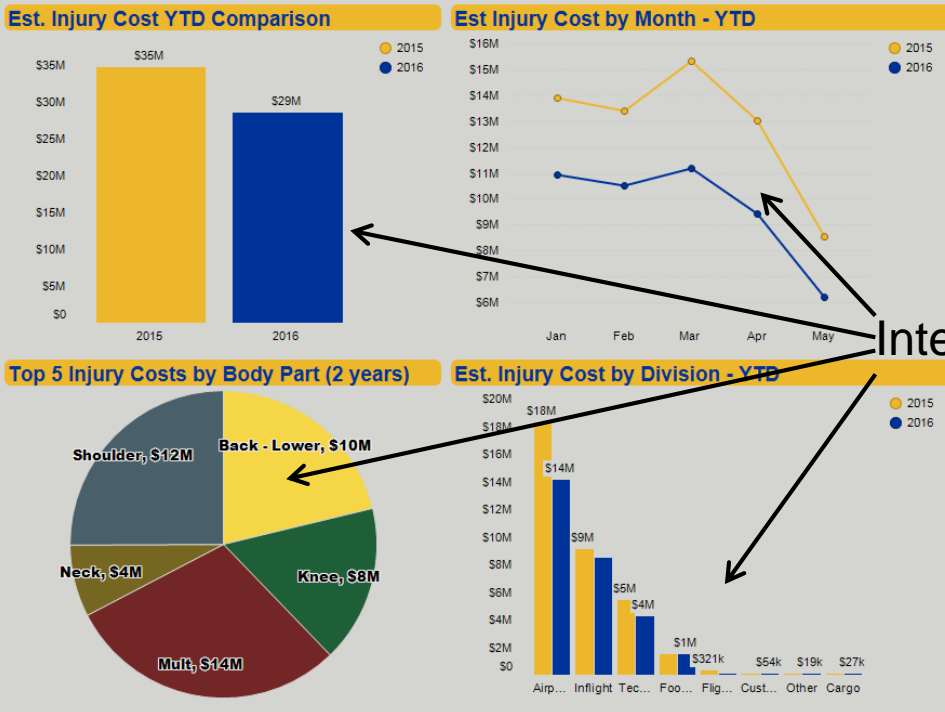
Damage Counts - Last 7 days



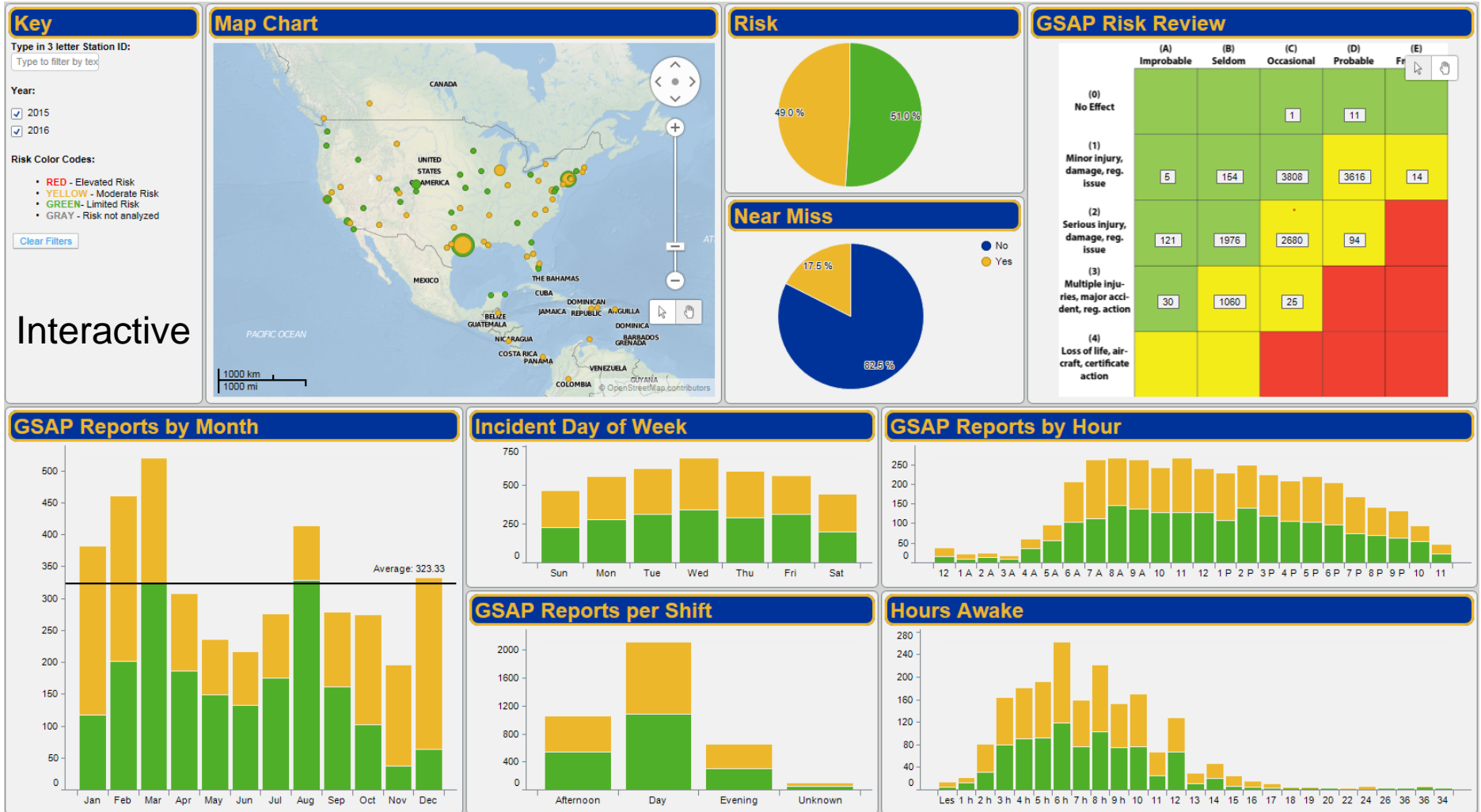
Div	Dept	Date...	Date Reported	Incident	BODY_PART_AFFECTED	TYPE	INCIDENT_SUMMARY
IF	EWRSW	5/15/2016	5/15/2016 11:54:16 PM	Other	Head - Nose	Specific Injury - All Other	EE stated "I woke up from crew rest with very dry nose, when in crew room I
FS	EWKNC	5/16/2016	5/16/2016 9:51:59 PM	Overexertion	Trunk - Back, lower	Specific Injury - Strain	EE stated "I was about to lift a bag and felt pain in tail bone and neck.
TO	ORDAL	5/16/2016	5/16/2016 11:26:27 PM	Other	Lower Extremities - Foot, left	Specific Injury - Strain	On Friday Kathy told me she had injured her foot and had it looked at. I assu
IF	DEHGW	5/22/2016	5/21/2016 10:40:40 PM	Overexertion	Upper Extremities - Multiple Upper Extremities	Specific Injury - Strain	per ft sit, while trying to slow and remove her rollerboard from the overhead
TO	SFOHAF	5/23/2016	5/23/2016 7:08:45 PM	Overexertion	Lower Extremities - Knee, left	Specific Injury - Strain	Employee was reaching ahead metal phone and felt pain in his knee.
IF	SFOVS	5/24/2016	5/24/2016 6:57:05 PM	Caught in, Struck by, or contact with	Lower Extremities - Foot, right	Specific Injury - Scratch, Abrasion	The EE was pulling out a cart, in the upper deck, when the cart got stuck. As
AO	EWKNC	5/25/2016	5/25/2016 11:54:02 PM	Caught in, Struck by, or contact with	Upper Extremities - Thumb, right	Specific Injury - Contusion or Bruise	le of stated she was looking for something in the drawer when finger got stuck
FO	LAFPO	5/25/2016	5/25/2016 11:53:45 PM	Overexertion	Trunk - Multiple Trunk	Specific Injury - All Other	The EE bent over to be his shoe and his back went out
IF	EWKNC	5/27/2016	5/27/2016 9:53:45 PM	Other	Upper Extremities - Multiple Upper Extremities	Specific Injury - All Other	EE Stated "I was working in ticket counter and got bite by insect in multiple parts o
IF	SFOVS	5/28/2016	5/28/2016 3:31:33 AM	Other	Upper Extremities - Shoulder, right	Specific Injury - All Other	I was in LHR in the airport going to the employee shuttle and I was in the fro
IF	EWKNC	5/28/2016	5/28/2016 8:53:42 PM	Other	Head - Eye, left	Specific Injury - Foreign Body	EE stated "I while pointing on for check cabin he dropped a tray of dirty dishes
FO	LAFPO	5/28/2016	5/28/2016 3:53:45 PM	Slip, Trip, or Fall	Head - Face	Specific Injury - Bite or Sting	The EE was on crew rest in the airplane and was bitten on her face by an ins
IF	SFOVS	5/28/2016	5/28/2016 10:53:45 PM	Slip, Trip, or Fall	Trunk - Back, lower	Specific Injury - All Other	While EE was checking into his hotel room, he tripped and fell. EE fell again
IF	SFOVS	5/29/2016	5/29/2016 9:53:15 PM	Overexertion	Trunk - Back, upper	Specific Injury - Information or Irritation of Joint or Nerve	During her recovery as she was walking out of the bathroom of her room had
IF	EWRSW	5/29/2016	5/29/2016 1:53:44 PM	Inhalation, Ingestion, Absorption	Multiple Body Parts - Multiple Body Parts	Specific Injury - Strain	FA was assisting customer who needed Onboard Wheelchair. In doing so, th
FO	SFOVS	5/29/2016	5/29/2016 1:53:41 AM	Slip, Trip, or Fall	Multiple Body Parts - Multiple Body Parts	Specific Injury - All Other	WHILE THE EE WAS IN FLIGHT THERE WAS A SMALL IN THE CABIN. Th
IF	EWRSW	5/29/2016	5/29/2016 6:53:41 AM	Inhalation, Ingestion, Absorption	Multiple Body Parts - Multiple Body Parts	Specific Injury - All Other	EE was walking down stairs from hotel to board crew van, when she fell from
FS	DEHGW	5/29/2016	5/29/2016 7:28:43 PM	Slip, Trip, or Fall	Upper Extremities - Arm, left	Specific Injury - All Other	CLAIMANT NOTICED BURNING SMELL IN THE CABIN AFTER TAKE OFF
IF	SFOVS	5/30/2016	5/30/2016 11:30:11 PM	Slip, Trip, or Fall	Trunk - Back, lower	Specific Injury - All Other	Slipped on water, fell on tile on the left side.
AO	HUCCO	5/30/2016	5/30/2016 3:44:44 AM	Overexertion	Lower Extremities - Hips	Specific Injury - Strain	Employee was in the process of pushing an empty LD11. To hook up to a cart
IF	IAHVS	5/30/2016	5/30/2016 4:53:42 PM	Caught in, Struck by, or contact with	Lower Extremities - Foot, right	Specific Injury - Contusion or Bruise	While EE was working in the left galley of flight 85, the plane encountered
IF	DEHGW	5/30/2016	5/30/2016 6:53:42 PM	Caught in, Struck by, or contact with	Lower Extremities - Foot, left	Specific Injury - All Other	EE stated "working in lobby and customer knocked over bag containing book
TO	DEHGW	5/30/2016	5/30/2016 7:53:41 AM	Caught in, Struck by, or contact with	Head - Eye, left	Specific Injury - All Other	Claimant alleges he was dropping a tool into a case, when some hydro fluid
TO	IAHVS	5/30/2016	5/30/2016 8:57:34 AM	Other	Head - Eye, right	Specific Injury - Foreign Body	Cleaning Left Engine Hydraulic Lines
AO	EWKNC	5/30/2016	5/30/2016 4:53:47 AM	Overexertion	Trunk - Back, lower	Specific Injury - Strain	Employee was loading heavy freight when he fell pain in his lower back.

Tracking Cost

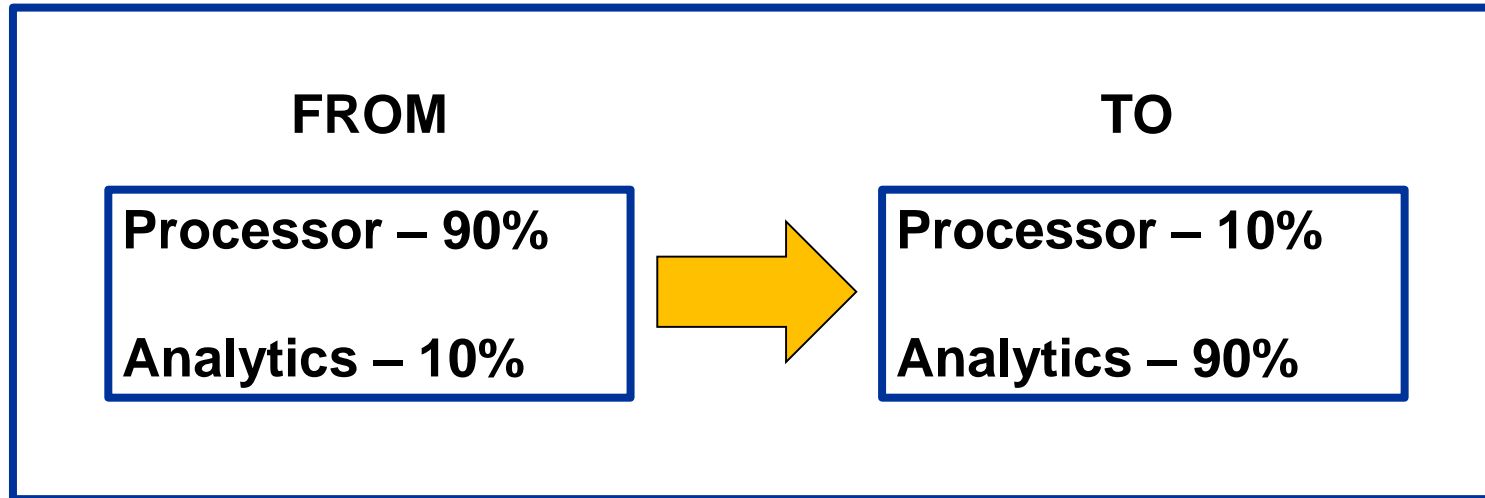
Interactive



GSAP



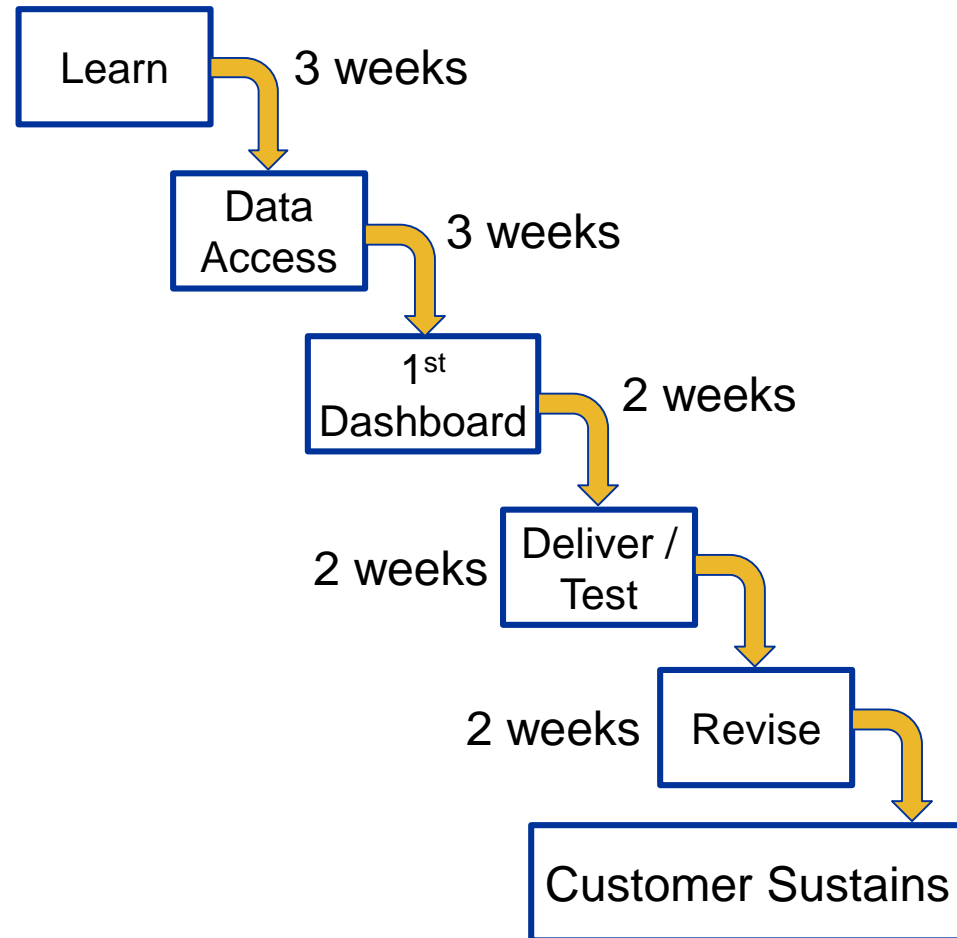
Changing The Role Of The Analyst



- **Off-the-shelf technology – controlled cost**
- **Non-IT expertise**
- **Control of deadlines**

Next Steps / Keeping It Simple

- Tech Ops
- NTSB
- OSHA
- United Express
- GSE Utilization
- Emergency Response
- In Flight



“Burn & Churn” / 3-4 Month Model

Safety Management System (SMS)

1. Policy

- Leadership Alignment
- How We Operate
- Accountability



Optimizing our influence
Force multiplier

$$(1) + (1) = (3+)$$



3. Assurance

- Data
- Peer-to-Peer Feedback
- LOSA - Safety Focused



2. Risk

- Lifting
- Tripping
- Vehicle Accident

	(A) Improbable	(B) Seldom	(C) Occasional	(D) Probable	(E) Frequent
(0) No Effect	17	1		4	
(1) Minor injury, damage, reg. issue	16	26	24	6	1
(2) Serious injury, damage, reg. issue	16	39	79	31	
(3) Multiple injuries, major accident, reg. action	1	7	8	10	10
(4) Loss of life, aircraft, certificate action	1	4	2	1	

4. Promotion

- Action Teams
- Training
- Pre-Task Briefings



Covering All Aspects

Close

❖ **Doing More With Less**

❖ **Analytics / Trends**

❖ **100% Transparency**

❖ **24/7 Access**

❖ **Automated**



Changing Our World