



# SMS SUMMIT 2023

## SMS DASHBOARDS

STORYTELLING, DATA DRIVEN  
DECISION SUPPORT, TREND  
ANALYSIS, AND USE CASES FOR  
DASHBOARD DEVELOPMENT  
FROM SMS DATA

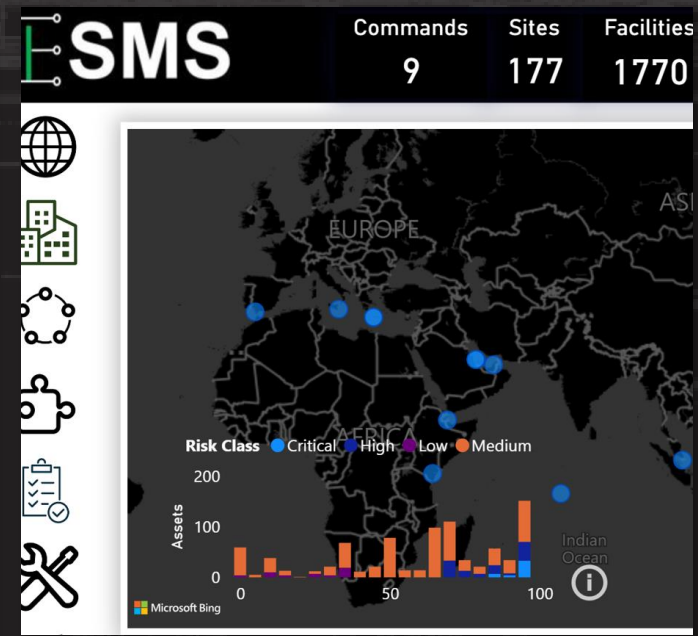
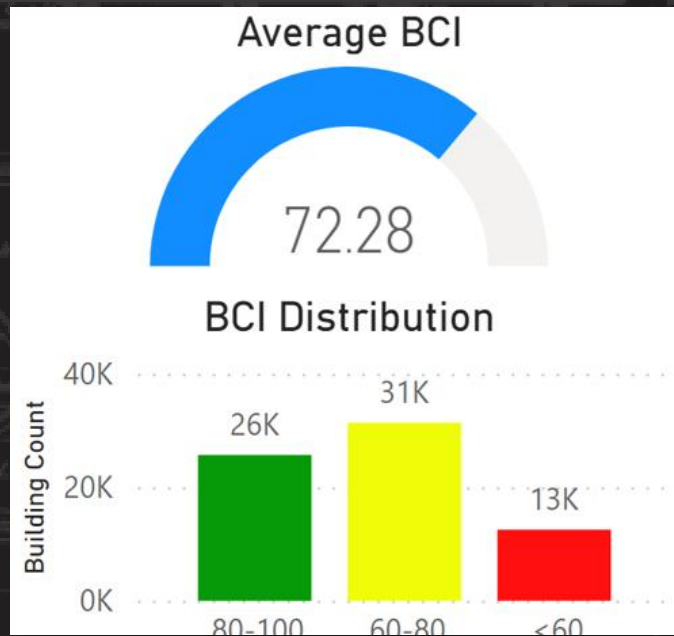
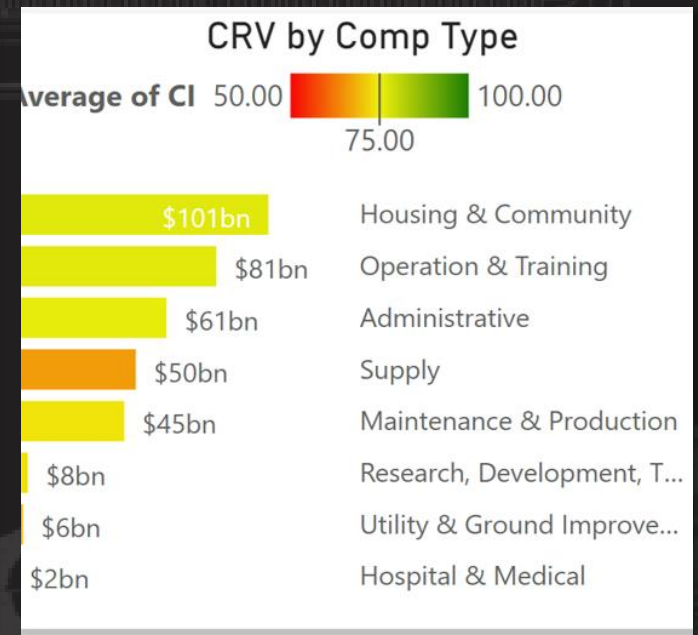
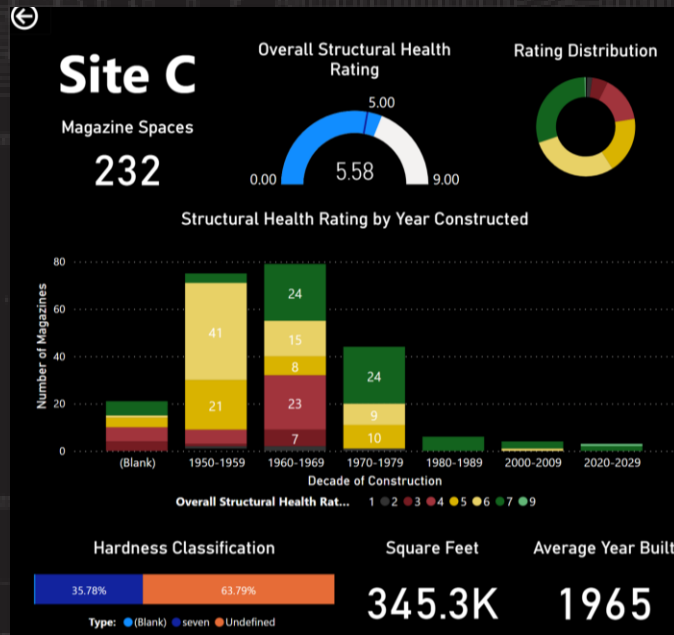
Data Analytics Track: Session 1C  
Tuesday, Aug 8 – 1:00 – 1:50 PM



U.S. ARMY



US Army Corps  
of Engineers®

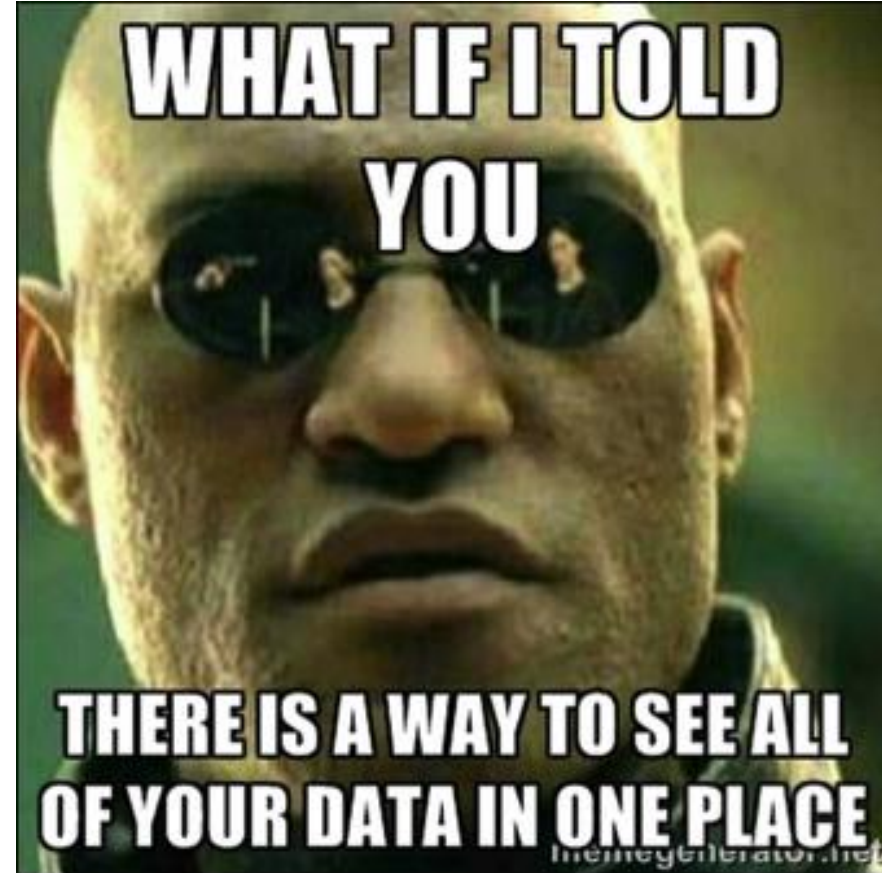




U.S. ARMY

# WHY DASHBOARDS?

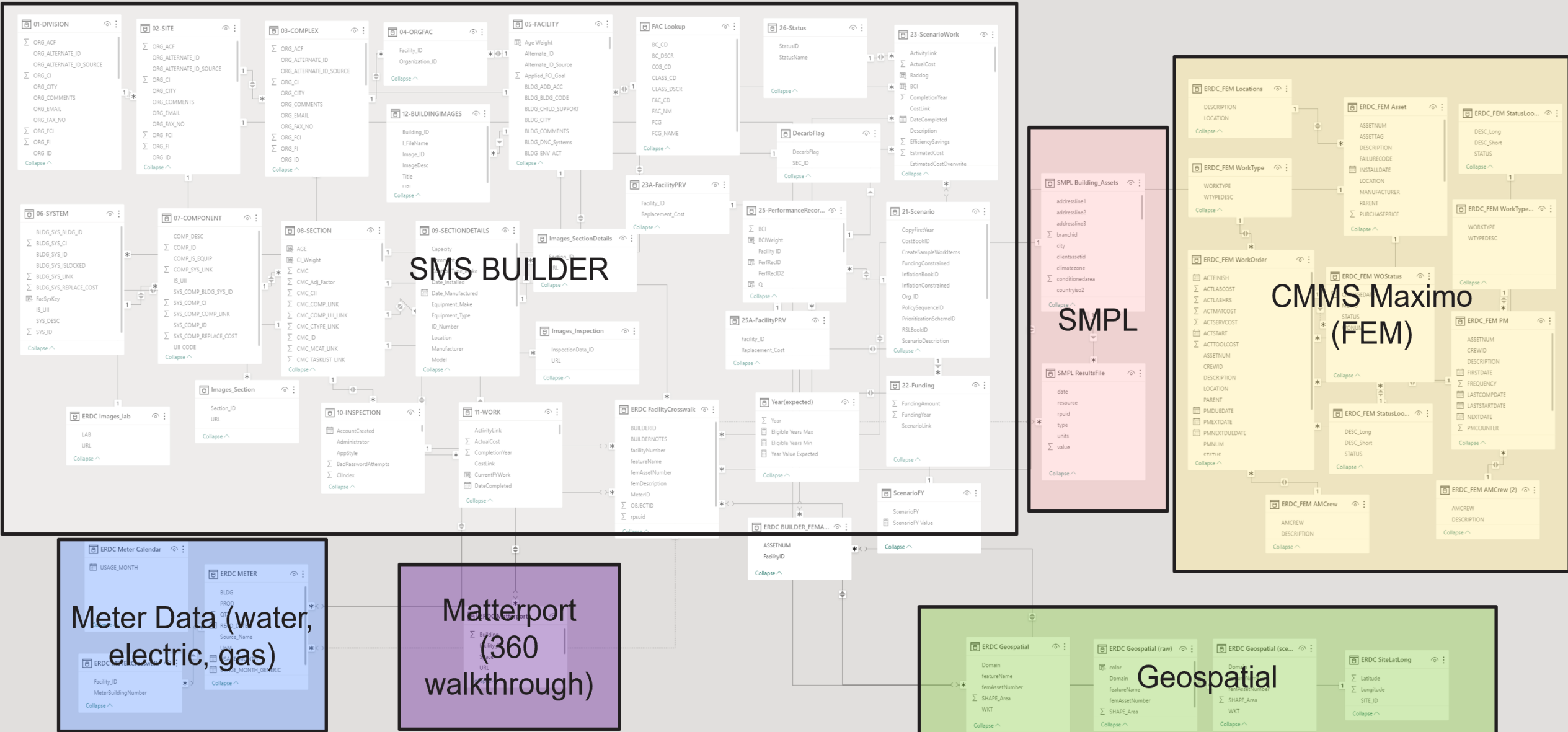
- Merge disparate data sources
- Support data-driven decisions
- Tell a story
- Facilitate navigation and searching
- Uncover Trends
- Screening for Opportunities
- Spot Anomalies
- Many Others





U.S. ARMY

# MERGE DISPARATE SOURCES OF DATA





U.S. ARMY

# INTEGRATED DATA DASHBOARD



WES Campus Scorecard (Vicksburg)



81  
Facility Count

\$928,004,731  
Plant Replacement Value (PRV)

73.80  
BUILDER Condition Index (CI)

(Blank)  
Functionality Index (FI)

2,085,720  
Quantity (SF)

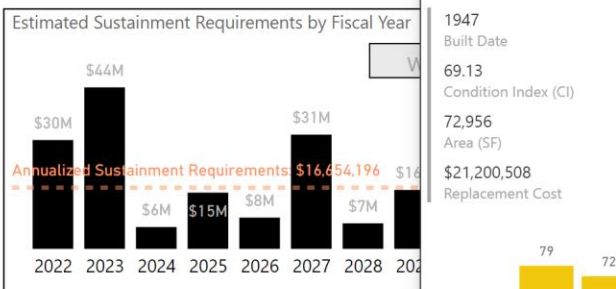
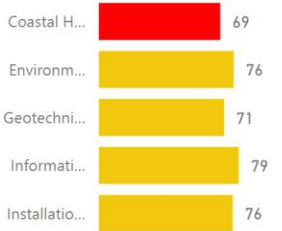
43.32  
Average Building Age

44.56  
Avg Building Age Weighted by SF

\$29,602,777  
Current Work Requirement

\$183,196,156  
Total Work Requirement

Condition Index (Summary) by Business Entity



Facility Scorecard

U4V-B3051 - (NO RPIE TAG) Structures Shelter # 1

- 1947 Built Date
- 69.13 Condition Index (CI)
- 72,956 Area (SF)
- \$21,200,508 Replacement Cost

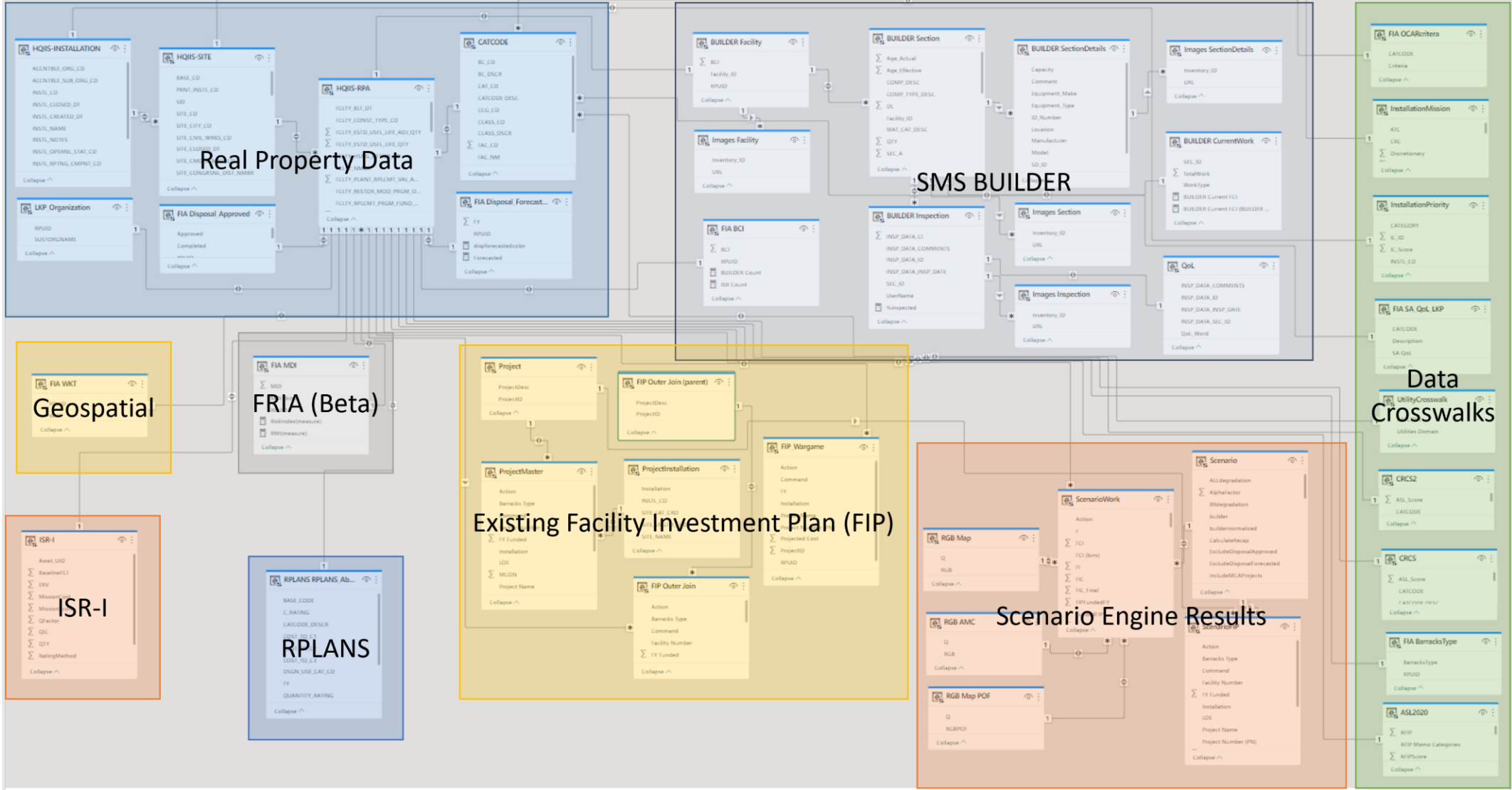
Category	Value
A10 FOUND...	44
B10 SUPERS...	79
B20 EXTERL... ENCL...	72
B30 ROOFL...	82
C10 INTERIOR CONST...	70
D20 PLUMBI...	65
D30 HVAC	67
D50 ELECTRI...	60
F10 SPECIAL CONST...	74





U.S. ARMY

# SUPPORT DATA DRIVEN DECISIONS








U.S. ARMY

# SUPPORT DATA DRIVEN DECISIONS





**Facility Resilient  
Investment Analytics**

Site

**Facilities**

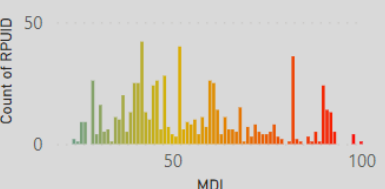
4468

Plant Replacement Value

\$11bn

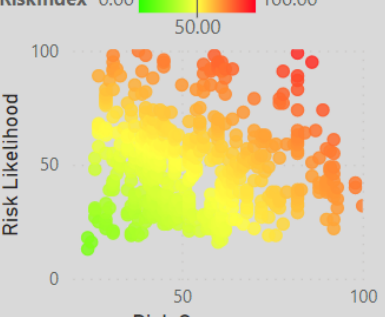
**MDI Distribution**


Average of MDI  0 50 100



**Composite Risk Posture**

RiskIndex 0.00  50.00 100.00

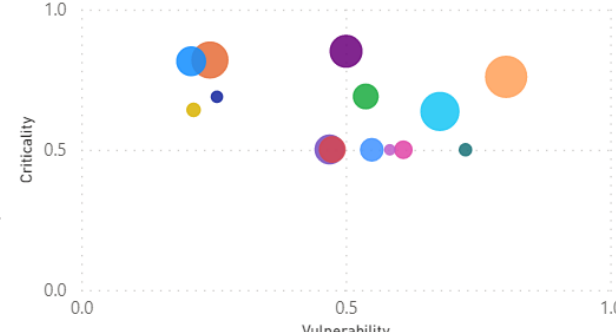




**System Level Risk Posture**

System

- A10 FOUNDATIONS
- A20 BASEMENT CONSTRU...
- B10 SUPERSTRUCTURE
- B20 EXTERIOR ENCLOSURE
- B30 ROOFING
- C10 INTERIOR CONSTRUCT...
- C20 STAIRS
- C30 INTERIOR FINISHES



**Facility Level Details**

Number	Name	Catcode	Catcode Description	PRV	CRV	Year	CI	Risk Consequence	Risk Likelihood	Risk ^
	VEH MNT SHOP ORG	21410	VEH MAINT SHOP	\$11,696,381	17,165,343.14	1984	58	82	99	
	VEH MNT SH DS	21410	VEH MAINT SHOP	\$95,008,640	101,522,392.00	1981	67	86	95	
	READINESS CENTER	21410	VEH MAINT SHOP	\$6,546,393,2027	7,211,297.45	1986	72	82	89	
	USAR VEH MNT	21409	USAR VEH MAINT	\$15,485,614	19,747,668.50	1982	70	78	91	
	VEH MNT SH ORG	21410	VEH MAINT SHOP	\$12,631,152	19,300,876.68	1984	55	82	87	
	VEH MNT SH ORG	21410	VEH MAINT SHOP	\$12,709,540	11,122,754.79	1987	68	82	83	
	RELIGIOUS EDUCATION FACILITY	73018	RELIG ED FAC	\$4,977,979	12,168,565.33	1975	68	89	74	
	RANGE OPNS BLDG @ RANGE 145 FRMLY P14202	17122	RANGE OPNS BLDG	\$144,347	138,898.64	1970	64	59	98	
	GENERAL INSTR BLDG @ RANGE 57	17123	RG SPT FAC	\$566,030	472,927.67	1992	69	61	95	

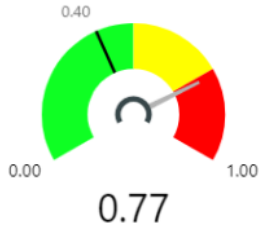




## Facility Level Details

RPUID	Number	Name	Catcode	Catcode Description	Components	PRV	CRV	Year	MDI	Age	EffAge	Condition	Repair
			72114	TT ENL BARRACKS	135	\$11,301,637	13,531,059.77	1979	94	34.41	25.72	67.48	4,952,714.4

### Risk Likelihood Score



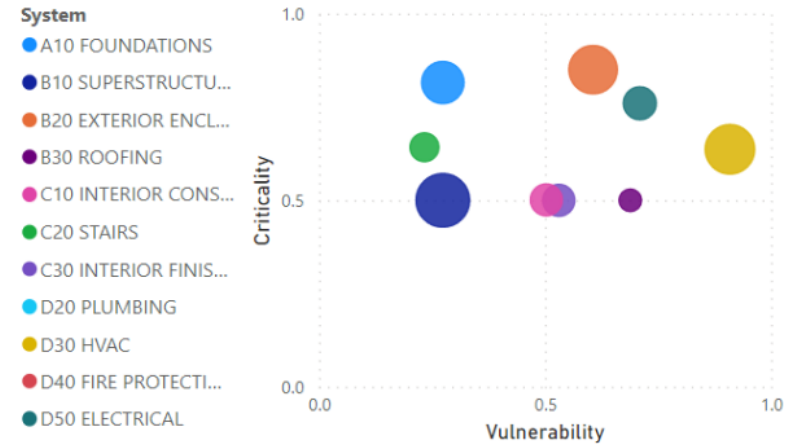
### Risk Likelihood Components



### Risk Consequence - MDI



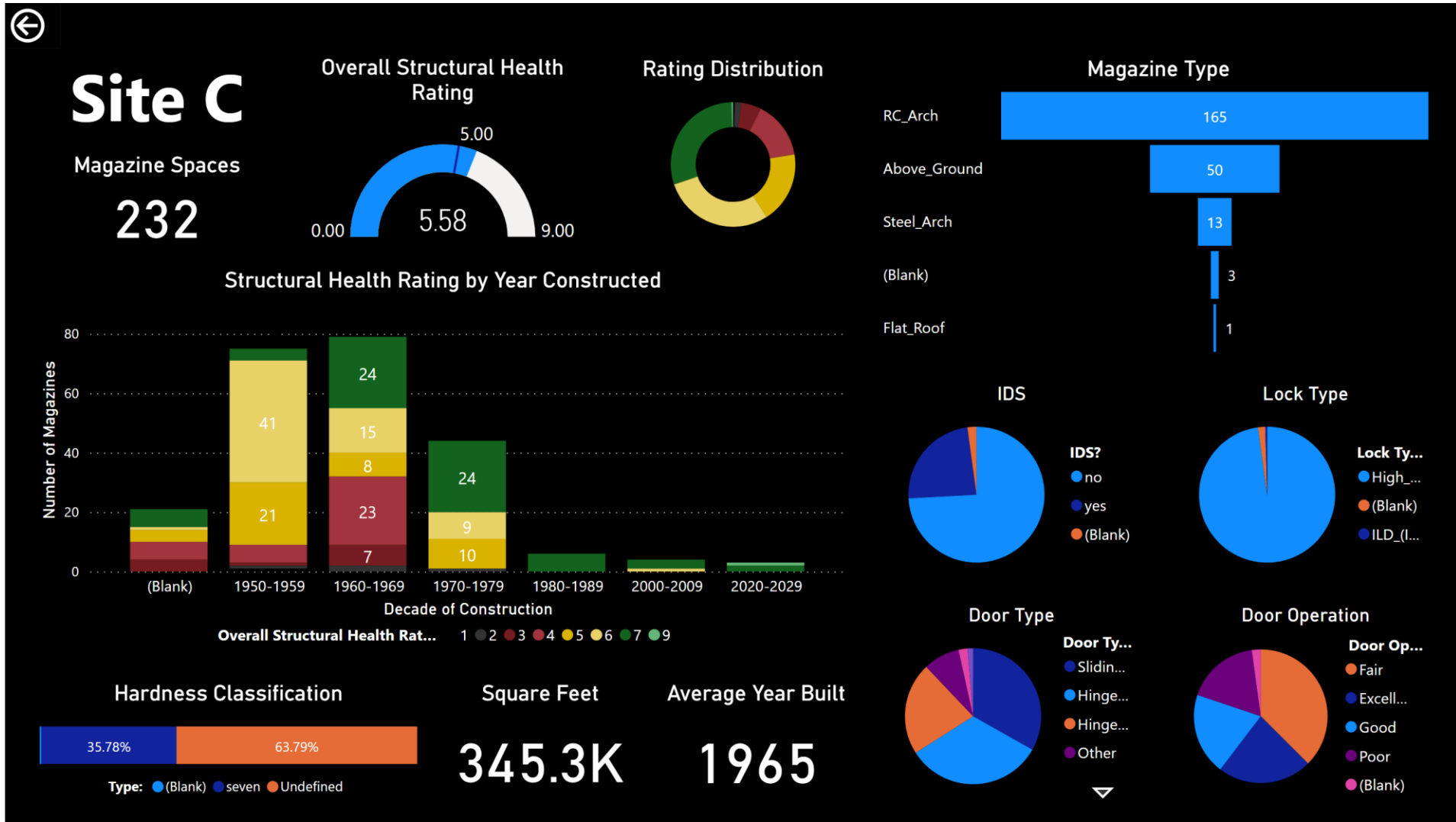
### System Level Risk Posture



### System Level Details

System	Criticality	Vulnerability	Components	CRV	Age	DLU	EffAge	SLU	Proj_CI	AccumDet	Repair	AccumRepair
A10 FOUNDATIONS	0.82	0.27	1	1,522,969.90	44.00	0.00	45.42	0.45	90.00	0.17	50,606.23	0.03
B10 SUPERSTRUCTURE	0.50	0.27	3	2,554,767.96	44.00	0.00	45.42	0.45	90.00	0.17	84,891.48	0.03
B20 EXTERIOR ENCLOSURE	0.85	0.61	10	2,047,203.15	36.80	0.40	31.34	0.72	74.00	0.43	209,104.24	0.33
B30 ROOFING	0.50	0.69	1	316,395.59	22.00	1.00	17.71	0.89	70.00	0.50	84,776.10	0.27
C10 INTERIOR CONSTRUCTION	0.50	0.50	12	782,319.39	44.00	0.25	38.14	0.73	81.67	0.31	78,010.85	0.11
C20 STAIRS	0.64	0.23	2	577,972.86	44.00	0.00	47.44	0.38	90.00	0.17	19,205.25	0.03
C30 INTERIOR FINISHES	0.50	0.53	17	796,459.39	28.06	0.35	24.63	0.62	75.29	0.41	219,438.20	0.30
D20 PLUMBING	0.69	1.08	21	1,473,466.25	40.52	0.81	28.86	1.03	45.71	0.90	1,417,130.53	0.90
D30 HVAC	0.64	0.91	30	2,124,208.92	24.27	0.80	20.21	0.94	54.00	0.77	1,706,673.94	0.76
D40 FIRE PROTECTION	0.50	1.72	3	478,942.31	43.00	2.00	34.32	1.72	26.67	1.22	932,388.05	1.80





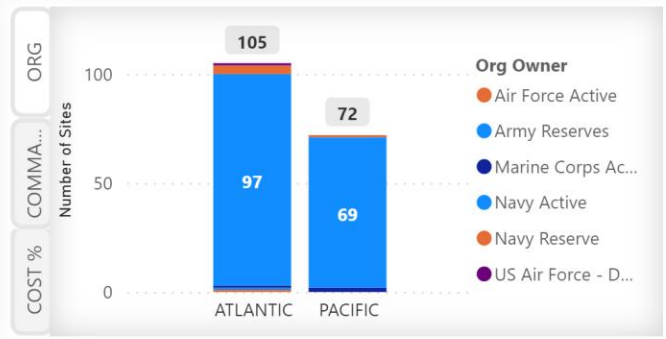


**SMS**    Commands: 9    Sites: 177    Facilities: 1770    Components: 28.70K    Mooring Hardware: 14.70K    PRV: \$19.43bn    Site Name: All



- EUROPE A...
- HAWAII
- FAR EAST
- MID ATLAN...
- NORTHWEST
- SOUTHEAST
- SOUTHWEST
- MARIANAS
- WASHINGTON...

Site	Installation	Code	RPSUID	Site CI
AIEA	JBPHH Pearl Harbor Hawaii	N62813-AE	347	76.50
AKASAKI POL DEP-5032	COMFLEACT SASEBO JA	N61058-AK	313	70.50
AMPHIB BASE CRNDO EAST	NAVBASE Coronado	N00246-AE	970	78.68
AUGUSTA BAY	NAS SIGONELLA IT	N62995-AB	896	
AUTEC GOLDING CAY	NAS KEY WEST FL	N00213-DA	274	
AUTEC MAIN BASE	NAS KEY WEST FL	N00213-AB	271	
AUTEC SALVADOR POINT	NAS KEY WEST FL	N00213-SP	272	





U.S. ARMY

# FACILITATE NAVIGATION AND SEARCHING



Domain

Organization

Site Name

☰

**Area Name**

**Track Name**

**Segment Name**

**Component Name**

**Inspection Type**

**Inspection SubType**

**Recent Inspection**

**Inspection Date**

Defect Count by Restriction

11.9...

Total Defects

Defect Count by Component Type

Structure	6767
Turnout	5052
Grade Crossing	105
Drainage	57
Appliance	7
(Blank)	1

Frequently Occuring Defects

Single Defective Tie	598
Bolts, Loose (1 Bolt) ...	549
Dirty (Fouled) Ballast	355
Bolts, Loose, All (4 Bo...	339
Bolts, Missing/Cracked	339

Defects

Segment Name	Location	Component Name	Subcomponent	Observation	Measurement	Quantity	Units	Restriction
1			Ties	Single Defective Tie		8	EA	4: Maint A
1		44	Switch	Cotter Keys, Improper Type		1	EA	4: Maint A
1		44	Switch	Cotter Keys, Improper Type		5	EA	4: Maint A
1		44	Switch	Cotter Keys, Missing		2	EA	2: 10 MPH
1		44	Frog	Frog Flangeway Depth (Left)	1.88	1	EA	6: Defect Free
1		44	Frog	Frog Flangeway Depth (Right)	1.88	1	EA	6: Defect Free
1		44	Frog	Frog Flangeway Width (Left)	1.88	1	EA	6: Defect Free
1		44	Frog	Frog Flangeway Width (Right)	1.88	1	EA	6: Defect Free
1		44	Frog	Gauge At Frog Point (Left)	56.50	1	EA	6: Defect Free
1		44	Frog	Gauge At Frog Point (Right)	56.50	1	EA	6: Defect Free
1		44	Switch	Gauge At Joints In Curved Closure Rail (1st)	56.50	1	EA	6: Defect Free
1		44	Switch	Gauge At Joints In Curved Closure Rail (2nd)	56.50	1	EA	6: Defect Free
1		44	Switch	Gauge At Switch Points	56.50	1	EA	6: Defect Free

FACILITIES

NETWORK INFO

ZONES

COMPONENTS

INSPECTION INFO

WORK PLAN

COMPONENT LIBRARY

DEFECT LIBRARY

WORK ACTION LIBRARY





# FACILITATE NAVIGATION AND SEARCHING



SMS

**Sites**

Site:

**Facilities**

RPUID:

**Groups**

Facility Type:

**Components**

Facility Size (SF):

**Assessment**

Year Built:

**Work**

Building Condition Index:

**Libraries**

**Go to**

Facility:

Group:

Component:

Assessment:

Work Action:

**69.60K**

Facilities

**\$355bn**

Total PRV

**744M**

Total GSF

**50.44**

Average Age

Average BCI

72.28

BCI Distribution

CRV by Comp Type

Average of CI 50.00 █ 75.00 █ 100.00

- \$101bn Housing & Community
- \$81bn Operation & Training
- \$61bn Administrative
- \$50bn Supply
- \$45bn Maintenance & Production
- \$8bn Research, Development, T...
- \$6bn Utility & Ground Improve...
- \$2bn Hospital & Medical

Number	Name	CAT_CODE	FacilitySize	UoM	PRV	YearConstructed	CI	CI_HVAC	CI
	OSHKOSH FMB	21412	174 SF		\$71,516	2005	80	85	
	Warehouse	74055	3,300 SF		\$504,542	1900	75		
	Site	85210	196,663 SY		\$14,847,849	1990	3		
	Site	85110	1,000 SY		\$77,240	1996	14		
	ADELPHI READINESS CENTER	17180	21,028 SF		\$9,821,743	1959	74	61	
	READINESS CENTER	17180	27,794 SF		\$12,064,082	1958	74	50	
	NATIONAL GUARD READINESS CENTER - (LENOIR)	17180	41,117 SF		\$17,071,020	2007	84	87	
	ARNG READINESS CENTER	17180	23,085 SF		\$10,020,124	1954	81	80	
	NATIONAL GUARD READINESS CENTER - (ASHEVILLE)	17180	26,090 SF		\$10,832,087	2008	87	89	
	READINESS CENTER	17180	44,876 SF		\$22,442,715	2009	84	76	
	NATIONAL GUARD READINESS CENTER	17180	27,487 SF		\$12,968,291	2004	81	61	





# UNCOVER TRENDS

U.S. ARMY



System, Sub-System, Component Type, Co... ⏏

Search

- A10 FOUNDATIONS
- A20 BASEMENT CONSTRUCTION
- B10 SUPERSTRUCTURE
- B20 EXTERIOR ENCLOSURE
- B30 ROOFING
- C10 INTERIOR CONSTRUCTION
- C20 STAIRS
- C30 INTERIOR FINISHES
- D10 CONVEYING
- D20 PLUMBING
- D30 HVAC
  - D3010 ENERGY SUPPLY
  - D3020 HEAT GENERATING SYSTEMS
  - D3030 COOLING GENERATING SYSTEMS

Search Component

Search

A/C Unit

All ⏏

All ⏏

All ⏏

All ⏏

All ⏏

All ⏏

**625.45K**

Total Count

**60.21bn**

Total CRV

**17.29**

Average Age

**69.63**

Average CI

**7.04**

Average RSL

**Current Age Distribution (All)**

**13.67**  
Ave Insp Age

**Current Age Distribution (non-failed)**

**13.31**  
Ave Non-Failed ...

**Current Age Distribution (failed)**

**27.78**  
Ave Failed Age

**Projected Life Distribution**

**24.10**  
Ave Proj Life

**Rating Distribution**

**84.98**  
Ave Insp CI

**Average Age vs CI Rating**

**Average CI Rating vs Age**





U.S. ARMY

# UNCOVER TRENDS



System	#Components	Total CRV	Average Age	Average RSL	Average CI	Average Alpha	Average Beta
⊞ A10 FOUNDATIONS	198270	47,019.59M	49.16	49.77	81.72	2.70	0.99
⊞ A20 BASEMENT CONSTRUCTION	7401	1,153.77M	58.08	43.26	79.65	3.17	1.01
⊞ B10 SUPERSTRUCTURE	258923	66,252.94M	44.98	47.36	80.81	2.86	1.01
⊞ B20 EXTERIOR ENCLOSURE	467266	47,190.46M	30.24	13.32	71.72	4.14	1.22
⊞ B30 ROOFING	174028	10,767.41M	24.58	7.06	68.40	3.90	1.22
⊞ C10 INTERIOR CONSTRUCTION	397533	26,464.68M	24.31	17.40	77.86	3.69	1.13
⊞ C20 STAIRS	44992	3,958.49M	41.96	56.95	82.75	2.46	0.93
⊞ C30 INTERIOR FINISHES	443027	30,875.44M	21.89	27.22	75.71	3.07	1.09
⊞ D10 CONVEYING	12080	1,879.98M	21.08	6.07	70.16	4.22	1.27
⊞ D20 PLUMBING	483651	22,663.06M	21.40	11.75	73.83	3.73	1.12
⊞ D30 HVAC	625452	60,213.46M	17.29	7.04	69.63	3.66	1.14
⊞ D3010 ENERGY SUPPLY	8322	2,104.00M	17.64	15.82	77.47	3.17	1.00
⊞ D3020 HEAT GENERATING SYSTEMS	79644	2,946.45M	17.12	9.56	74.06	3.49	1.10
⊞ D3030 COOLING GENERATING SYSTEMS	55565	2,345.49M	13.76	5.10	69.45	3.86	1.12
⊞ D3040 DISTRIBUTION SYSTEMS	221115	42,101.23M	19.61	6.79	65.93	3.87	1.22
⊞ D304001 AIR DISTRIBUTION, HEATING & COOLING	38313	15,210.87M	22.30	14.10	73.89	2.89	1.03
⊞ D304002 STEAM DISTRIBUTION SYSTEMS	3618	322.50M	25.12	6.53	66.54	3.53	1.05
⊞ D304003 HOT WATER DISTRIBUTION SYSTEMS	44588	8,847.42M	17.46	5.41	67.03	3.04	1.04
⊞ D304004 CHANGE OVER DISTRIBUTION SYSTEMS	1	0.00M	37.00	-16.84	1.01	2.64	1.00
⊞ D304005 GLYCOL DISTRIBUTION SYSTEMS	1147	41.85M	12.38	8.63	79.83	2.93	1.03
⊞ D304006 CHILLED WATER DISTRIBUTION SYSTEMS	16547	7,916.56M	16.81	19.22	78.33	3.21	1.05
⊞ D304007 EXHAUST SYSTEMS	86747	4,276.39M	20.29	2.99	60.26	4.69	1.42
⊞ D304008 AIR HANDLING UNITS	27637	4,193.09M	18.69	2.74	61.82	4.61	1.31
⊞ Air Handling Unit	27637	4,193.09M	18.69	2.74	61.82	4.61	1.31
Central Station	20572	3,154.00M	18.69	3.12	62.76	4.62	1.30
Field Fabricated	555	259.33M	19.84	1.79	58.33	5.71	1.43
General	82	47.25M	18.52	2.23	55.25	3.29	1.37
Indoor Modular	4675	288.35M	19.57	1.17	57.54	4.65	1.37
Other	33	11.92M	22.33	0.45	58.99	3.67	1.51
Rooftop	1719	432.04M	15.82	2.79	63.67	4.15	1.23
Unknown	1	0.19M	12.00	5.37	75.94	3.21	1.15
⊞ D304090 OTHER DISTRIBUTION SYSTEMS	2517	1,292.56M	17.52	12.80	77.02	2.70	1.01
⊞ D3050 TERMINAL & PACKAGE UNITS	208253	8,266.25M	16.64	7.19	72.24	3.56	1.11
<b>Total</b>	<b>4231039</b>	<b>401,521.72M</b>	<b>25.01</b>	<b>17.78</b>	<b>74.56</b>	<b>3.58</b>	<b>1.12</b>





# UNCOVER TRENDS

U.S. ARMY



## Facility Resilient Investment Analytics

### Organization / Installation / Site

- ANC
- ARCENT
- ARMY RESERVE
- ARNG
- BRAC/EXCESS
- IMCOM
- ID EUROPE
- ID PACIFIC
- READINESS
- SUSTAINMENT
- TRAINING
- USACE
- USAREUR

### Facility Type

#### Administrative

Administrative Buildings

Administrative Structures Other

#### Hospital & Medical

Dental Clinics

Dispensaries and Clinics

Medical and Medical Support Faci

Medical Centers and Hospitals

#### Housing & Community

Family Housing

Indoor Morale, Welfare, and Recr

Museums And Memorials

Outdoor Morale, Welfare, and Rec

Personnel Support and Services F

Unaccompanied Personnel Housing

#### Maintenance & Production

Maintenance Facilities

Production Facilities

#### Operation & Training

Airfield Pavements

Communications, Navigation Aids

Harbor and Coastal Operational F

Land Operational Facilities

Liquid Fueling and Dispensing Fa

Training Facilities

Waterfront Operational Facilitie

#### Research, Development, Test, and Evaluation

RDT&E Facilities Other Than Bui

RDT&E Buildings

RDT&E Range Facilities

#### Supply

Facilities	PRV Total	Ave Risk Consequence	Ave Risk Likelihood	Ave Risk Index
------------	-----------	----------------------	---------------------	----------------

2775	\$23,406M	48.03	55.65	53
545	\$44M			
34	\$415M	33.00	54.00	45
194	\$2,009M	36.70	51.78	42
85	\$217M	34.93	47.94	42
27	\$7,611M	58.00	46.00	52
26661	\$28,784M	51.28	45.65	48
929	\$2,655M	37.82	56.15	49
515	\$202M	30.88	48.07	39
3094	\$1,175M	9.33	18.33	15
2573	\$5,829M	47.02	54.34	52
2272	\$21,400M	74.91	51.39	64
3125	\$14,406M	60.22	54.16	58
27	\$43M	30.13	52.30	42
961	\$4,910M			
1201	\$10,199M	63.18	52.50	59
2	\$0M			
4566	\$3,748M	55.94	87.54	80
1290	\$449M			
5081	\$10,669M	54.02	47.24	50
54	\$54M			
1028	\$659M			
597	\$1,069M	22.29	59.17	46
643	\$775M	47.98	61.44	56





U.S. ARMY

# SCREENING FOR OPPORTUNITIES

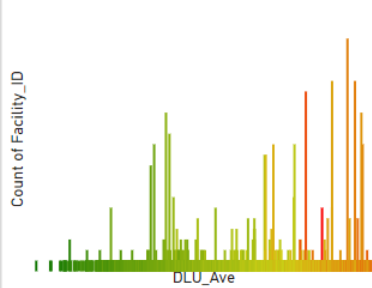


## Facility Resilient Investment Analytics

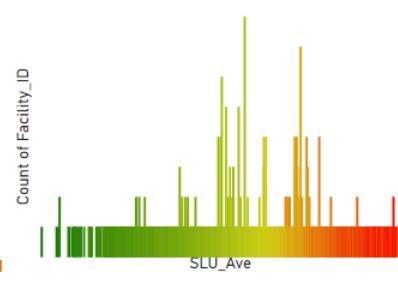
### Organization / Installation / Site

- ANC
- ARCENT
- ARMY RESERVE
- ARNG
- BRAC/EXCESS
- IMCOM
- ID EUROPE
- ID PACIFIC
- READINESS
- SUSTAINMENT
- TRAINING
- USACE
- USAREUR

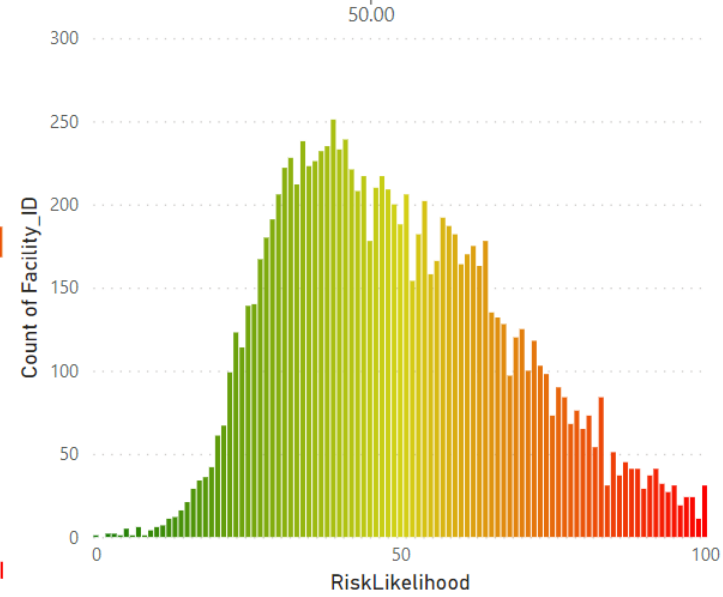
### Age Factor



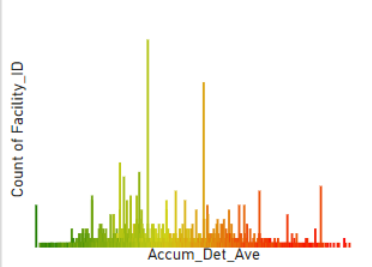
### Reliability Factor



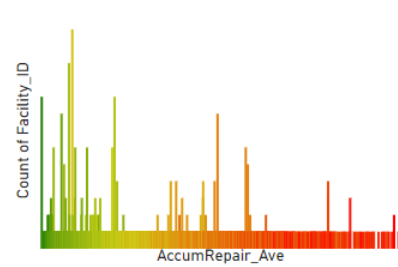
### Average of RiskLikelihood



### Condition Factor



### Repair Factor



### Facility Level Details

Number	Name	Catcode	Catcode Description	Components	PRV	CRV	Year	CI	RiskLikelihood	DLU
	ADMIN GEN PURP, 1	61050	ADMIN GEN PURP	167	\$14,120,200	10,967,626.83	1916	61.37	61.00	
	BARTSOW OUTREACH CENTER	74033	ACS CTR	38	\$595,378	1,290,730.04	1993	84.75	40.00	
	FIRE STATION	73010	FIRE STATION	144	\$10,649,463	14,262,331.10	2017	83.10	27.00	
	GEN INST BLDG	17120	GEN INST BLDG	54	\$681,541	859,190.16	1986	75.59	64.00	
	HUTMENT	72510	HUTMENT	31	\$73,096	1,172,730.04	1995	46.83	63.00	





# SCREENING FOR OPPORTUNITIES



<b>Facilities</b>	<b>8970</b>	<b>\$145bn</b>	<b>306M</b>	<b>42.48</b>
	Facilities	Total PRV	Total GSF	Average Age

Facility Type	Number	Name	CAT_CODE	FacilitySize	UoM	PRV	YearConstructed	CI	CI_Enclosure	CI_HVAC	CI_Roofing
All	17180			19,087	SF	\$8,735,038	1977	76.96	85	58	93
	17140			102,216	SF	\$44,849,460	1999	77.29	80	62	
	89121			2,400	SF	\$284,455	1994	76.47	75	73	79
	14183			57,500	SF	\$24,394,457	2015	94.83	87	96	82
	14185			57,738	SF	\$23,530,267	2013	92.96	85	94	82
<b>Total</b>											

<b>Components</b>	<b>15.30K</b>	<b>2.11bn</b>	<b>15.52</b>	<b>78.82</b>	<b>13.72</b>
	Total Count	Total CRV	Average Age	Average CI	Average RSL

Component Classification	SEC_NAME	Component Type	Component Sub-Type	QTY	UoM	CRV	YEAR BUILT	CI	RSL	SEC_ID
D30 HVAC (System) + D3020 HEAT GENERATING ...	MECH RM 102_103 BOILER #2	D302001 BOILERS	Oil, HW - 700-1300 MBH	2.00	EA	171,537.05	2007	84.40	14.16	4958ED26-87DA-6
	BASEMENT	D302001 BOILERS	Gas/Oil, Hot Water - 1,750-2,250 MBH	1.00	EA	225,321.40	2009	84.22	15.12	2EB1FB5F-0F38-0E
	FL1 - MECH RM	D302001 BOILERS	Gas, Hot Water - 1200-1800 MBH	2.00	EA	295,091.72	1987	84.18	5.33	1C08F102-C415-4I
	FL1 - MECH RM	D302001 BOILERS	Gas, Hot Water - 1200-1800 MBH	1.00	EA	143,029.15	2017	81.48	18.90	AD6C0C07-95B0-4
Boiler_Fuel: All	FL1_MECH RM 126_B-1-A	D302001 BOILERS	Gas, Steam - 1000-2000 MBH	1.00	EA	166,983.62	2005	76.48	11.64	A70E5242-801A-4
Boiler_Type: All	MECH RM 102_103 BOILER #1	D302001 BOILERS	Oil, HW - 700-1300 MBH	1.00	EA	85,768.53	2007	84.40	14.16	EB98B92F-9E8D-4I
Boiler_MBH: All	#2	D302001 BOILERS	Gas, Hot Water - 250-400 MBH	1.00	EA	48,896.34	2010	90.72	17.16	175EE90D-A090-4
Boiler_KW: All	00228-B-001-B	D302001 BOILERS	Gas, Hot Water - 500-650 MBH	1.00	EA	98,129.30	2013	80.13	13.03	30AB50D1-B738-4
	047-GROUND - BOILER ROOM	D302001 BOILERS	Gas, Hot Water - 3500-4500 MBH	1.00	EA	250,408.11	2011	82.98	15.89	32EFCF3C-83E4-9I





U.S. ARMY

# HOW DO I GET DATA?

18



- BUILDER Custom Reports
- An exported dataset
- BUILDER API
- ESMS Cloud





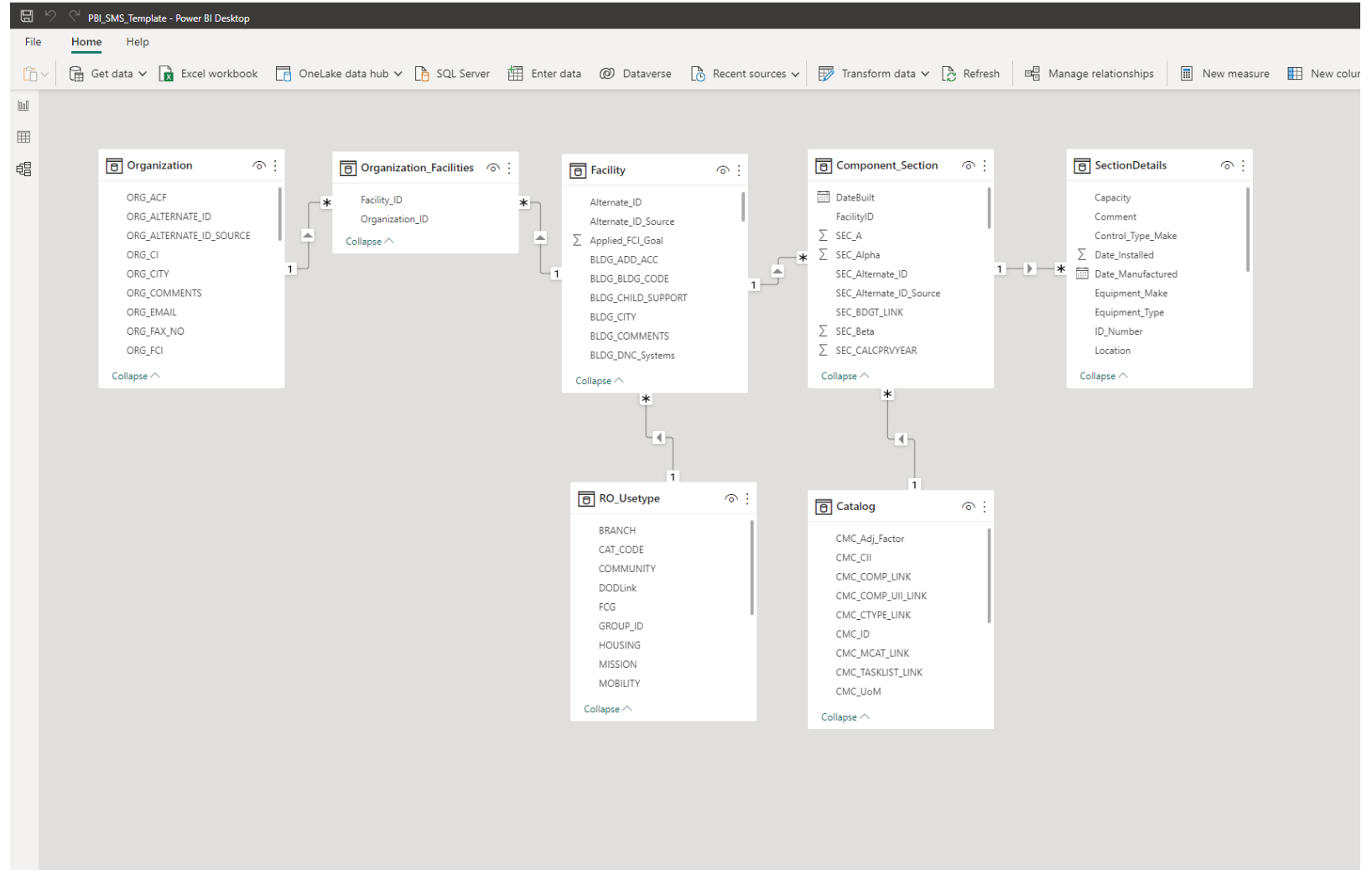


# DATA MODEL – KEY DATASETS



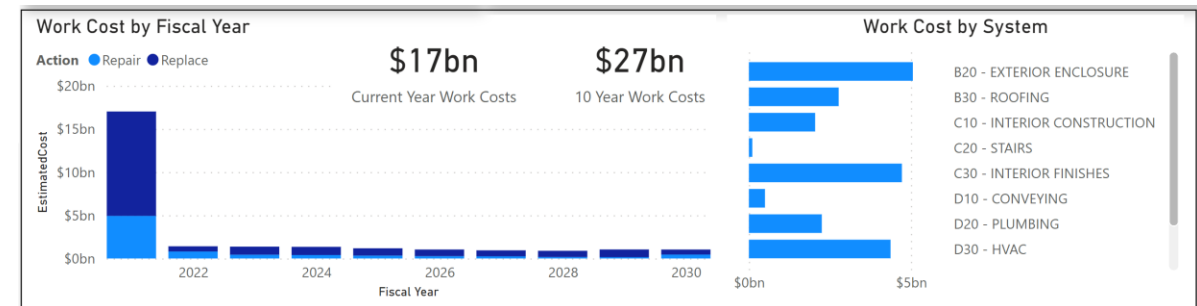
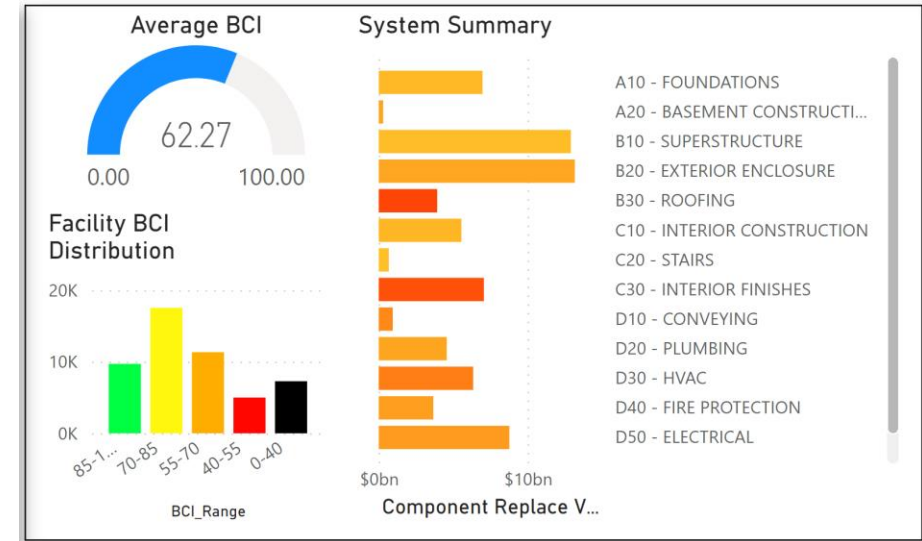
U.S. ARMY

- Site
- Facility
- Component
- Section Details
- Assessments
- Work





- CI
  - Average CI by system, building, site, Facility type or MDI Range
  - Breakdown by CI range (Red/Amber/Green)\
  - Median and Standard Deviation by Year Constructed
- RSL
  - Average RSL by system
  - Breakdown by RSL ranges
  - RSL vs overall Design Life
- Cost
  - Breakdown by System, Component Type
  - Breakdown by activity type
  - Total Cost per year by site, building
- Others





U.S. ARMY

# WHERE TO GO FOR INSPIRATION?



- Power BI, Tableau, Qlik
- Financial Sites
- Weather Apps
- Sports Statistics
- Anywhere you see a compelling visualization



Statcast Pitcher Velocity Distribution



Statcast Glossary

<b>Exit Velocity (EV)</b> How fast, in miles per hour, a ball was hit by a batter.	<b>Launch Angle (LA)</b> How high/low, in degrees, a ball was hit by a batter.	<b>Barrels</b> A batted ball with the perfect combination of exit velocity and launch angle.	<b>Hard Hit</b> Statcast defines a "hard-hit ball" as one hit with an exit velocity of 95 mph or higher.
<b>Sweet Spot</b> A batted-ball event with a launch angle between eight and 32 degrees.	<b>Batted Ball Event (BBE)</b> A Batted Ball Event represents any batted ball that produces a result.	<b>Pitch Velocity</b> How hard, in miles per hour, a pitch is thrown.	<b>Pitch Movement</b> The movement of a pitch is defined in inches, both in raw numbers and as a measurement against average.

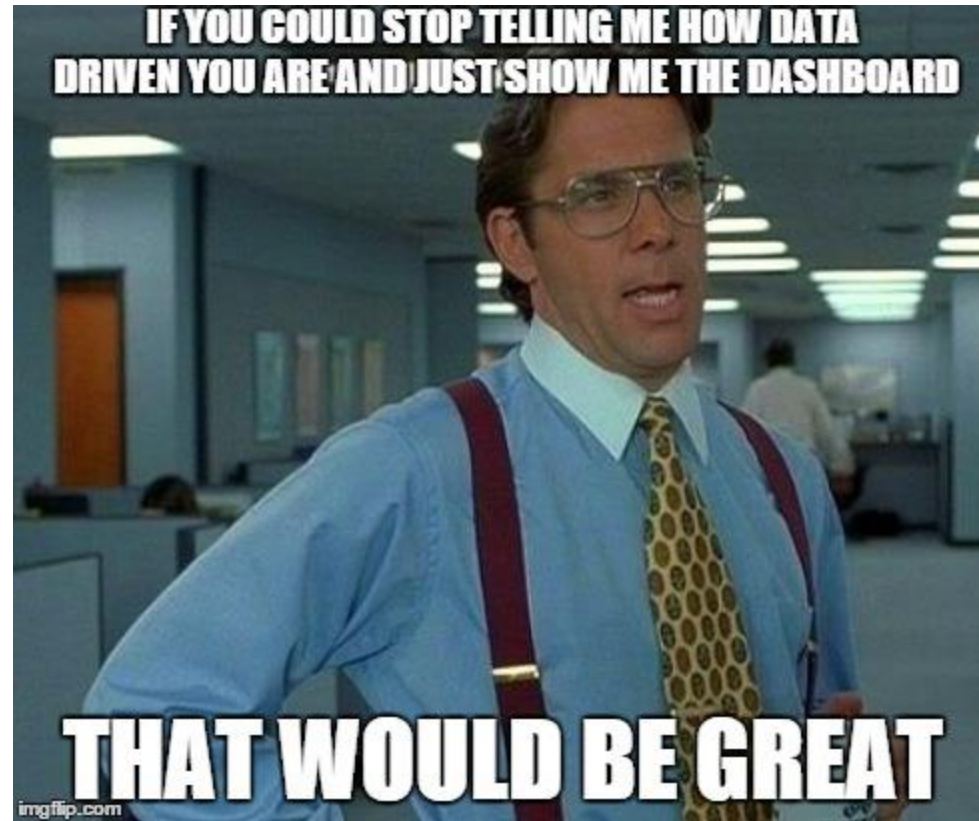




U.S. ARMY

# QUESTIONS / DISCUSSION

23



Sustainment Management Systems (SMS) Summit 2023

NATIONAL  
ACADEMIES

Sciences  
Engineering  
Medicine