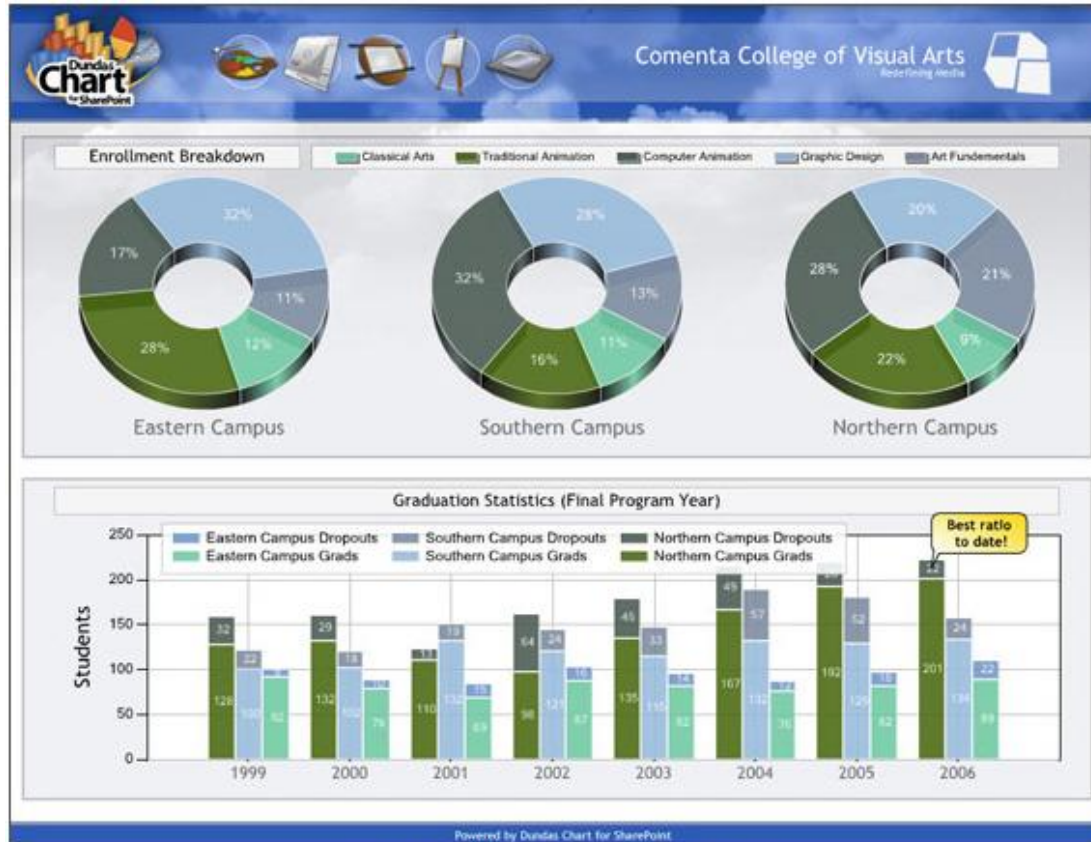


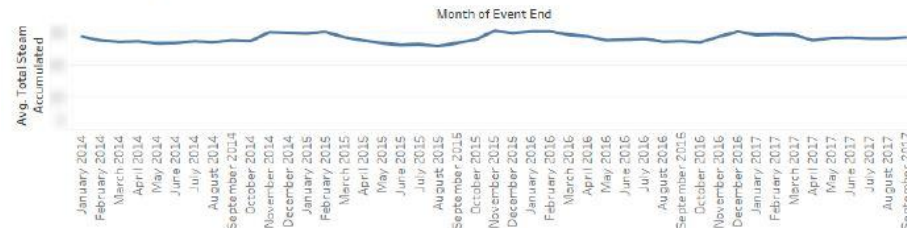
Good or Bad Dashboard?



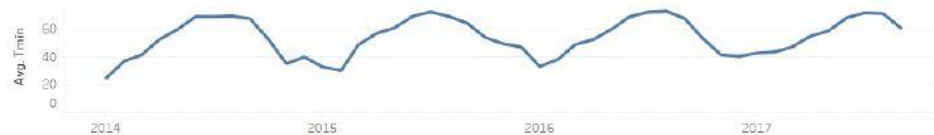
<https://www.matillion.com/insights/dashboard-examples-the-good-the-bad-and-the-ugly/>

Good or Bad Dashboard?

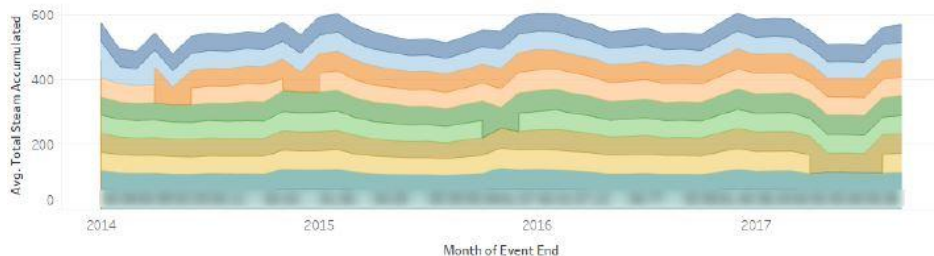
Total Steam by month



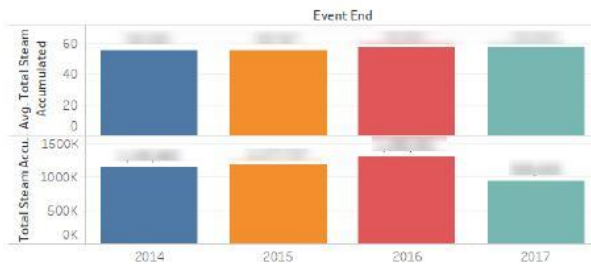
Temp by Month



Steam Area Plot



Steam by Year Bar Graph



Temp by Year Bar Graph



Good or Bad Dashboard?

Line 1 Production Counts Ad Hoc Display 📄 ▼

TIME	CE STH FED	CE NTH FED	CE STH PACK	CE NTH PACK	SS FED	SS BOOK	SS PACK	LEHR FED	LEHR PACK	LEHR REJECT	ASY FED	ASY PACK	OVEN 1 FED	OVEN 2 FED	ROBOTS FED	PP PACK	FINAL FED	FINAL PACK
6-7 AM	7	1	23	24	24	27	27	59	120	7	126	128	124	141	139	138	113	110
7-8 AM	0	0	0	0	0	0	0	0	0	0	32	35	35	36	42	42	137	138
8-9 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	63	69
9-10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-11 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11AM - 12 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-1 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-2 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-3 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-4 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-5 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-6 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAYS	7	1	23	24	24	27	27	59	120	7	158	163	159	179	181	180	313	317
6-7 PM	131	131	134	134	134	133	134	134	61	12	35	33	25	28	19	13	0	0
7-8 PM	175	173	173	173	173	168	169	169	164	6	107	107	105	105	101	100	0	0
8-9 PM	170	168	169	169	169	169	168	168	163	4	182	183	181	185	183	182	0	0
9-10 PM	28	25	31	30	31	33	37	72	131	1	169	168	163	162	159	159	0	0
10-11 PM	16	43	16	17	16	12	8	0	0	0	14	14	15	24	28	27	0	0
11PM - 12 AM	64	66	64	64	64	62	56	27	0	14	39	39	34	28	21	23	0	0
12-1 AM	125	124	127	127	128	128	130	130	104	53	50	55	56	65	70	69	0	0
1-2 AM	161	162	158	159	158	158	156	156	168	2	11	9	0	2	0	0	0	0
2-3 AM	2	2	4	4	4	6	7	7	47	1	37	34	32	28	25	21	0	0
3-4 AM	172	168	172	172	172	171	171	171	134	6	92	93	87	89	89	88	0	0
4-5 AM	173	176	171	171	171	170	170	170	160	8	148	148	144	139	132	127	0	0
5-6 AM	168	171	167	167	167	167	169	171	168	2	179	181	173	172	173	174	0	0
NIGHTS	1,385	1,409	1,386	1,387	1,387	1,377	1,375	1,375	1,300	109	1,063	1,064	1,015	1,027	1,000	983	0	0
						?STARS CE?			?STARS LEHR?				?STARS ASY?					

Good or Bad Dashboard?



Good or Bad Dashboard?



Color Blindness?



Storytelling with Data

Presented by: Jim Gavigan



Industrial Insight

Storytelling With Data



CHALLENGE

Lots of retirements, less experience in the plants. How do we assist with knowledge transfer?

- Large displays with just numbers
- “Prego” displays (“It’s in there!”)
- Excel H#II and “one off” solutions built by engineers who move on or up rapidly, so no ability to scale

SOLUTION

Use good visual design concepts, simplify designs, convey information simply

Drill down to get detail

- PI Vision, Analytics, Event Frames, and PI Integrator for Business Analytics all play a role
- Visual summaries, less large displays with just numbers
- Multi-states used smartly
- BI tools are the BOMB!

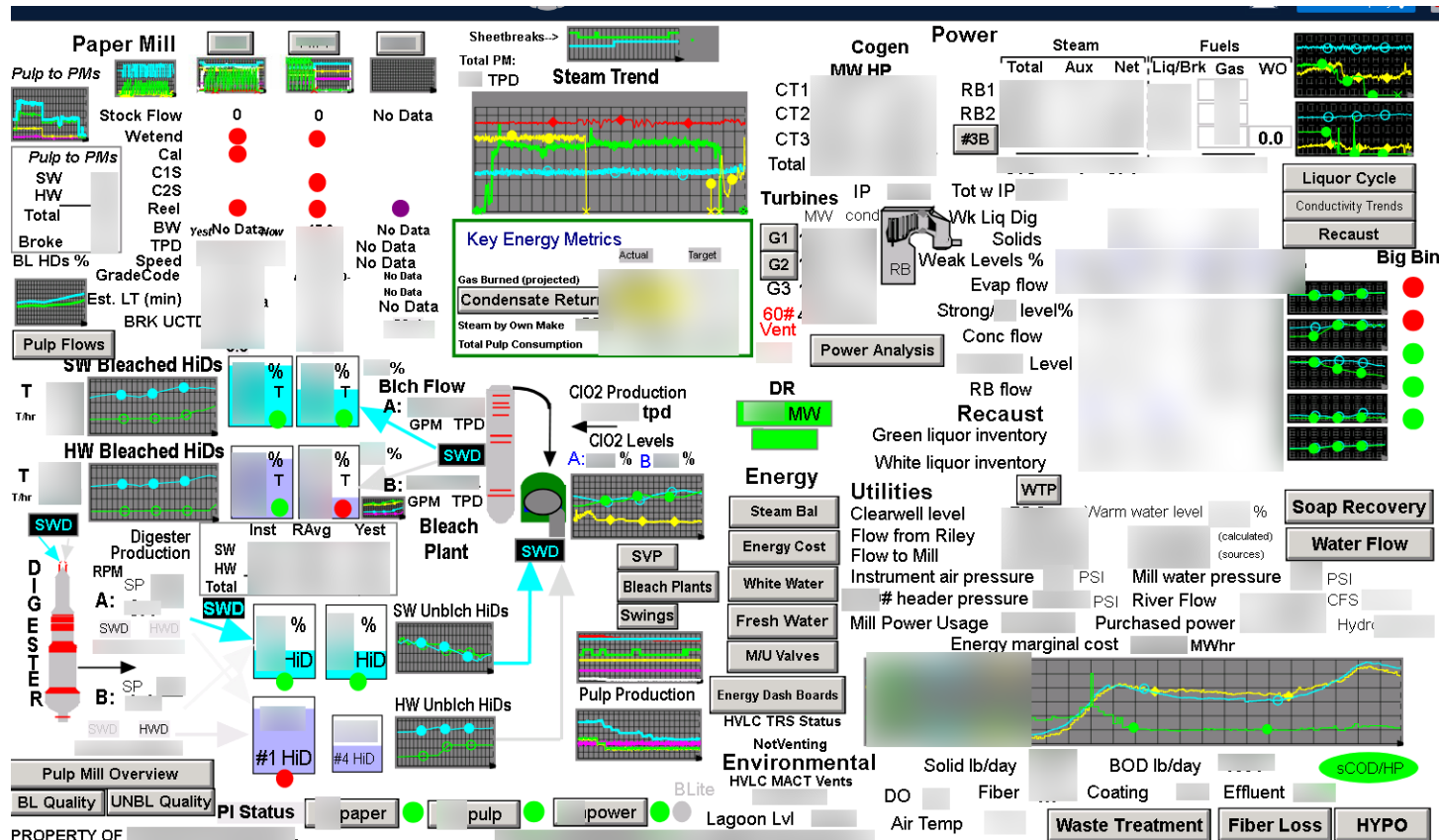
RESULTS

Allows our users to see what is going on in their processes

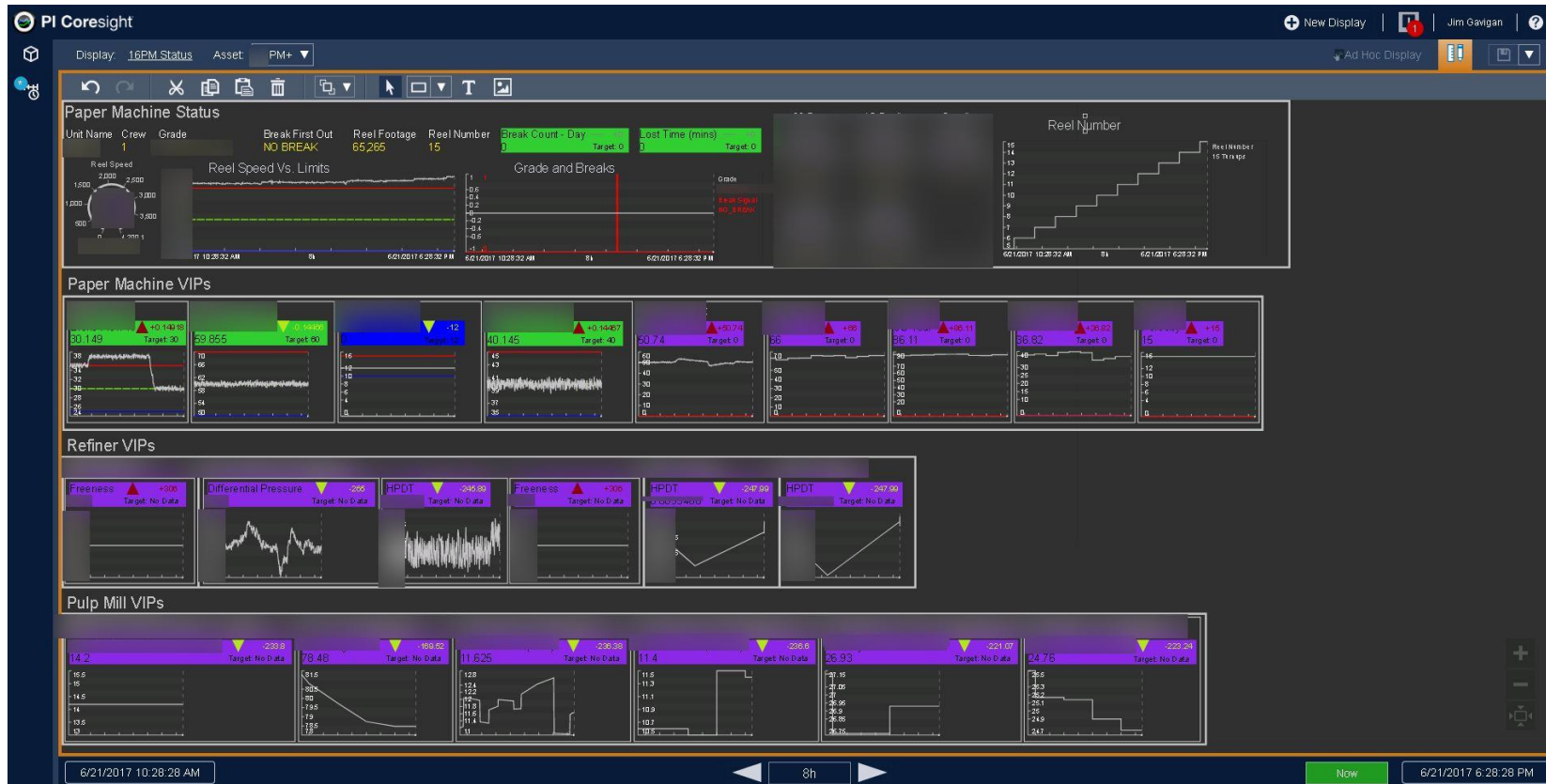
- Faster analysis
- Quicker actions being taken
- Reusable, scalable solutions

[illegible]

No...Just No....



No...Just No....



No...Just No....

RECIPE TRACKING

03/06/18

21:30:17

Reel #
30.0

Quality Test Value

TOP	4.5	2.25	4.0	2.5	0.0	0.0		1.8	0.0	39	0.463	1.078	11.0	1584	1047	14210	0.74	90	61	50/50
MID	0.0	2.72	9.0	2.3	0.0	0.00		1.9	0.9	-46	0.598	0.893	13.8	2044	1067	17639	0.62	89	83	50/50
BASE	0.0	5.44	5.0	2.3				1.8	-1.0	-56	0.542	0.867	12.6	1901	1209	15900	0.52	85	92	50/50
								0.0												

1D	96.7		9.0			2223		DRAWS										2160
2D	113.7		9.1			2225												2230
3D	126.4		8.9			2229		8.6	46.3	7.7	2.4	3.3	1.7	-1990.7	41 %			53.6
4D	128.6		9.0			2231												8.1

0.00	0.00	0.00
10.60	0.00	15.83

Miscellaneous																			
5.3	217	256.2	823													21	18	17	19

11	2.4	1161.6	34	2.9															

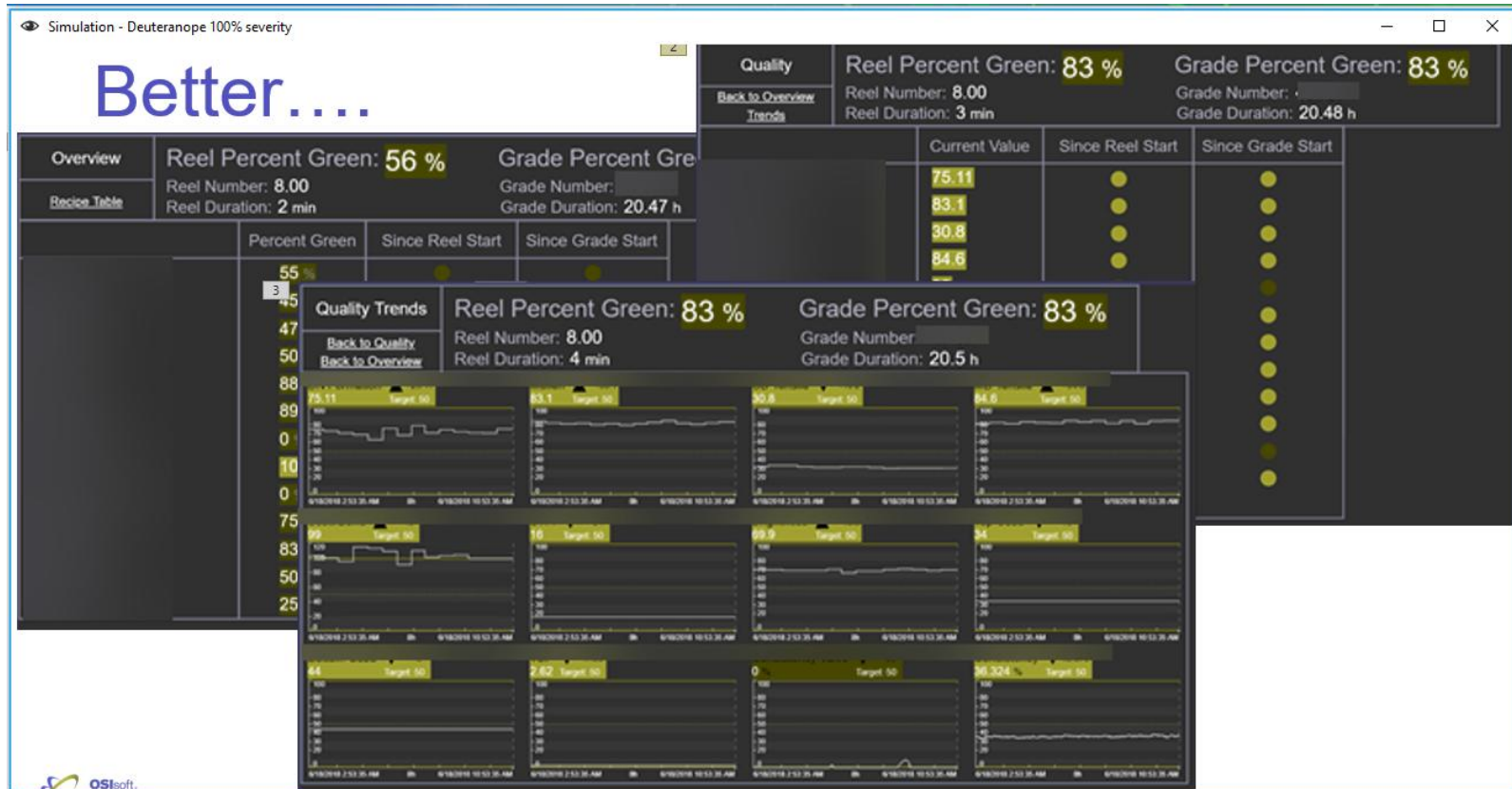
	62.9
	81.8
	28.6
	84.3
	95.0
	20.0
	79.1
	47.0
	51.0
	2.8
	0.0
	17.4

Setpnt Actual
464.972 464.97
482 481.67
297 296.81

Better, Sum the Data, Drill Down....

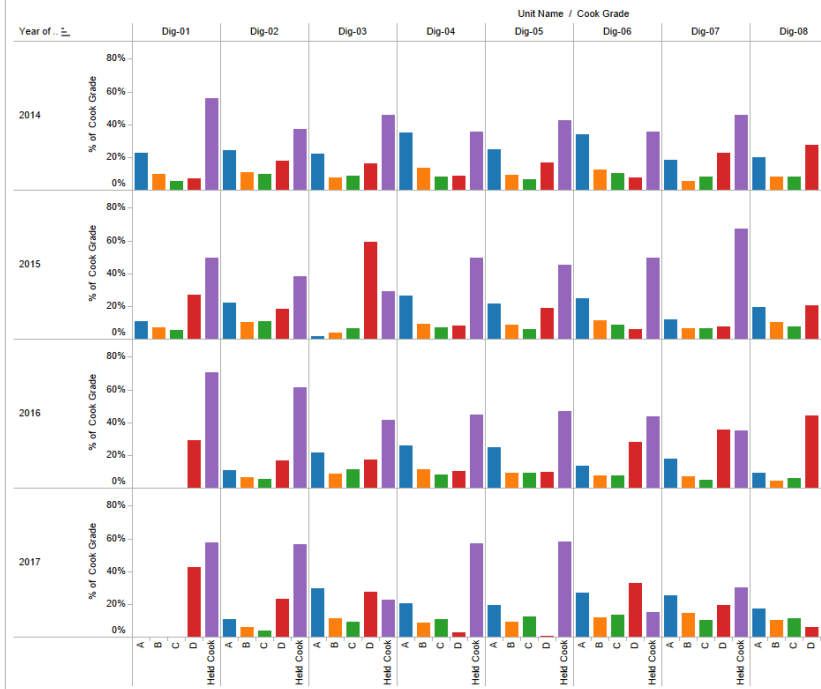


Beware of color blindness



Be Strategic With Color

Cook Grade by year



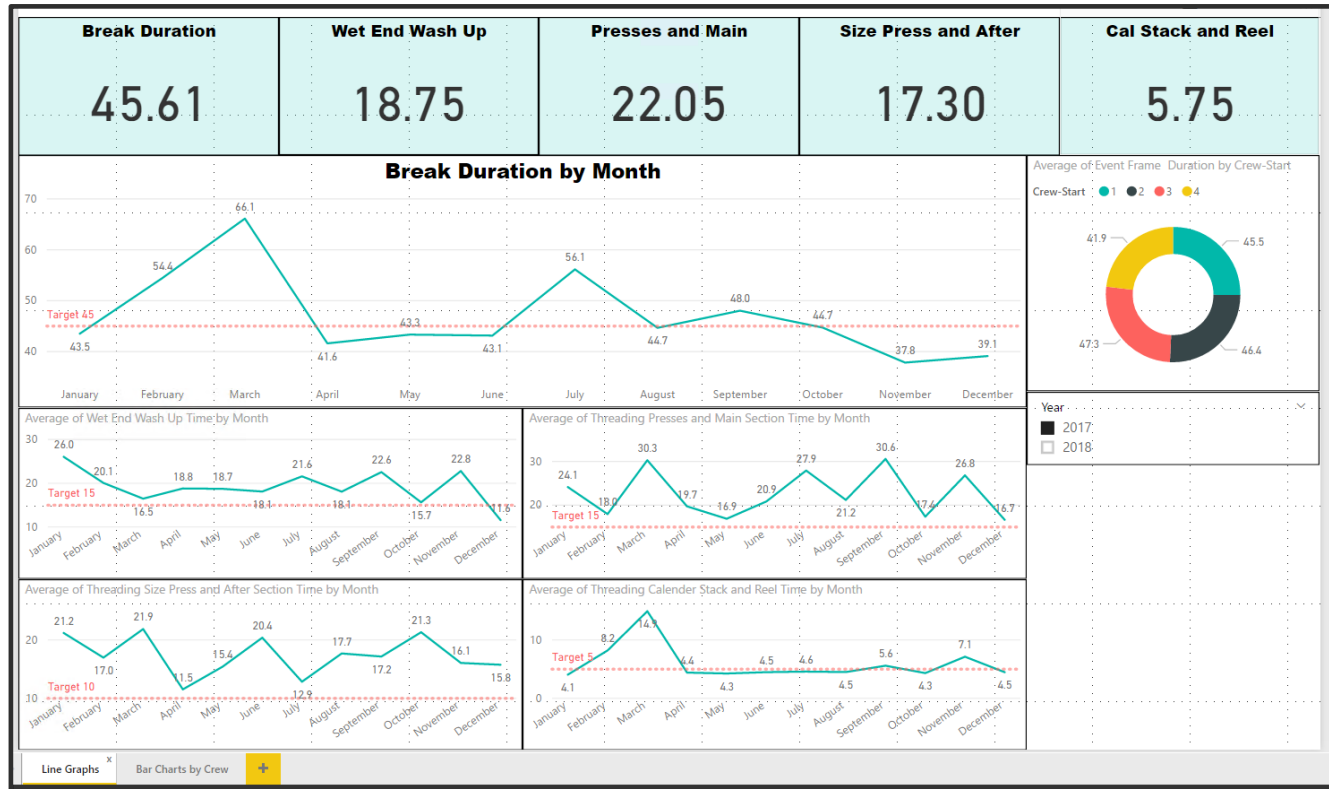
Cook Grade by year



Draw the eyes with BIG numbers, top left

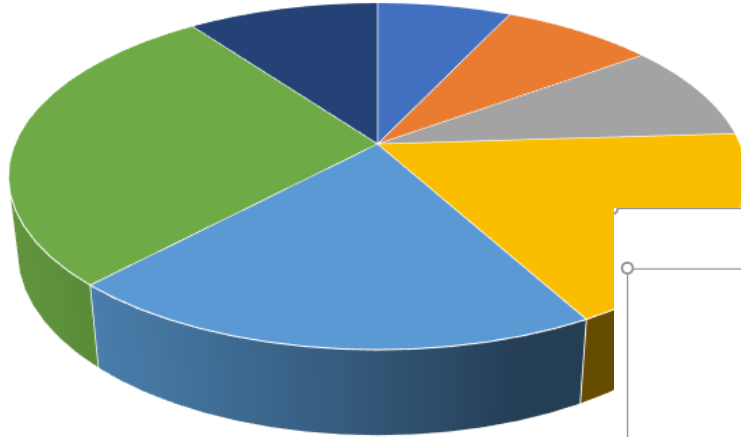


BIG numbers but Just Say No to Pie/Donuts



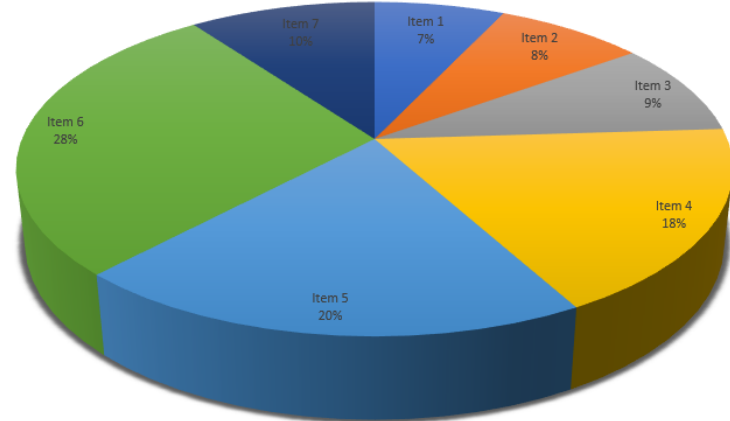
More on Pie/Donuts, no 3-D

Just say NO to Pie Charts



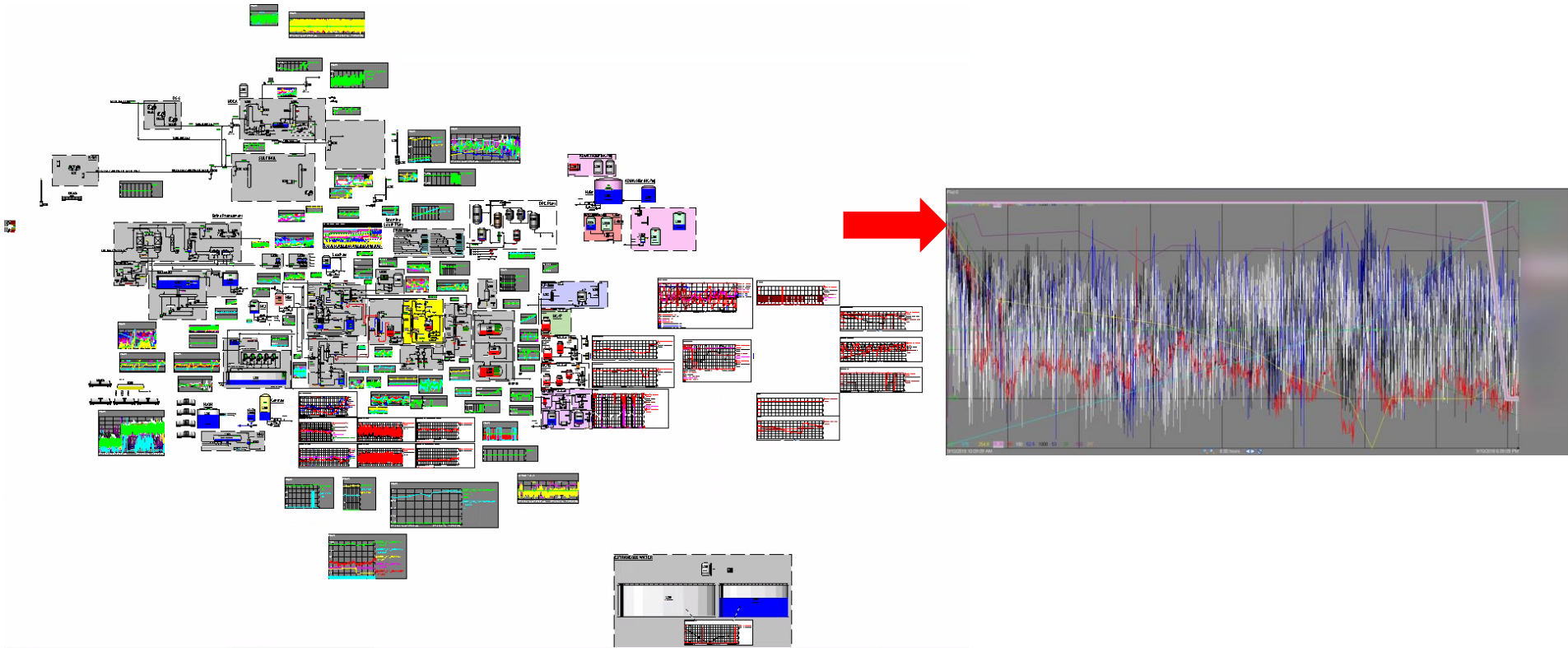
■ Item 1 ■ Item 2 ■ Item 3 ■ Item 4 ■ Item 5 ■ Item 6 ■ Item 7

Friends don't let friends use Pie Charts



■ Item 1 ■ Item 2 ■ Item 3 ■ Item 4 ■ Item 5 ■ Item 6 ■ Item 7

One Final Just PLEASE No....



Summary

- **Tell a story** – what should the display tell its audience?
- **Summarize** and **drill down** – don't throw hundreds of numbers at someone
- Watch **color blindness** – 8% of males and 11% of Caucasian males are color blind in some way
- **BIG NUMBERS** at the top left of the display get attention. Top left is where eyes in many cultures are drawn to from norms about reading
- Be sparing and **strategic** with the use of **color**
- No pie or donut charts – hard for the eye to compare pie slices that are similar size
- I will leave it with the next quote – what is **relevant** information?

Final Thought From the Design of Everyday Things

"Hindsight is always superior to foresight. When the accident investigation committee reviews the event that contributed to the problem, they know what actually happened, so it is easy for them to pick out which information was relevant, which was not. This is retrospective decision making. **BUT WHEN THE INCIDENT WAS TAKING PLACE, THE PEOPLE WERE PROBABLY OVERWHELMED WITH FAR TOO MUCH IRRELEVANT INFORMATION AND PROBABLY NOT A LOT OF RELEVANT INFORMATION.** How were they to know which to attend to and which to ignore? Most of the time, experienced operators get things right. The one time they fail, the retrospective analysis is apt to condemn them for missing the obvious. **Well, during the event, nothing may be obvious.**"

Resources

- [Storytelling With Data](#) - Cole Nussbaumer Knafllic
- [The Big Book Of Dashboards](#) – Steve Wexler
- [The Design of Everyday Things](#) – Don Norman
- [Tableau eye tracking study](#)
- [Tableau 10 best practices on dashboard design whitepaper](#)
- [High Performance HMI Graphics – ISA.org](#)
- [Storytelling With Data Blog – Death to Pie Charts](#)
- [Storytelling With Data Blog – An Update on Pie Charts](#)

About Industrial Insight

- Consultant and Integrator focused on the PI System, BI Tools, and Data Science Tools (MVDA, ML, etc.):
 - PI AF, PI EF, PI Analytics, PI Integrator for BA
 - Tableau and Power BI
 - SIMCA multi-variate data analysis
 - Still searching for the RIGHT Machine Learning tool that handles time-series data well
- Heavy presence in Pulp and Paper
- Jim is a former OSIsoft Account Manager with a background in control systems integration

Challenge.....Then Rich...

Storytelling with Data

Presented by: Rich Ermlick



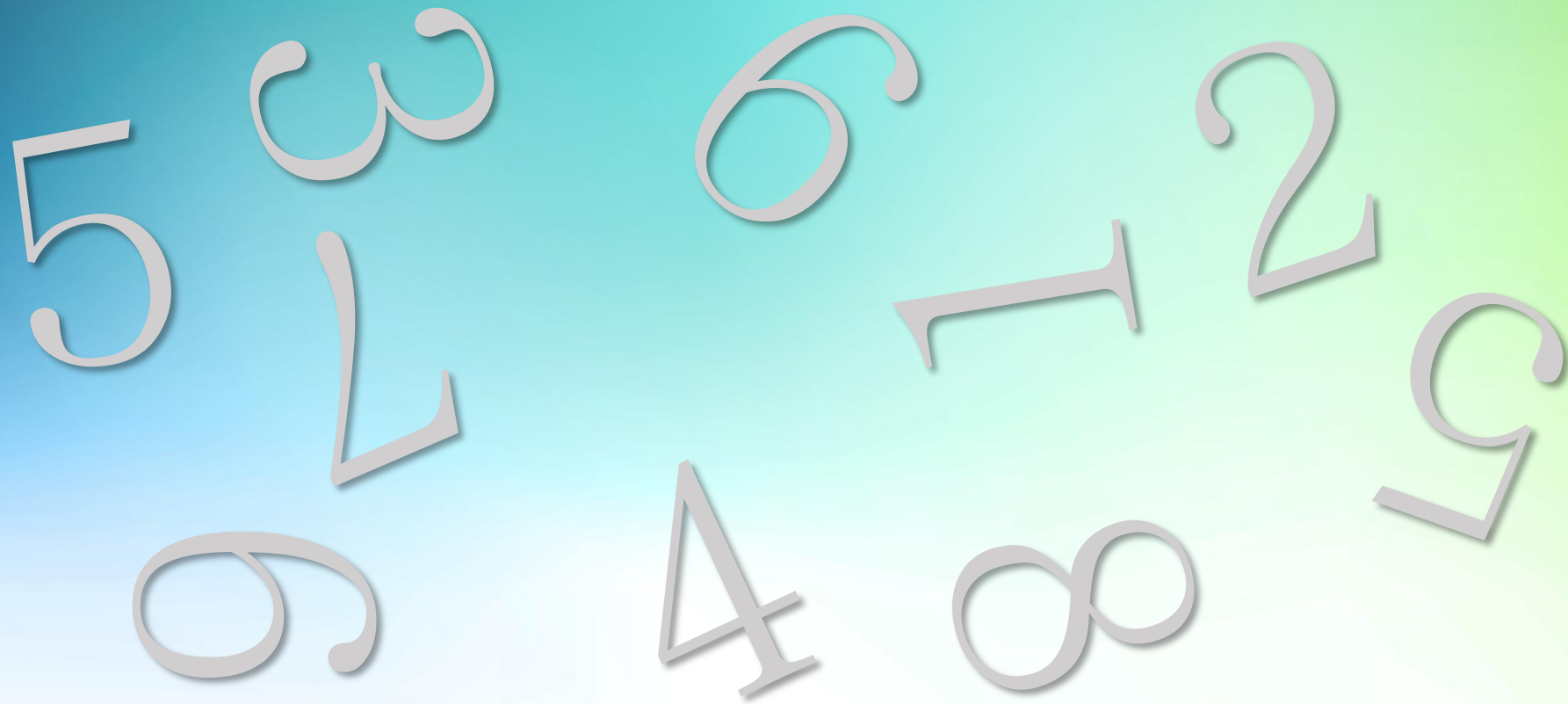
Presentation Agenda

- Talk about Stuff
- Some Stuff Rich did
- Discuss Numbers and Stuff
- Stories about Stuff
- Stuff about Stories
- Why Stuff matters
- Activity: Build some Stuff
- Questions and Stuff with Jim and Rich

Rich Ermlick



Rich works with and advises organizations who want to FIND and SOLVE the small problems that are costing them BIG money.



Favorite Number?

Favorite Number?

9

115,200

11

525,600

7,106

10,000,000,000,000,000,000,000,
000,000,000,000,000,000,000,00
0,000,
000,000,000,000,000,000,000,00
0,
000,000,000,000,000,000,000,00
0,
000,000,000,000,000,000

1

525,600

1

7,106

115,200

11

10,000,000,000,000,000,000,000,
000,000,000,000,000,000,000,00
0,000,
000,000,000,000,000,000,000,00
0,
000,000,000,000,000,000,000,00
0,
000,000,000,000,000,000

20

79

Avg Life Span
Mom & Dad

~~69~~

10

x

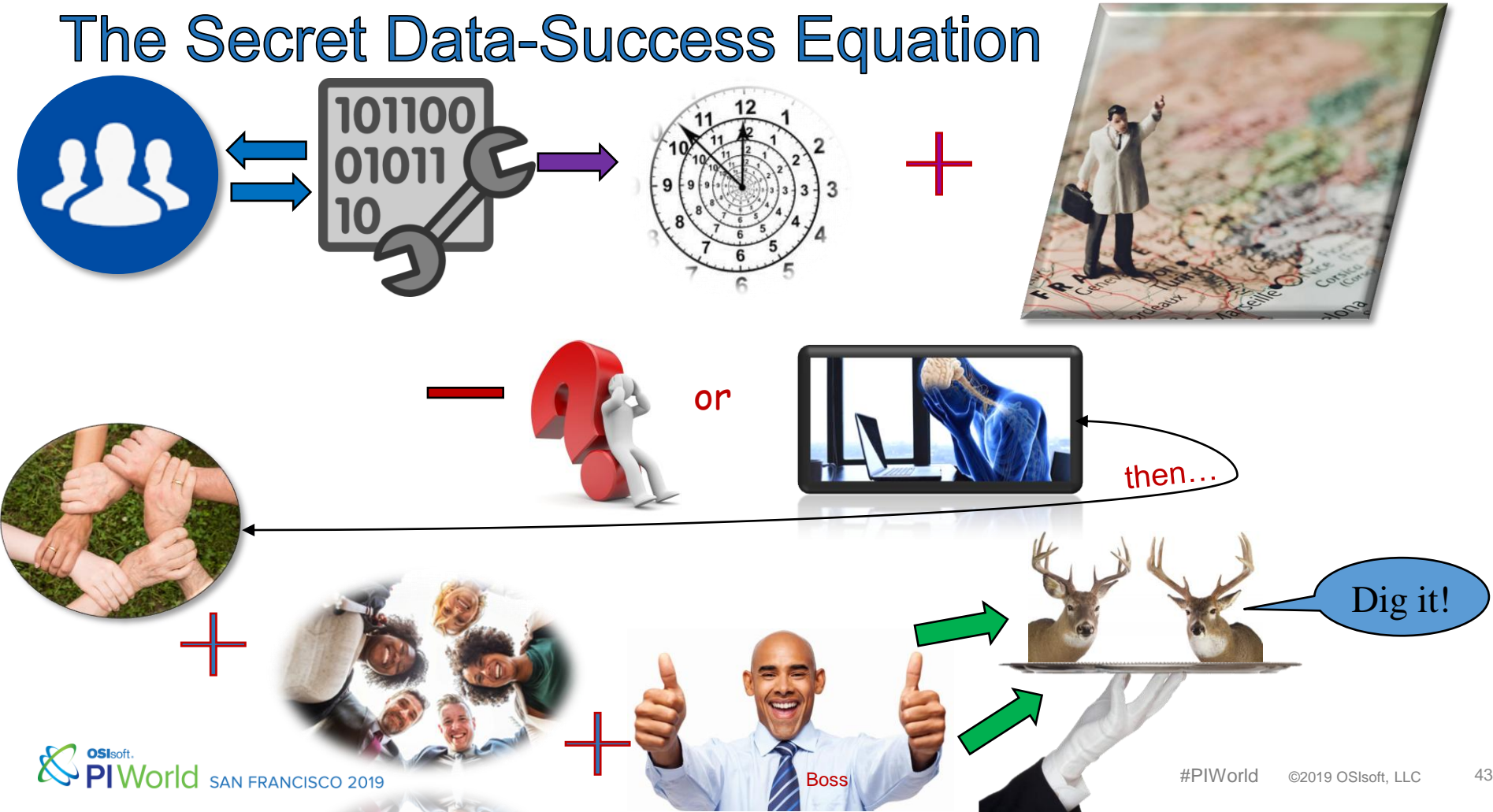
~~2~~
20

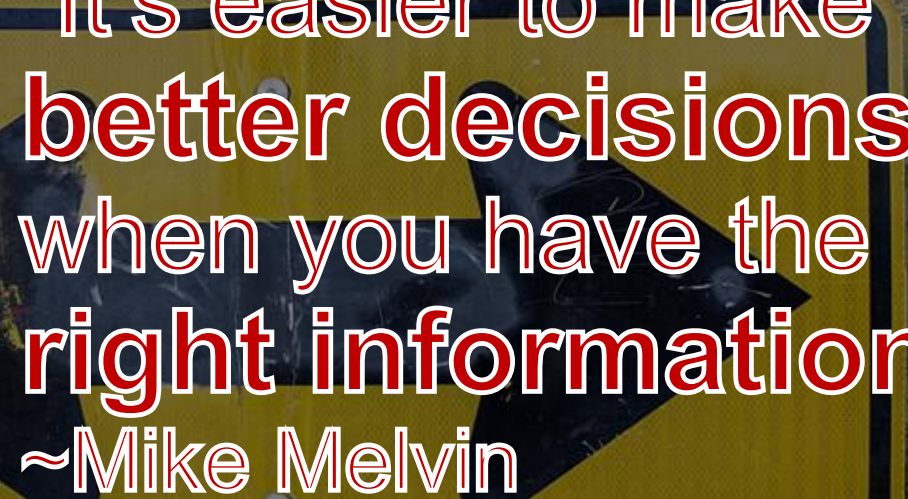
Visits per year
Visits

20 Visits

Decision Points

The Secret Data-Success Equation





“It’s easier to make
better decisions
when you have the
right information”
~Mike Melvin

Five Second Rule!



Common current state.....Firefighting





Considerations:

- 1) Categories of Information
- 2) Leading, Lagging, Balancing
- 3) Scope / Context

A conceptual image featuring a central incandescent lightbulb. The background is a dark, textured surface resembling a blackboard. Six hand-drawn, irregular white chalk circles are arranged in a hexagonal pattern around the lightbulb. Four short, diagonal white chalk lines are also present, connecting the circles to the central lightbulb. The word "Categories" is written in a large, white, serif font across the middle of the image, partially overlapping the lightbulb.

Categories



Leading

Metrics



Lagging



Balancing



Scope / Context

Activity: Design a Communication Tool



What you do matters

You can create significant change
through the stories that your data tells
and your influence on how we focus

Data Storytellers



- **Jim Gavigan**
- Chief Data Storyteller (President)
- Industrial Insight
- jgavigan@industrialinsightinc.com



- **Rich Ermlick**
- Consultant
- re:engaged

Questions?

Please wait for
the **microphone**

State your
name & company



Please remember

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