Leveraging an Enterprise Agreement to Enable Enterprise-Wide Manufacturing Visibility

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Agenda

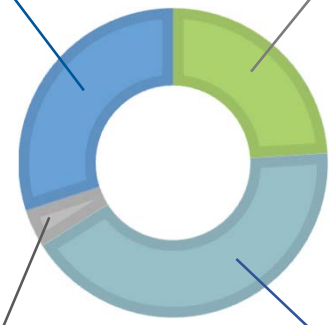
- Company Introductions
- Business Challenge
- Project Management
- Technical Execution Topics
- Challenges
- Lessons Learned / Path to Success
- Results

Company Introductions

Georgia-Pacific

Packaging & Cellulose

Bleached Board
Cellulose
Corrugated Packaging
Kraft Paper
Linerboard



Building Products

Chemicals
Gypsum
Oriented Strand Board
Plywood

Consumer Products

Communication Papers
Foodservice
Industrial Wipes
Professional Tissue, Towel
Retail Tissue, Towel and Napkins

Other

radix
Engineering and Software

- **Tailored Software Development**
- **Software Architecture and Platforms**
- **Big Data and Analytics**
- **Governance**
- **Software Support**

- **Conceptual and Special Studies**
- **Capital Engineering (Basic to Detailed Design)**
- **Interface Management**
- **Digital Engineering (3D and Integrations) and Digital Asset**
- **Facilities Support / Fleet Support / Brownfield Engineering**
- **Conceptual and Consulting Services**
- **Traditional Automation (PLCs, DCSs and SCADA)**
- **IIoT and Instrumentation (Data Gathering)**
- **Industrial Networks and Cyber Security**
- **Manufacturing Executive Systems (MES)**
- **Operations Management Systems**
- **Asset Management**
- **Industrial Digital Twins (Process and Equipment)**
- **Machine Learning and AI**
- **System/Application Support**

Business Challenge

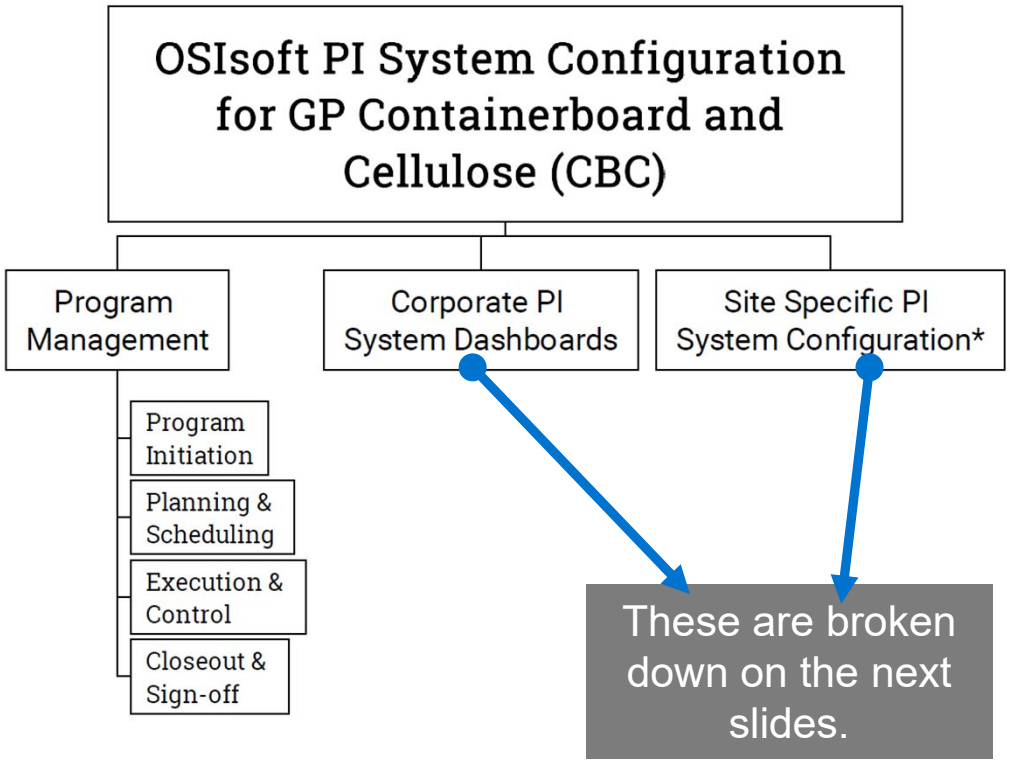
- Strategy
  - Savings from OEE improvement
  - Savings from minimizing unplanned events
  - Standardizing KPIs across the fleet
  - Promoting principled entrepreneurship

- Tactical Steps
  - Utilize OEE to drive process stability and optimization
  - Define standard KPI's for like equipment
  - Single source of the truth for process performance
  - Standardize cross-asset and cross-mill process visualizations
  - Roll-up visualizations and data from asset owner to executive leadership

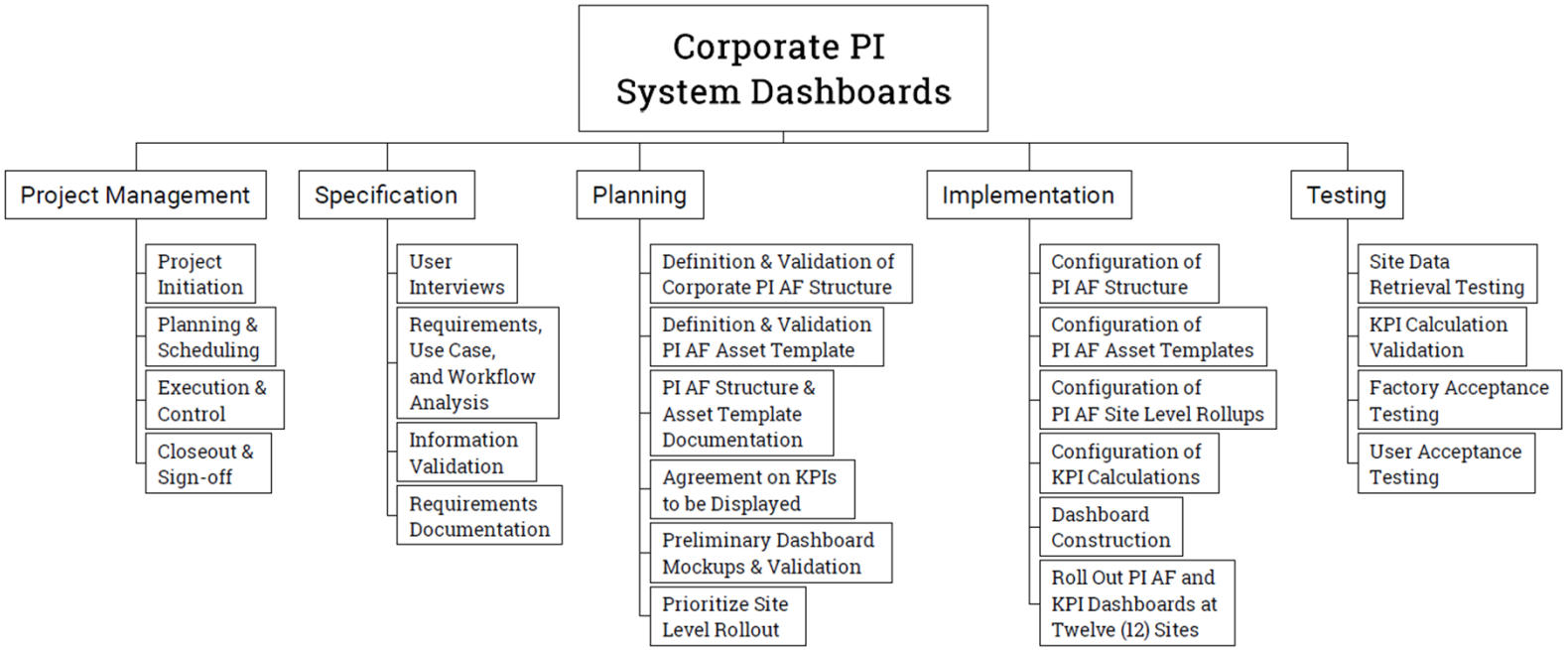
Project Management Topics (sub agenda)

- Scope Overview
- Cross Organizational Team
- Sprint Based Work Process
- Execution Methodology and Schedule
- Change Management

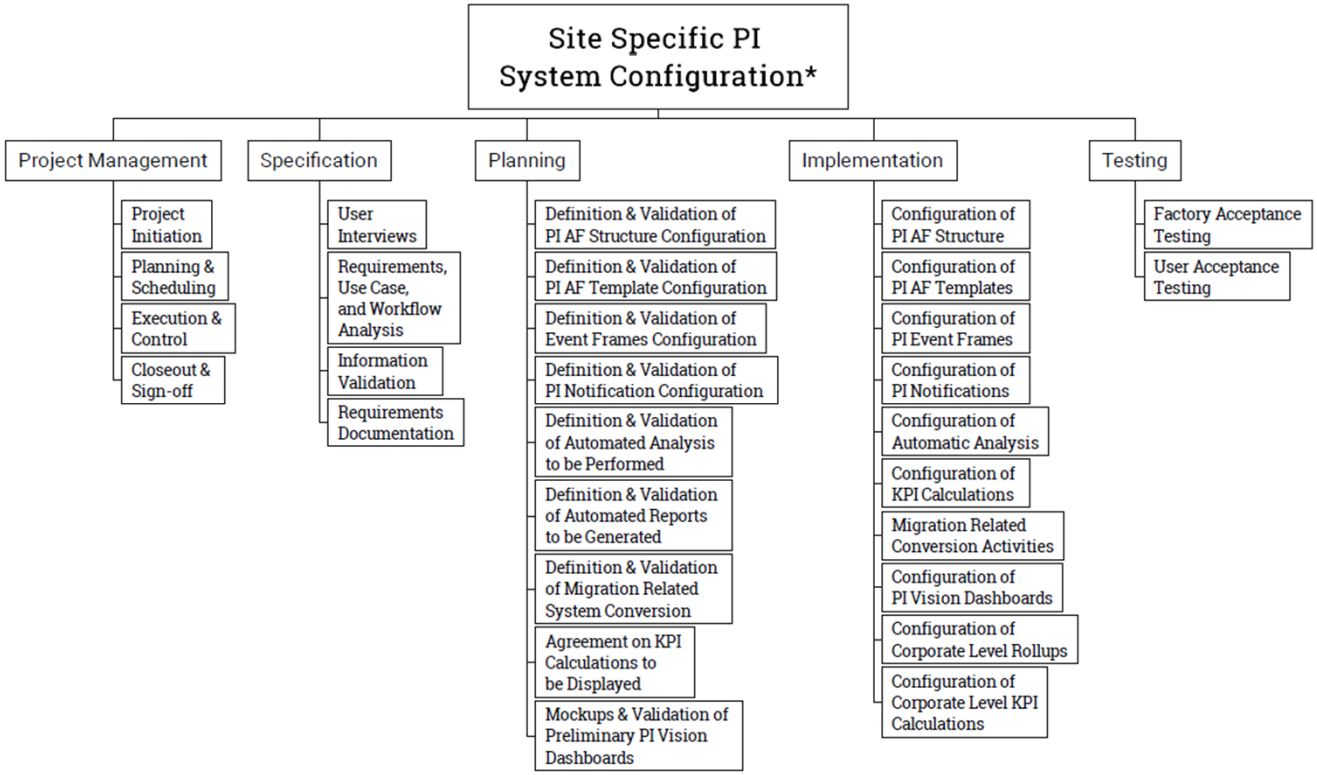
Scope Overview – Work Breakdown Structure



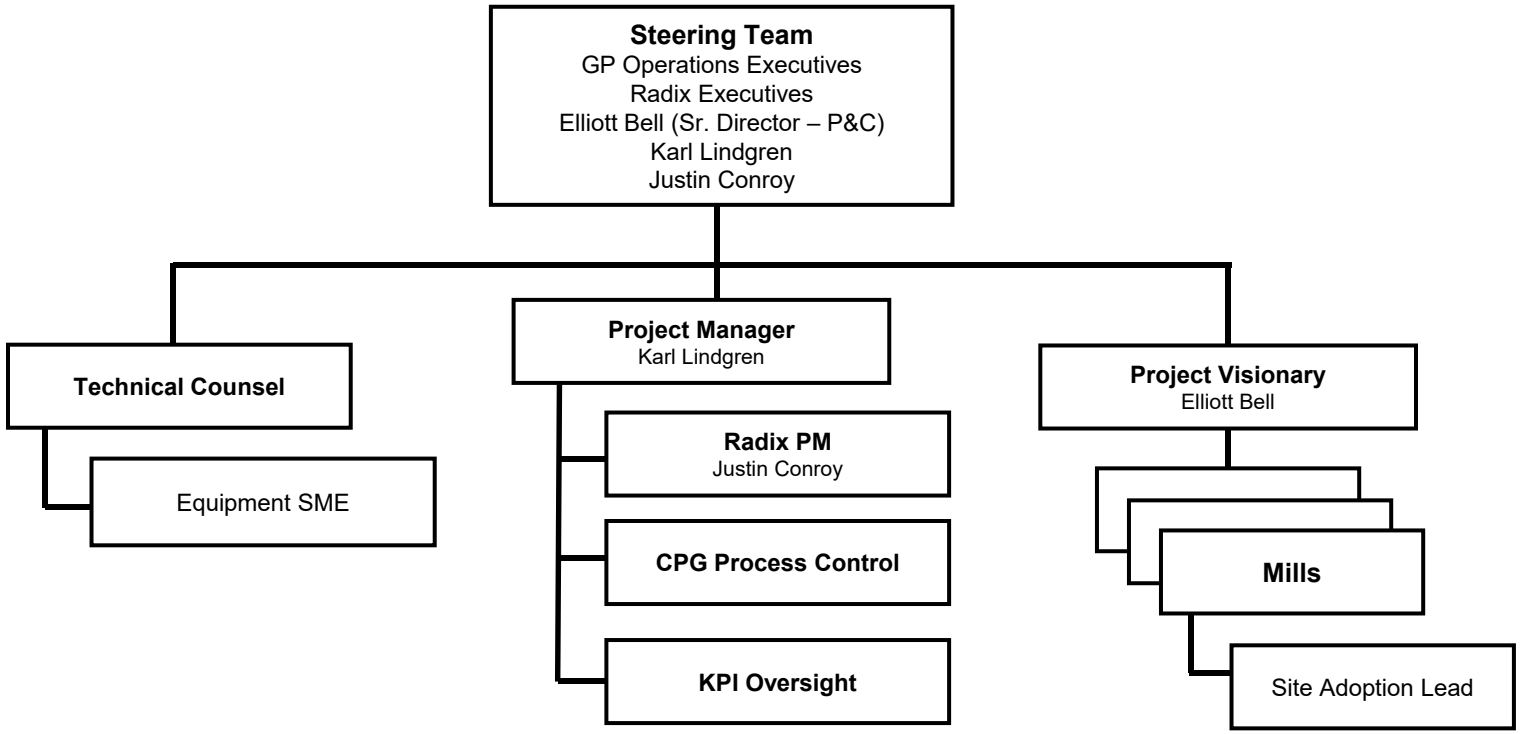
Scope Overview – Work Breakdown Structure



Scope Overview – Work Breakdown Structure



Cross Organizational team



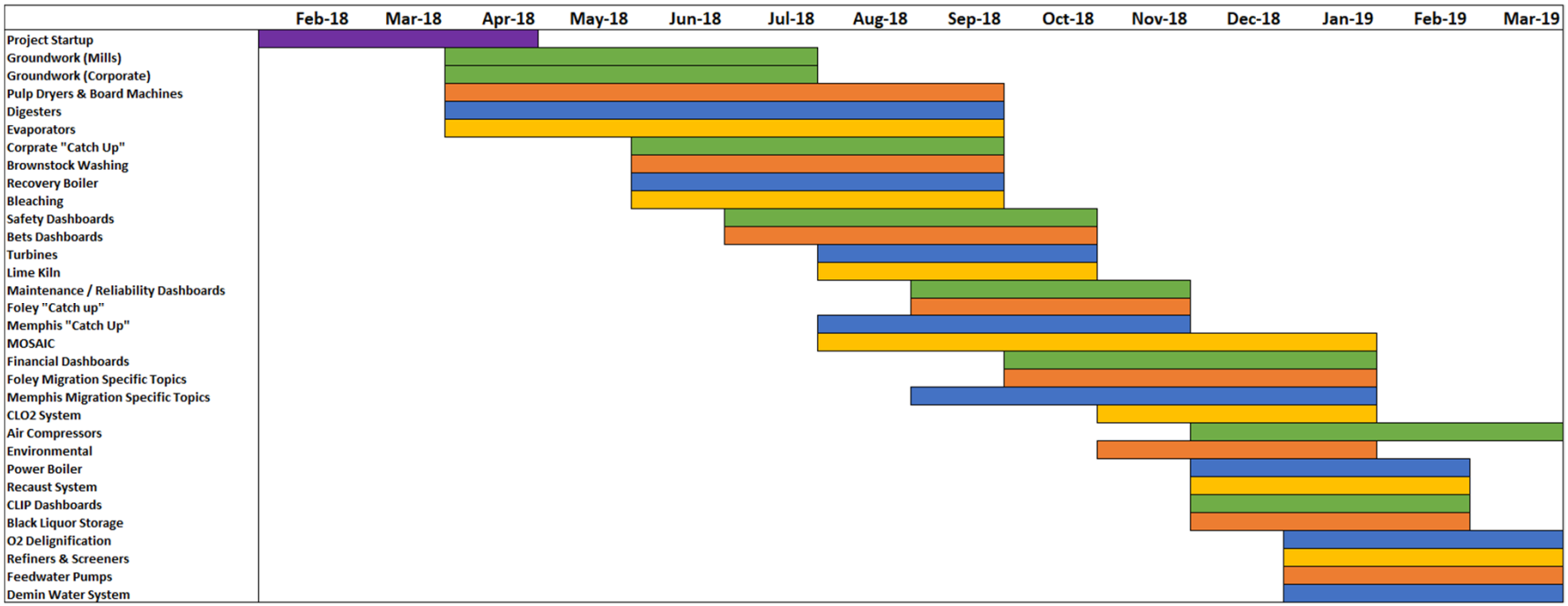
Execution Methodology – Sprint Based Work

Each sprint is broken down into 5 parts, each with different main stakeholders. This is described in the image below. Each sprint covers a major asset and/or dashboarding topic

Iteration 1	Feedback	Iteration 2	Feedback	Iteration 3
Project Visionary	Project Visionary + SME		Project Visionary + SME + General Population	

The “Project Visionary” is an extremely important role **from the customer** side. This person is the supreme authority when it comes to dashboard content, and KPI Calculation definitions.

Schedule



Each line item on the schedule is a major sprint (as described on the previous slide). The only exception to this is the “Project Startup” – so what is Project Startup?

Project Start Up Process

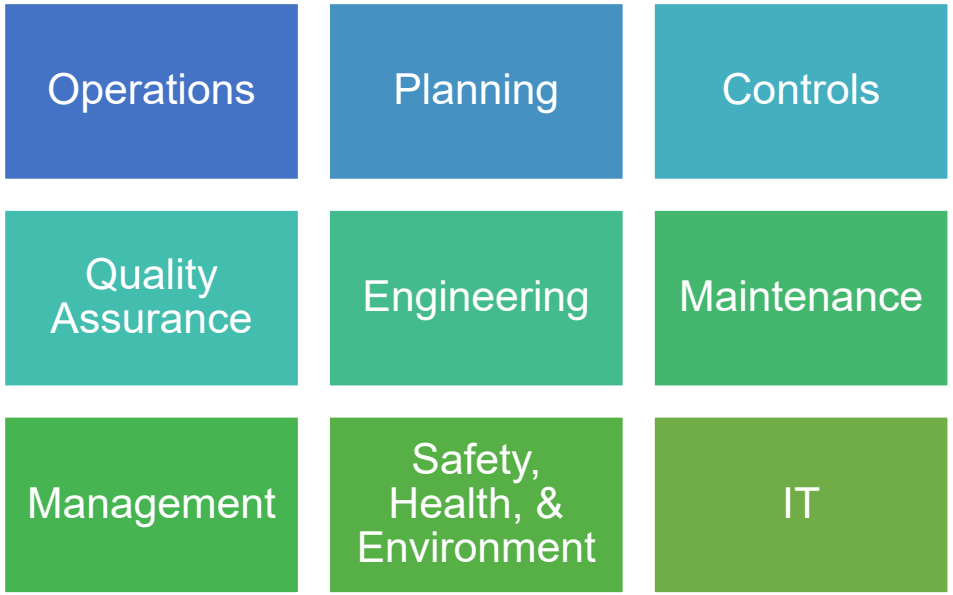
Project Startup is where the baseline understanding of mill and operations needs are understood. Key members of the Radix and GP teams go to sites and interviewed all levels of operations, management, and business personnel.

Basic Assessment Interview Steps:

1. Short team introductions
2. Detailed customer introductions
3. Explain interview purpose
4. Ask the interviewee to keep their ideal work situation/toolset in mind while answering questions
5. Commence interview while keeping guidelines in mind.
6. Drive conversation towards open discussion on daily needs.

Project Start Up Process – Who to Interview?

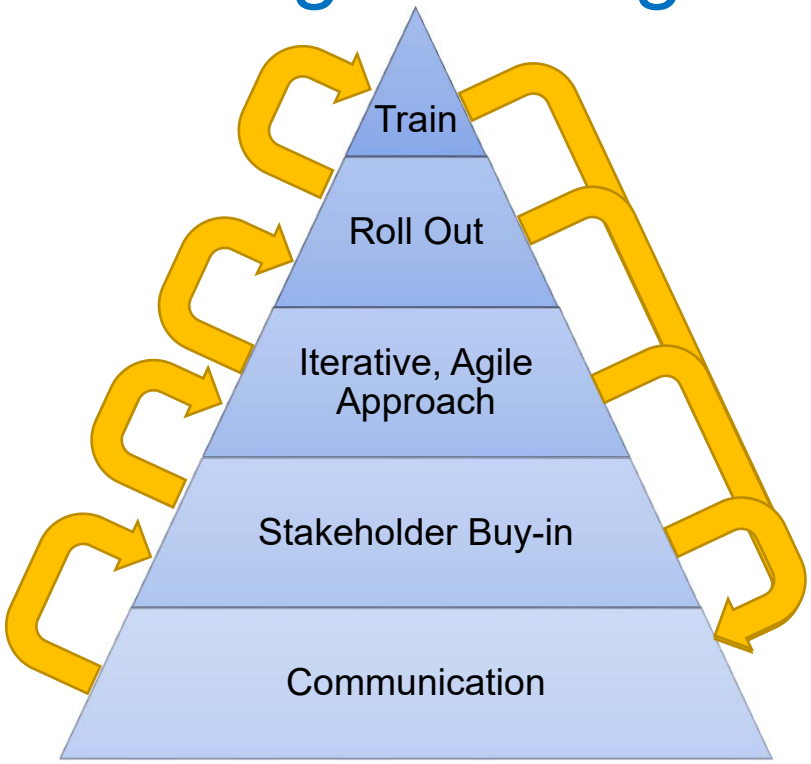
Types of roles interviewed:



Outputs of Project Startup:

- Understanding of customer needs
- Understanding of KPIs desired
- Clarification on Project Scope and execution plan (i.e. sprint definition/prioritization)
- Communication Plan
- Drafts of Dashboard Mockups

Change Management



Types of Engagement and Communication

not an exhaustive list

Executive Level Memos	Executive Level Presentations	Technical Webinar Series
How To Videos	Rollout Videos	Release Notes
FAQ Document	KPI & Calculation Descriptions	Customized Training Sessions
Stakeholder Interviews	SME Involvement	Executive Participation

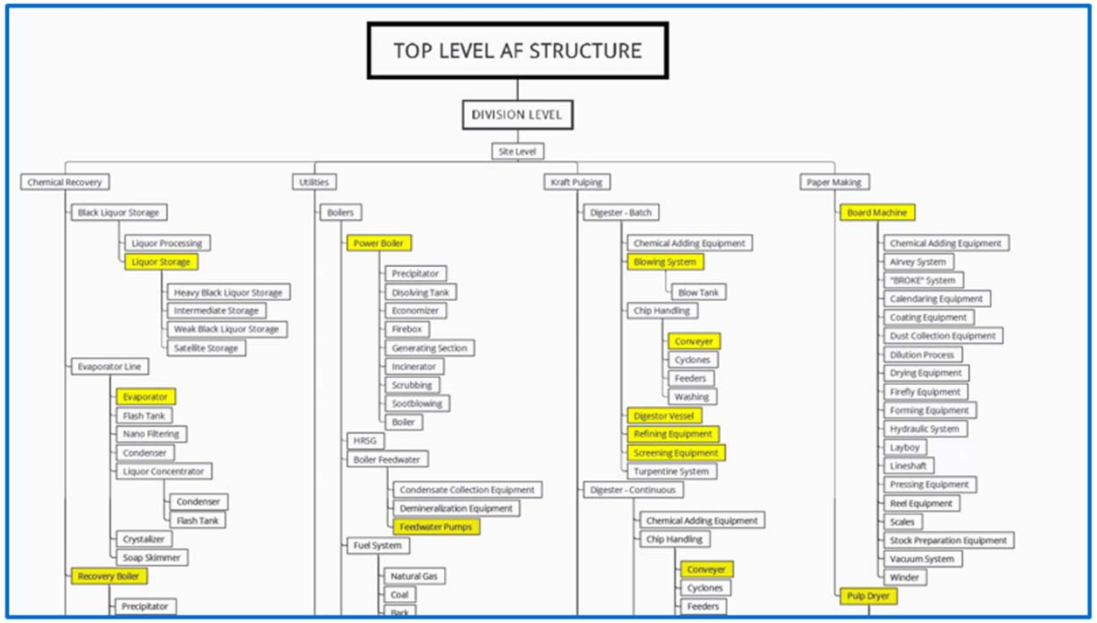
COMMUNICATION IS THE FOUNDATION OF A SUCCESSFUL PROJECT!

Technical Execution Topics

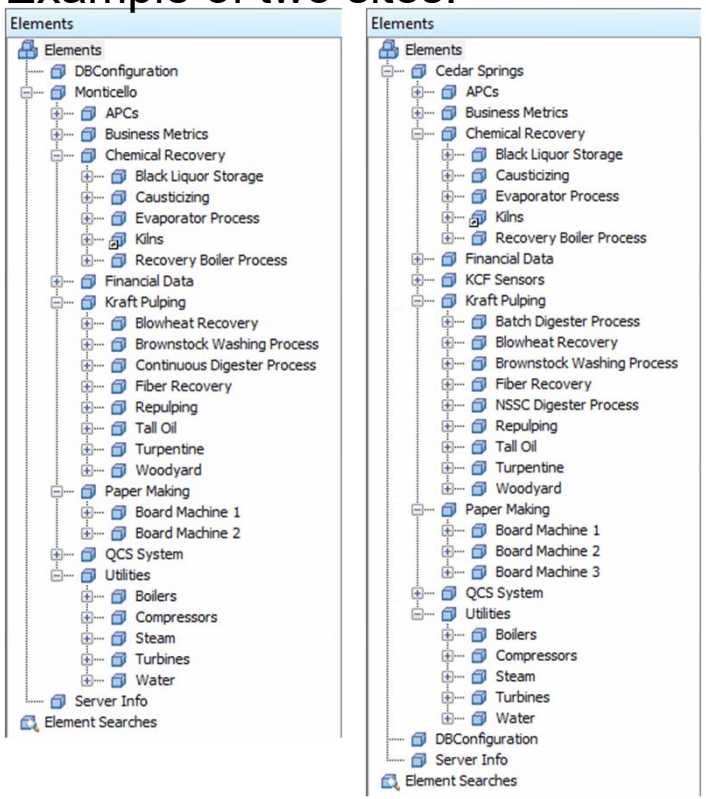
- Asset Framework Architecture Considerations
- Calculation “Hierarchy” Philosophy
- Templates & Derived Templates
- Event Frames
- Notifications
- PI Vision “Hierarchy”
- Custom Symbol Development

Asset Framework Architecture Considerations

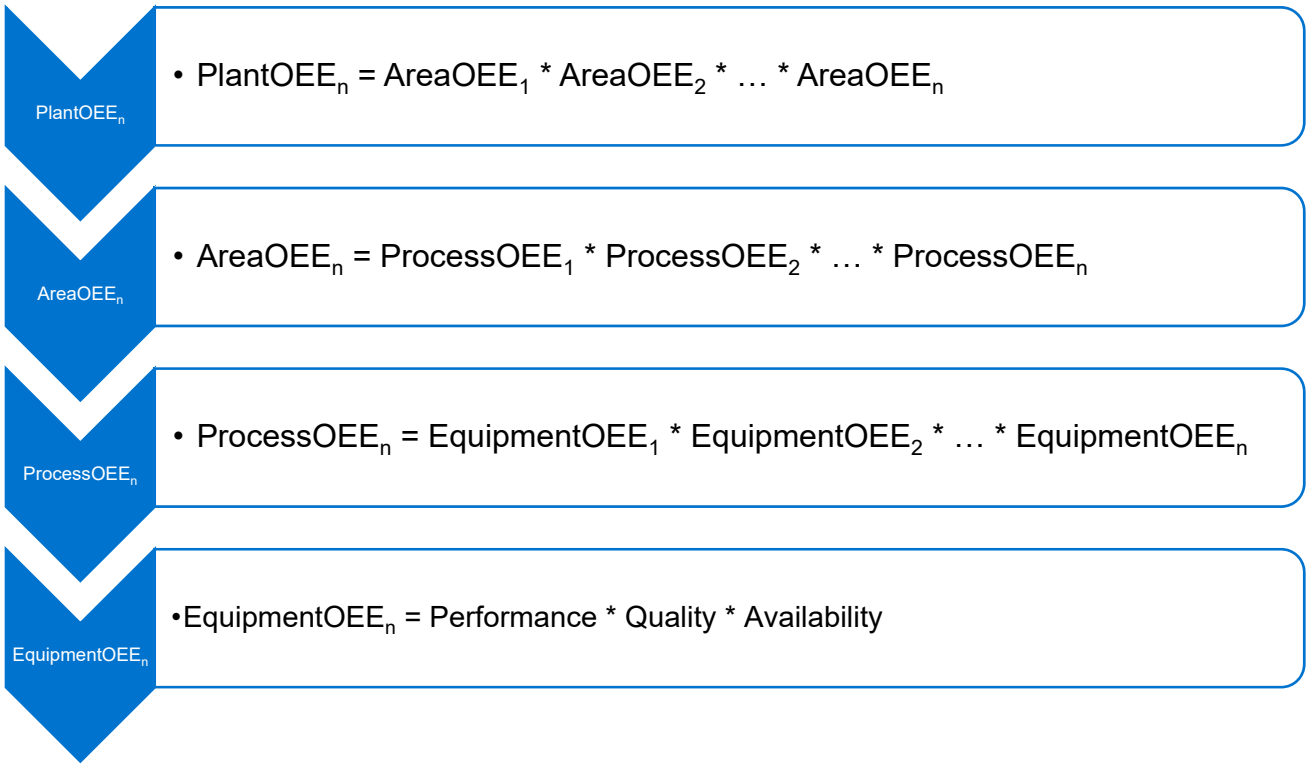
Standard Hierarchy used at every site:



Example of two sites:



Calculation “Hierarchy” Philosophy



What is OEE?

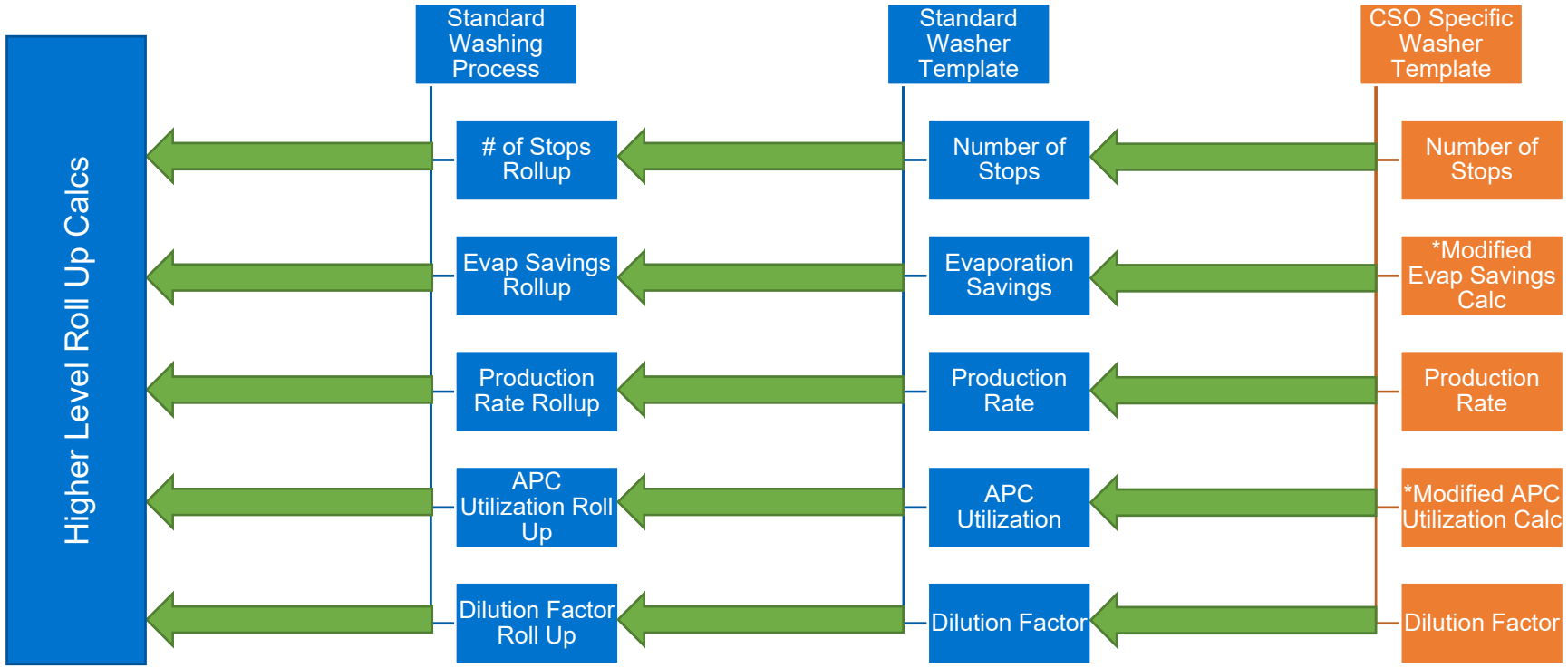
Overall

Equipment

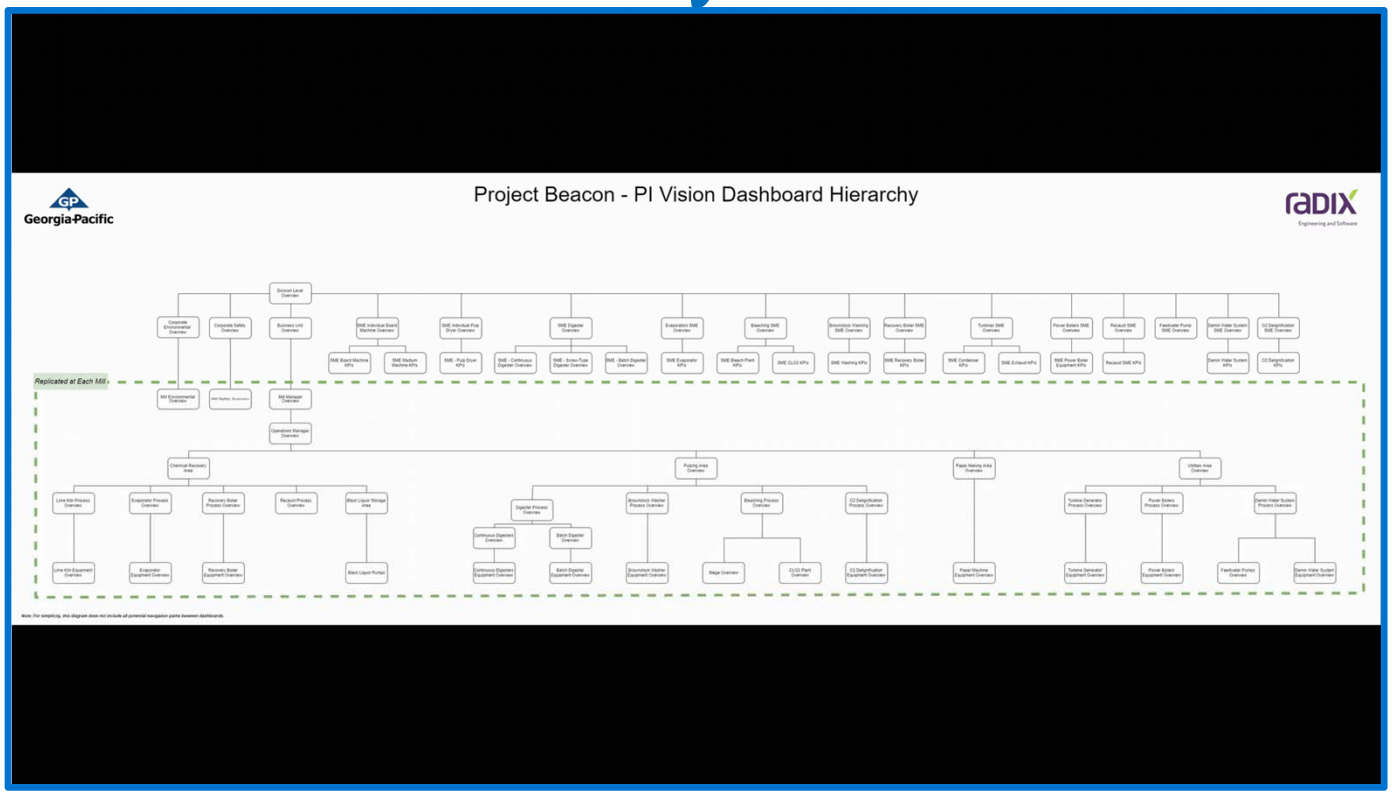
Effectiveness

OEE is a function of Performance, Availability and Quality.

Templates & Derived Templates



PI Vision “Hierarchy”




PI Vision - Division
PI Vision - Mill Operations Over
PI Vision - Mill Operations Over
PI Vision - Mill Operations
gpawswpivsp0.gpnet.gapac.com/PIVision/#/Displays/110/Division
OSIsoft
PI Vision
New Display
ECOMMERCE\jconroy
Division
Georgia-Pacific
Containerboard and Cellulose Division Overview
Containerboard Mills
BIG ISLAND
BREWTON
CEDAR SPRINGS
MONTICELLO
TOLEDO
Cellulose Mills
ALABAMA RIVER
BRUNSWICK
FOLEY
LEAF RIVER
MEMPHIS
PRODUCTION
BAD DATA
ENVIRONMENTAL
SME Dashboards
Bleaching
Pulp Dryers
Board Machin.
Recaust.
Digesters
Rec. Boilers
Evaporators
Turbines
Lime Kilns
Washers
Power Boilers
Demin Water
BFW Pumps
APC Overview
O2 Delig.
QCS Profile View
Business Metrics
Environmental
Safety
1/6/2020 12:20:51 PM
1d
Now
1/7/2020 12:20:51 PM
8:26 AM
2/17/2020

Challenges

- Alignment on asset metrics
- Competing priorities across sites
- Mill resource constraints
- Management of change
- Tag mapping effort underestimated

Lessons Learned

- Project Champion/Visionary imperative
- Mill leadership alignment
- Assigned resource(s) for tag mapping
- Asset SME's engaged as core team members
- Execute across assets, not mills
- Centralize wherever possible
- Don't underestimate communication/marketing plan
- Think about governance up front

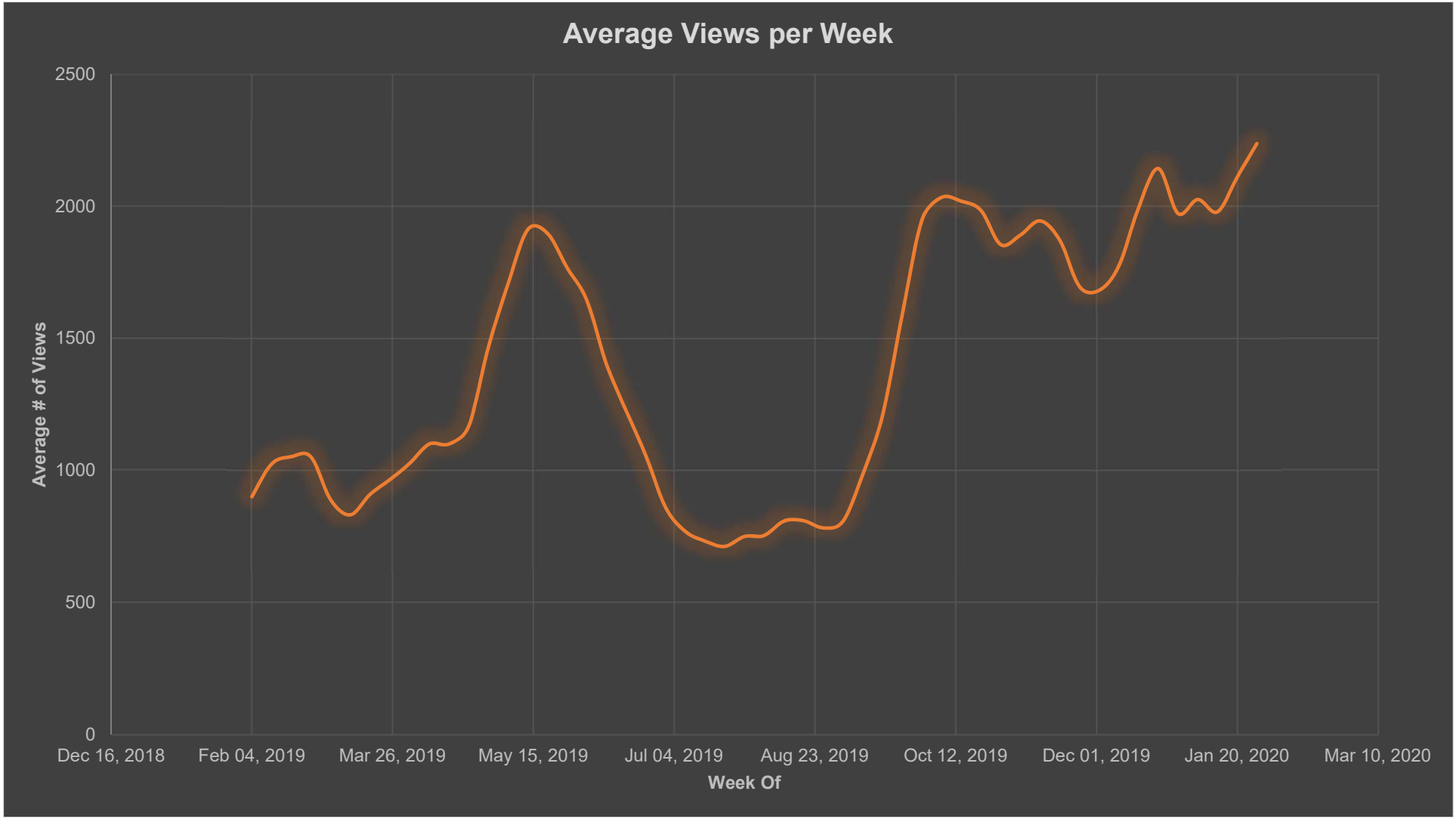
Results – Usage Data as Success Metric

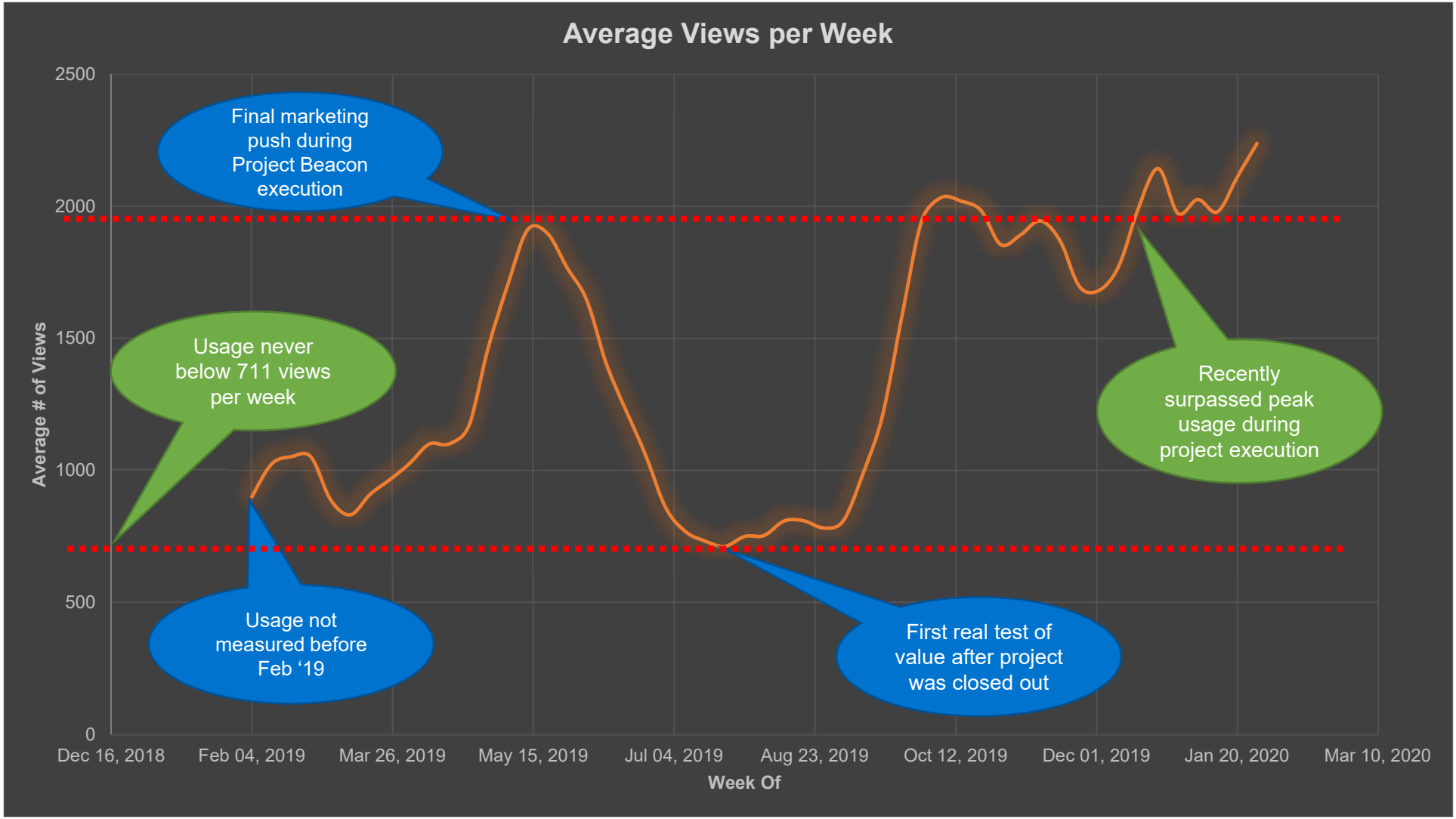
In an endeavor such as Project Beacon, the usage data is the **best metric** of measuring success.

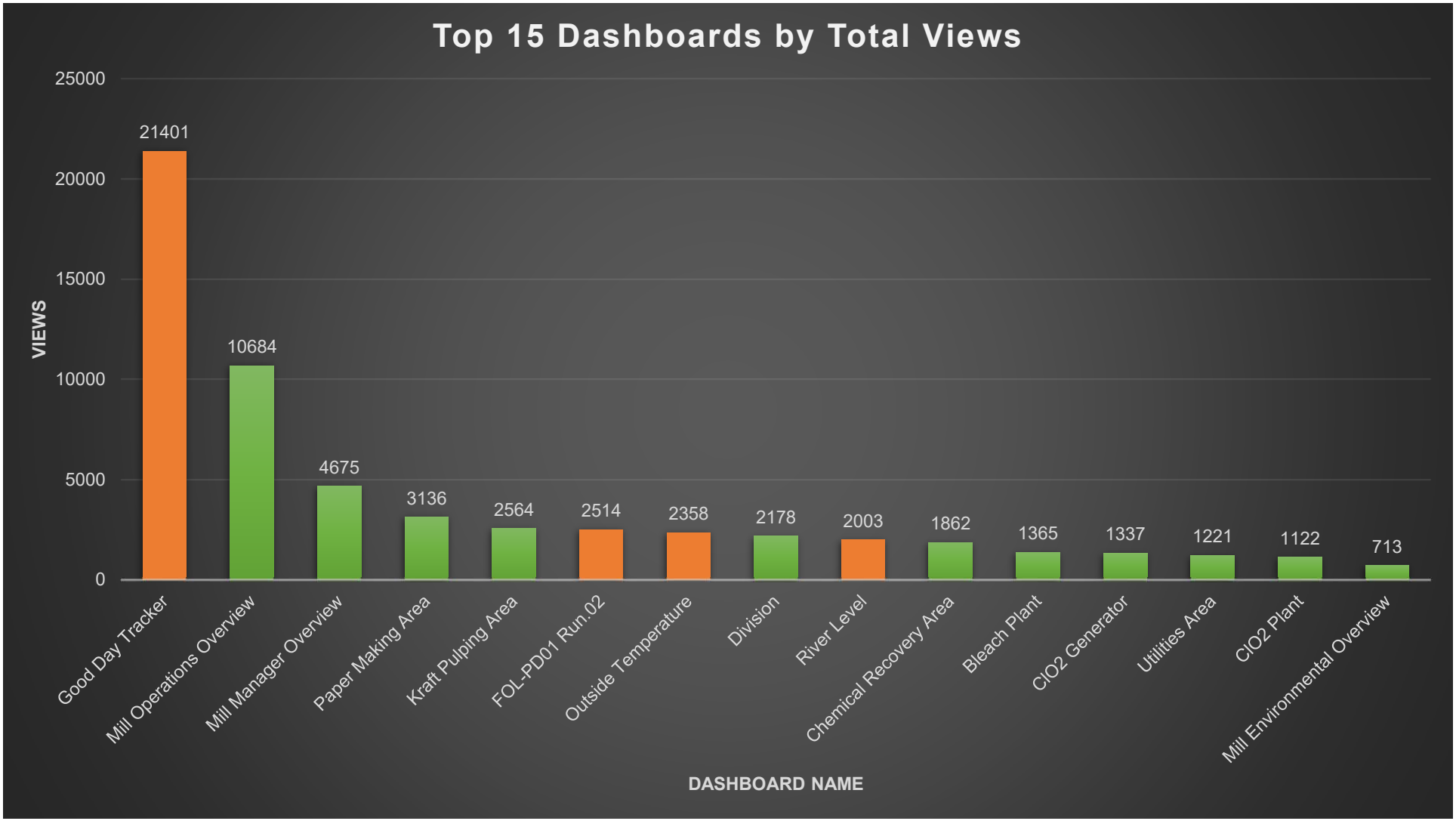
If the solution was not valuable to the users, why would they open the dashboards?

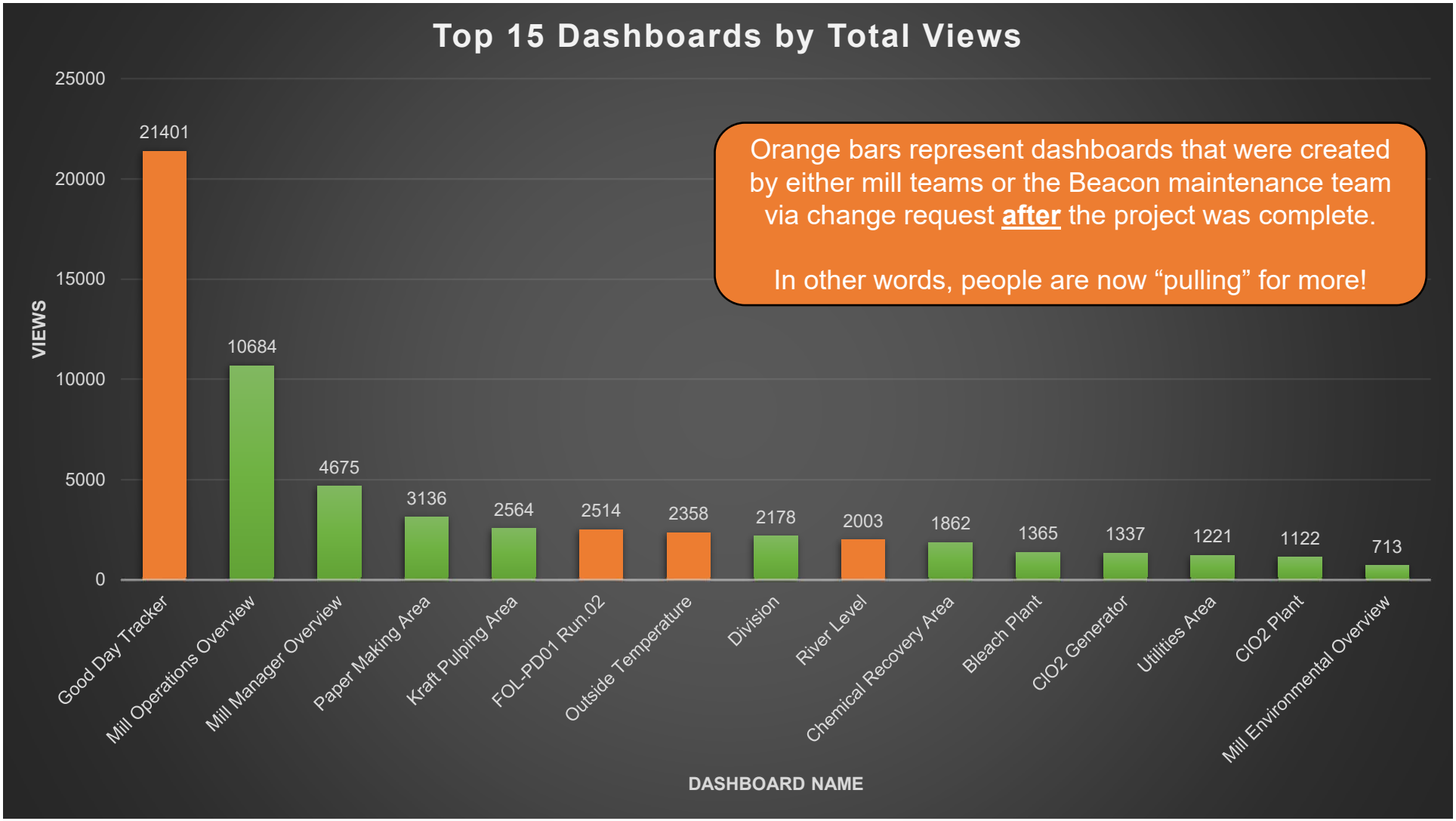
Usage Data Methodology / Caveats:

- Raw data is pulled from PI Vision server IIS logs and parsed via a combination of Python and PowerShell scripts.
- The data does not show how long people stay on a dashboard, only which dashboard was opened, when it was opened, and who opened it.
- Results have been purged of non-Project Beacon dashboards and non-GP users.
- The data is not 100% complete due to the manual methodology of pulling statistics and periodic purges of IIS logs.


Average Views per Week
2500
2000
1500
1000
500
0
Average # of Views
Dec 16, 2018
Feb 04, 2019
Mar 26, 2019
May 15, 2019
Jul 04, 2019
Aug 23, 2019
Oct 12, 2019
Dec 01, 2019
Jan 20, 2020
Mar 10, 2020
Week Of


Average Views per Week
2500
2000
1500
1000
500
0
Average # of Views
Final marketing push during Project Beacon execution
Usage never below 711 views per week
Usage not measured before Feb '19
First real test of value after project was closed out
Recently surpassed peak usage during project execution
Dec 16, 2018
Feb 04, 2019
Mar 26, 2019
May 15, 2019
Jul 04, 2019
Aug 23, 2019
Oct 12, 2019
Dec 01, 2019
Jan 20, 2020
Mar 10, 2020
Week Of


Top 15 Dashboards by Total Views
VIEWS
25000
20000
15000
10000
5000
0
21401
10684
4675
3136
2564
2514
2358
2178
2003
1862
1365
1337
1221
1122
713
Good Day Tracker
Mill Operations Overview
Mill Manager Overview
Paper Making Area
Kraft Pulping Area
FOL-PD01 Run.02
Outside Temperature
Division
River Level
Chemical Recovery Area
Bleach Plant
ClO2 Generator
Utilities Area
ClO2 Plant
Mill Environmental Overview
DASHBOARD NAME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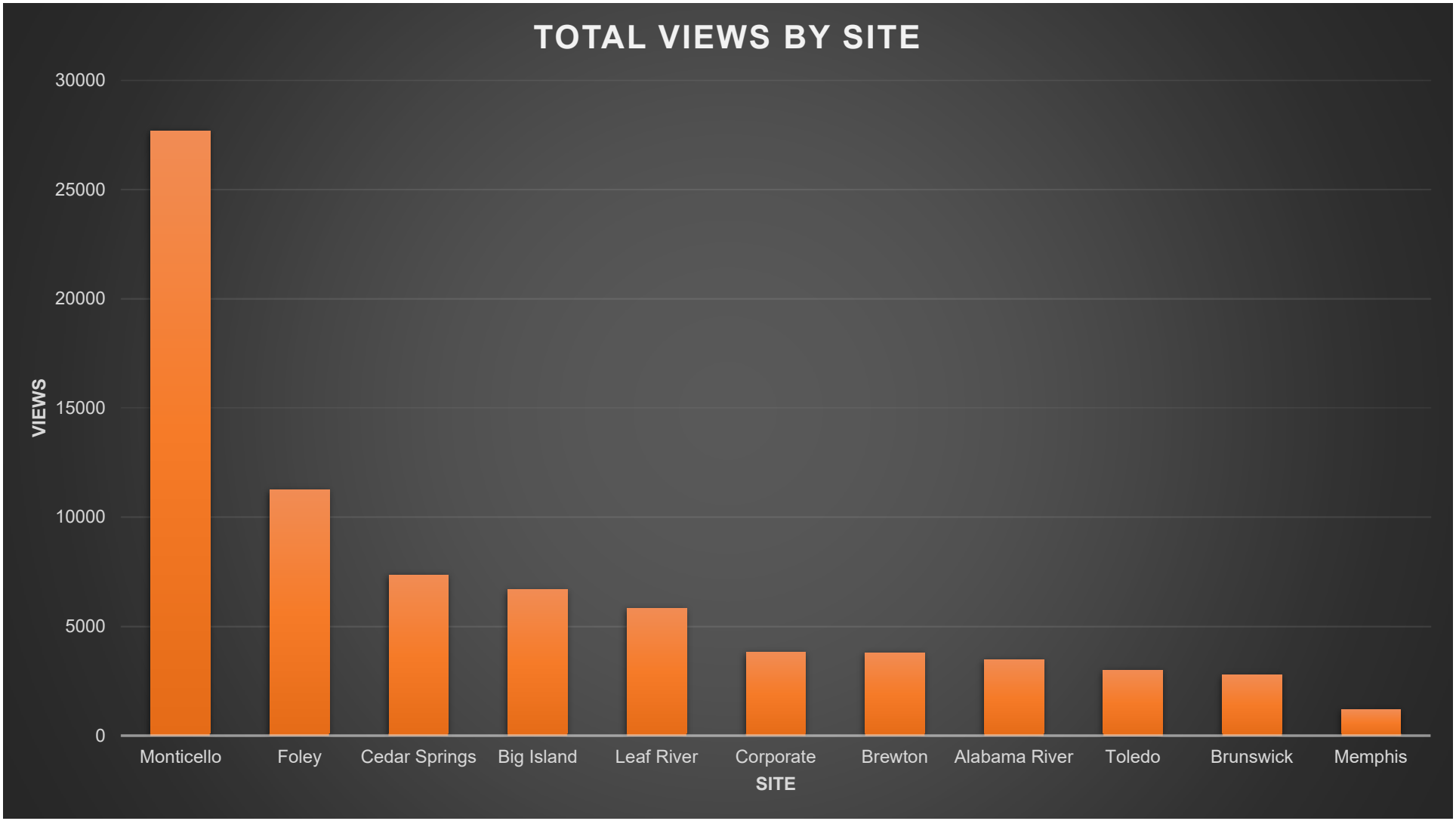
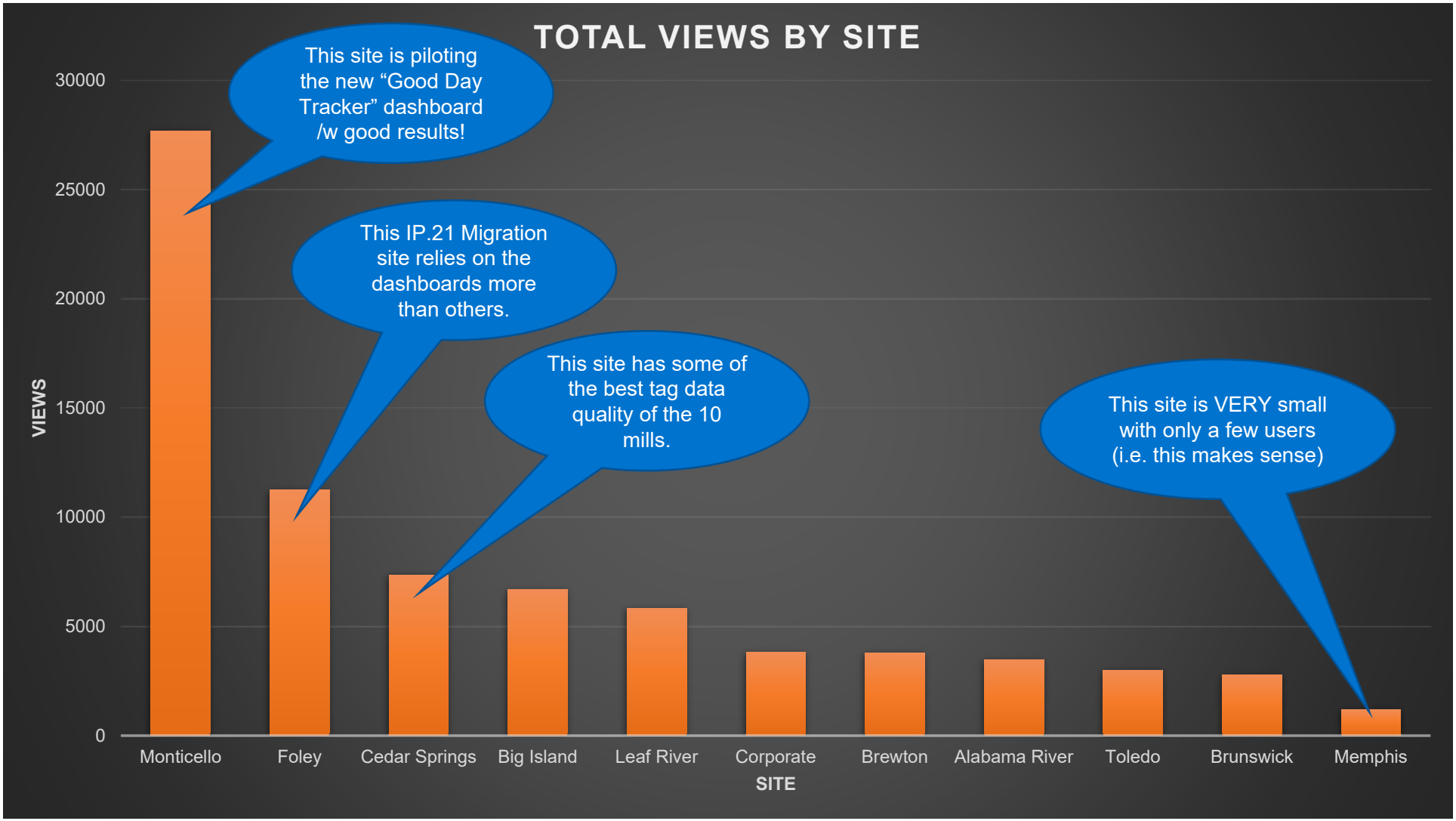
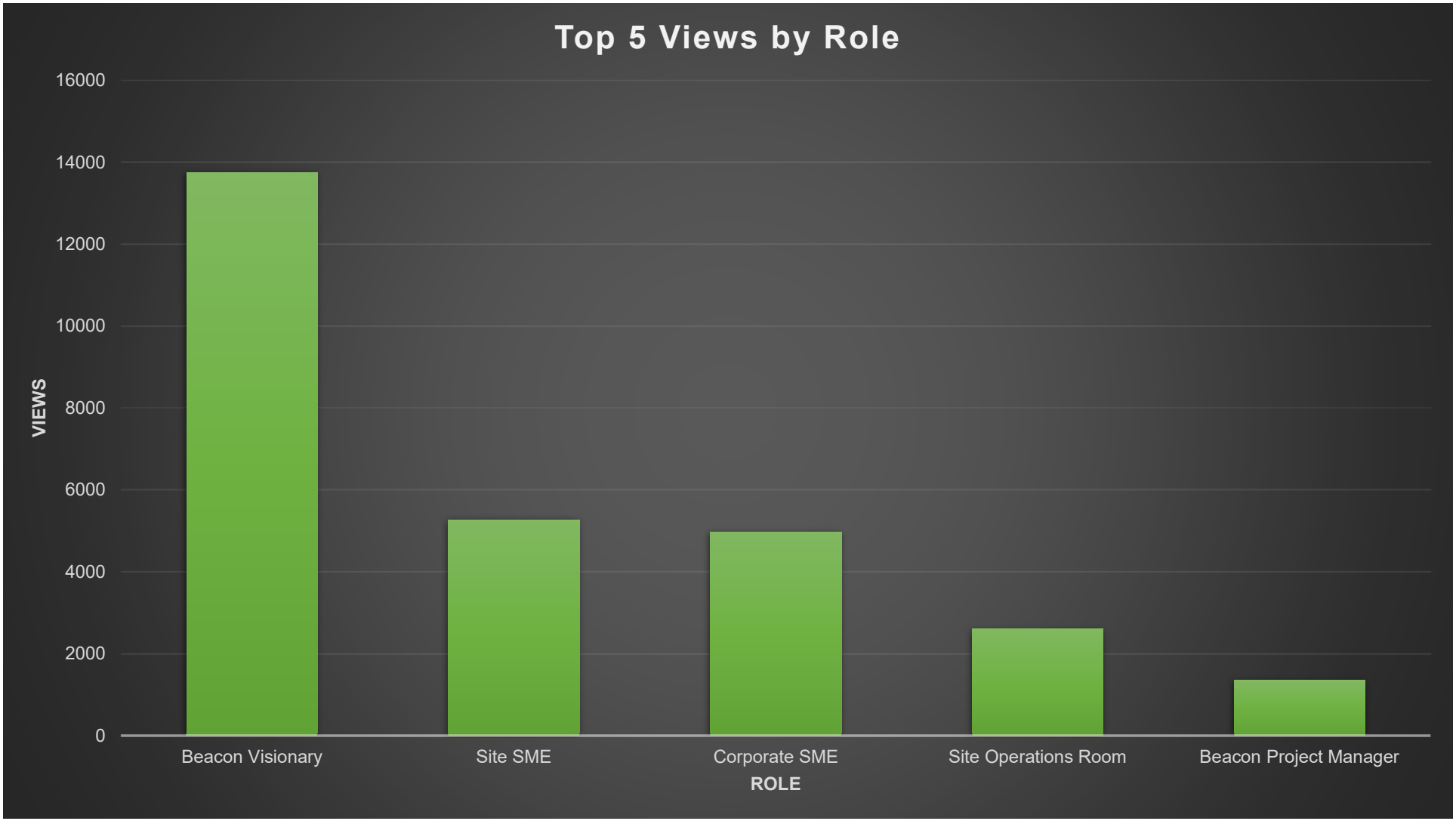
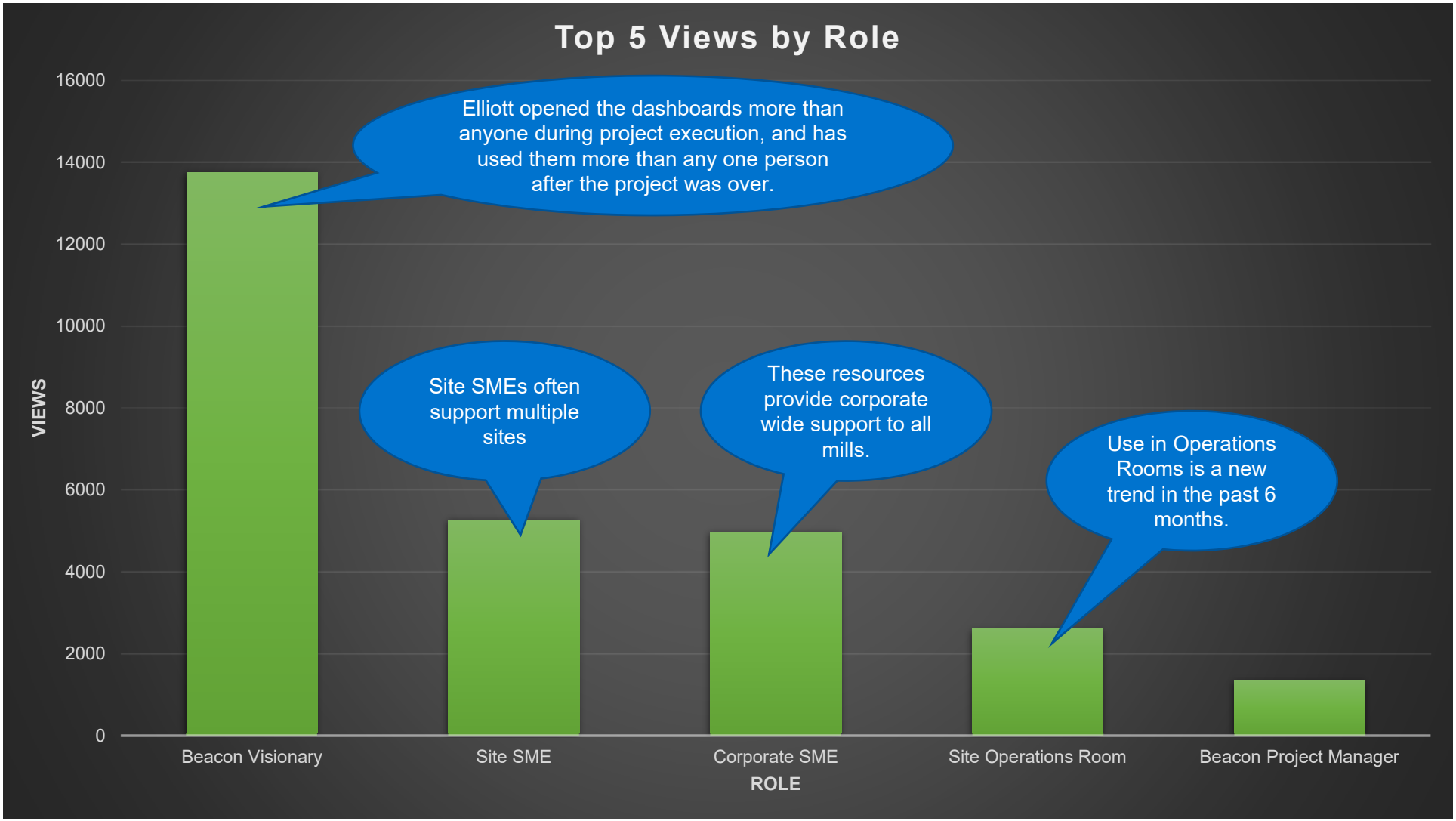
Utilities Area
ClO2 Plant
Mill Environmental Overview
DASHBOARD NAME
Orange bars represent dashboards that were created by either mill teams or the Beacon maintenance team via change request after the project was complete.
In other words, people are now “pulling” for more!


TOTAL VIEWS BY SITE
30000
25000
20000
15000
10000
5000
0
VIEWS
Monticello
Foley
Cedar Springs
Big Island
Leaf River
Corporate
Brewton
Alabama River
Toledo
Brunswick
Memphis
SITE


TOTAL VIEWS BY SITE
This site is piloting the new “Good Day Tracker” dashboard /w good results!
This IP.21 Migration site relies on the dashboards more than others.
This site has some of the best tag data quality of the 10 mills.
This site is VERY small with only a few users (i.e. this makes sense)
VIEWS
30000
25000
20000
15000
10000
5000
0
Monticello
Foley
Cedar Springs
Big Island
Leaf River
Corporate
Brewton
Alabama River
Toledo
Brunswick
Memphis
SITE


Top 5 Views by Role
16000
14000
12000
10000
8000
6000
4000
2000
0
VIEWS
Beacon Visionary
Site SME
Corporate SME
Site Operations Room
Beacon Project Manager
ROLE


Top 5 Views by Role
16000
14000
12000
10000
8000
6000
4000
2000
0
VIEWS
Elliott opened the dashboards more than anyone during project execution, and has used them more than any one person after the project was over.
Site SMEs often support multiple sites
These resources provide corporate wide support to all mills.
Use in Operations Rooms is a new trend in the past 6 months.
Beacon Visionary
Site SME
Corporate SME
Site Operations Room
Beacon Project Manager
ROLE

Speaker Info

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Questions?

Please wait for
the **microphone**

State your
name & company

Save the Date...

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October 26-29, 2020

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