

Navigating Data with Disruptive Technologies to Analyze, Cleanse and Fix the Way Your Company Consumes Data



POWERED BY **POSSIBILITIES.**

Presented by:

Alex Wakefield



Session Overview

What You Will Learn

Currently accepted ways of managing and using your supply chain data are inefficient, expensive and slow, including traditional Analytics and Business Intelligence tools. Software designed to manage all aspects of the data you are generating provide a much more efficient way to run your supply chain.

Many supply chain executives have challenges in getting access to their data in real-time and effectively using this data. They also struggle with “dirty data” and how to clean their data. A lack of understanding of the design of the technology solution contributes significantly to this challenge. With data being managed inefficiently, and with a legacy mindset, executives who understand the benefits of software designed to deliver operational data to them in real-time, can better run their operations and serve their customers at a much lower cost.

Key Takeaways

- Interact with data in a more pragmatic manner
- Successful approaches to cleaning data
- Guarantee that all your supply chain data can be reviewed and analyzed in real-time
- Ways to create multiple value streams, quickly, from your supply chain data

Objectives

Teach you at least one thing

Get you thinking for yourself and your organization

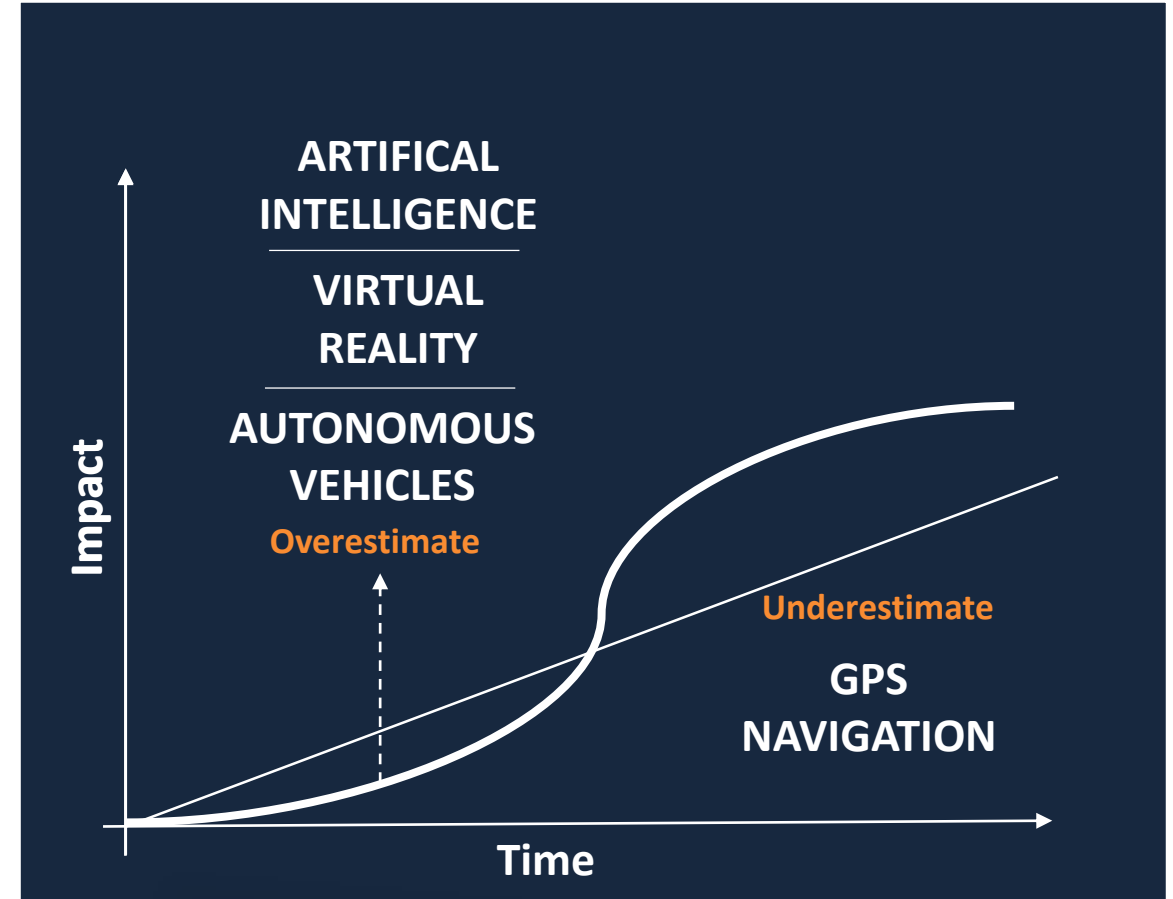
Show how your company can fix how it consumes data

With the technology available today,
why can Amazon get you a package
faster than you can get your
distribution data?

Beware Amara's Law

“We tend to overestimate the effect of technology in the short run and underestimate the effect in the long run.”

– Roy Amara



What GPS Drives

- GPS was invented in 1973
- Uses
 - Location, Navigation, Tracking, Mapping, Timing
 - Emergency Response
 - Entertainment
 - Health and Fitness
 - Construction
 - Transportation
- Hacking GPS is hard



Artificial Intelligence, Chess, Go...Reality

“The Navy revealed the embryo of an electronic computer today that it expects will be able to walk, talk, see, write, reproduce itself, and be conscious of its existence. Later perceptrons will be able to recognize people and call out their names and instantly translate speech in one language to speech and writing in another language.”

– New York Times (July 1958)

“If one could devise a successful chess machine, one would seem to have penetrated the core of human intelligence endeavor”

– Allen Newell and Herbert Simon, 1958

Artificial Intelligence, Chess, Go...Reality

1997 – Deep Blue beats
Gary Kasparov



“When or if a computer defeats a human Go champion, it will be a sign that artificial intelligence is truly beginning to become as good as the real thing.”

– George Johnson, 1997

What Else Can AI Successes Do?

- Google AlphaGo – Go champion (2016)
- Watson – Jeopardy champion (2013)
- Deep Blue – Chess champion (1997)



“Each game has its own separate convolutional neural network that must be trained from scratch for its particular game. Unlike humans, none of these programs can ‘transfer’ anything it has learned about one game to help it learn a different game.”

– Melanie Mitchell, “Artificial Intelligence: A Guide for Thinking Humans”

Hacking AI

Clean Examples:

Sania Mirza: 1.0000



Kiefer Sutherland: 1.0000



Meg Ryan: 1.0000



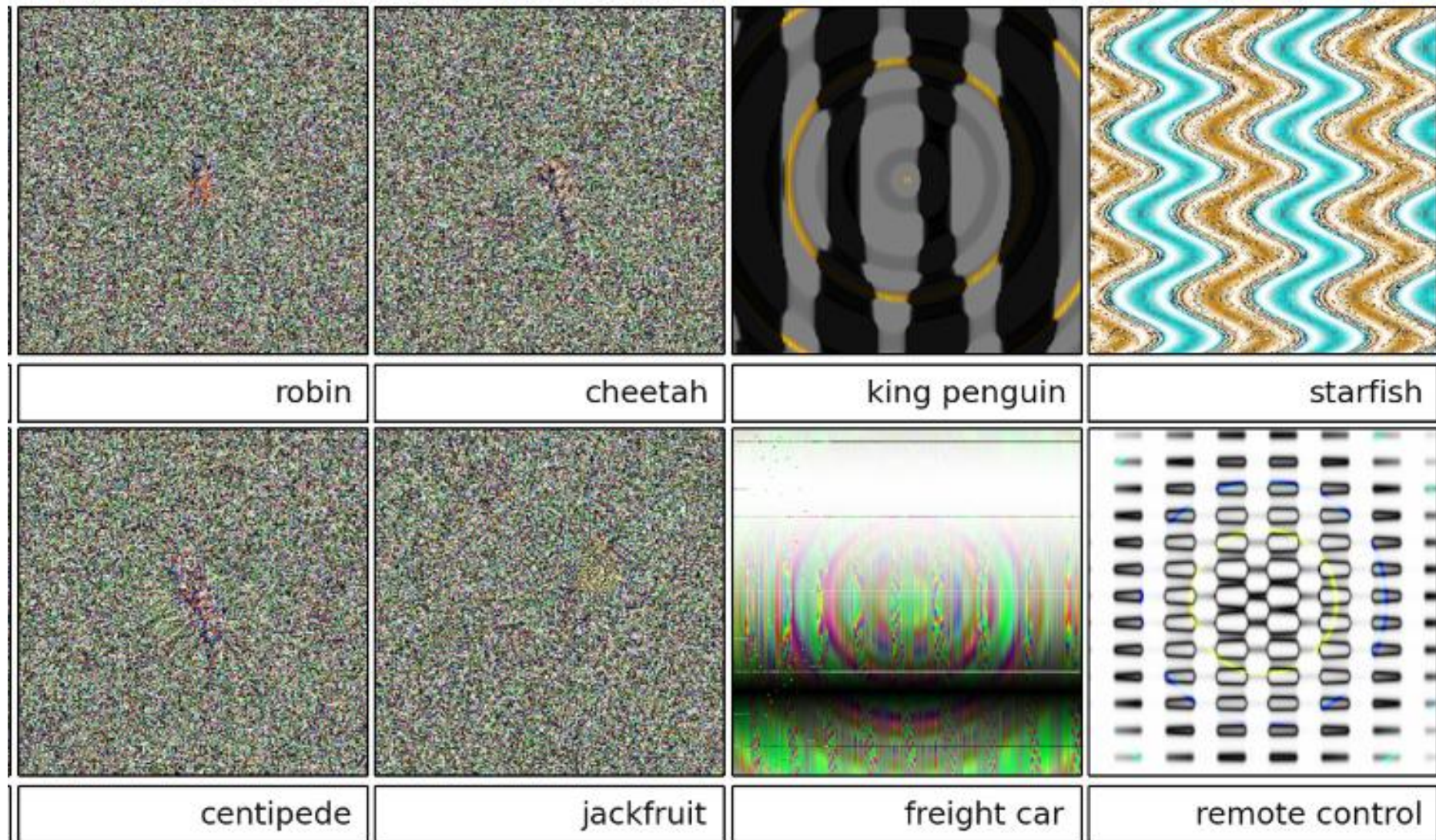
Hugh Jackman: 1.0000



Daniel Craig: 1.0000



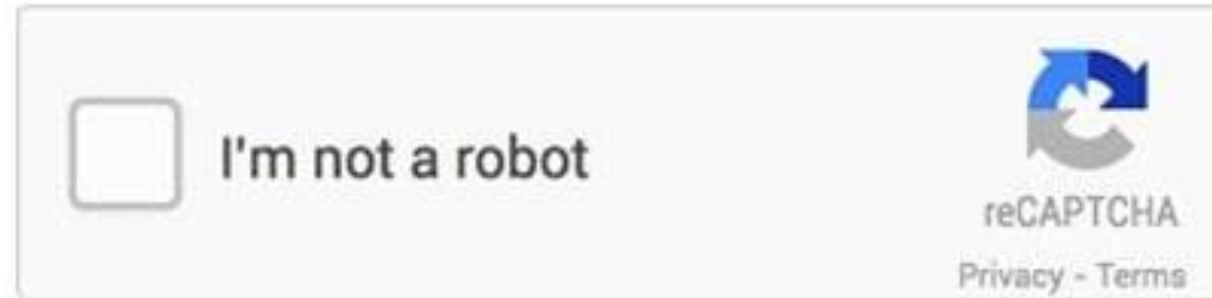
How?





88% **tabby cat**

You Are an AI Training Employee



I'M NOT A CALCULUS TEACHER



**BUT I THINK EVERYONE IS
LYING**

Sir Isaac Newton

Invented Calculus
Father of Modern Physics
3 Laws of Motion
Theory of Gravity



Believed he could turn lead into Gold

"Truth is ever to be found in the simplicity, and not in the multiplicity and confusion of things."



Why understanding Data Architecture & Technology Matters

- Ask the right questions of IT
- Critical in making effective executive decisions
- Understanding both technology and operations dramatically improves results and ROI

Great Leadership Decisions

Entrenched

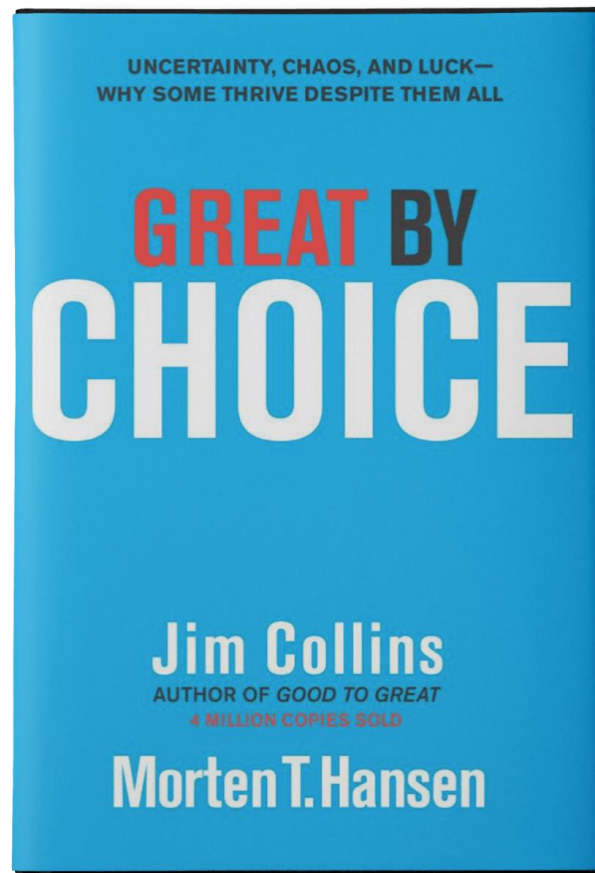
Myth:

Successful leaders are bold, risk-seeking visionaries



Truth:

The best leaders worked, figured out why it worked, & built upon proven foundations.



Entrenched

Myth:

Innovation distinguishes 10x companies



Truth:

Innovation by itself turns out not to be the trump card. It is the ability to scale innovation.



Empirical Creativity –
Fire Bullets, then
Cannonballs

Don't abdicate
your responsibility

LIFE REVIEW

ABDICATING RESPONSIBILITY



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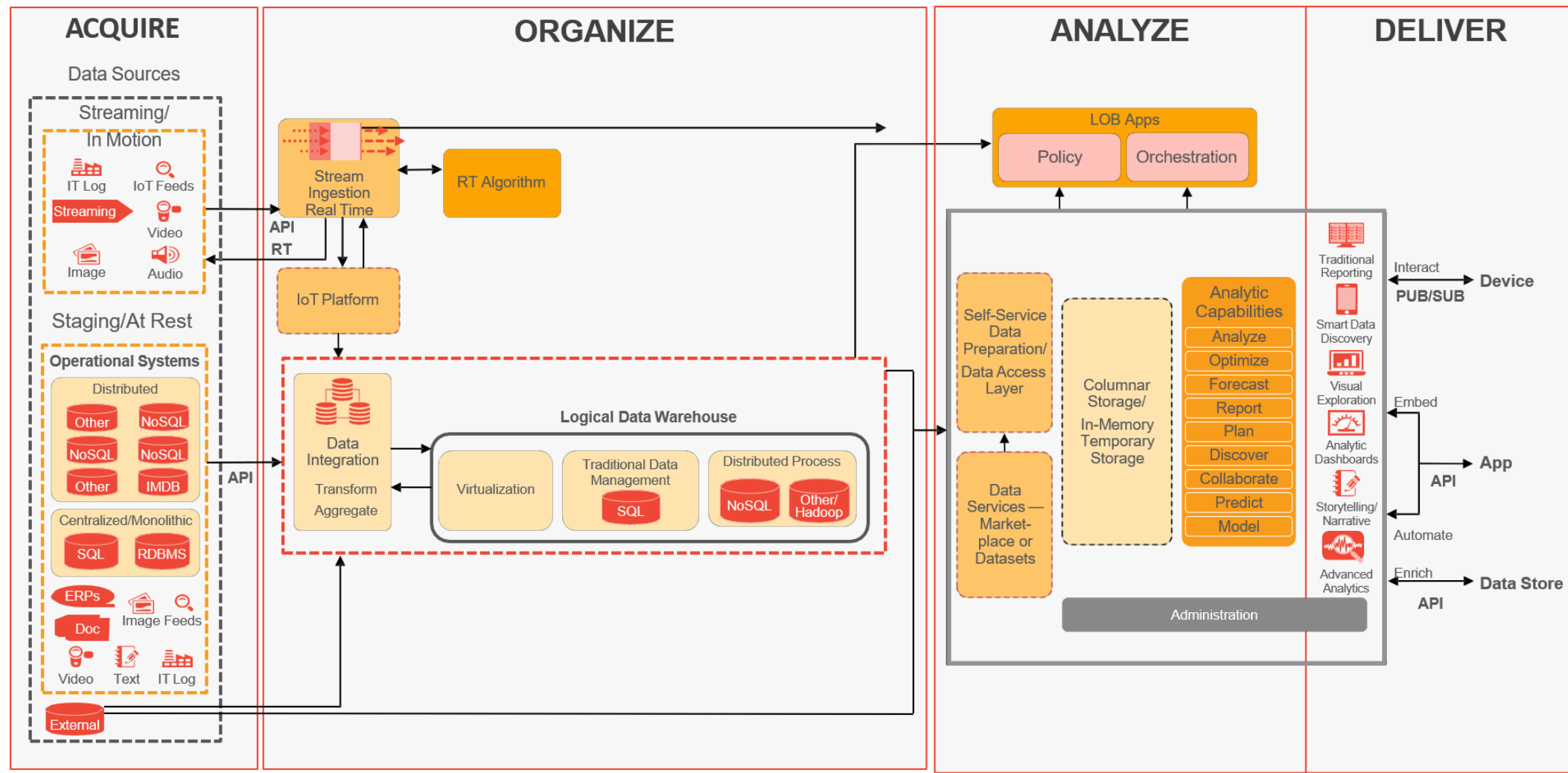
“We get a call about analytics,
and we end up in architecture.”*

* 2019 Gartner Data and Analytics Forum

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Your CDO and CTO Science Experiment



Gartner Data and Analytics Strategy Architecture

How Much **Turmoil** Does the Science Project Cause Families?

Materials

- At least 1 Kid
- At least 1 grudging parent
- Half-baked idea of very dubious merit
- Procrastination

Results OO

yelling
+
crying

time

*
due
date

✓ 75% of kids cry

✓ 90% of parents yell

✓ An average of 15 hrs.
of family time ~~is~~ sacrificed

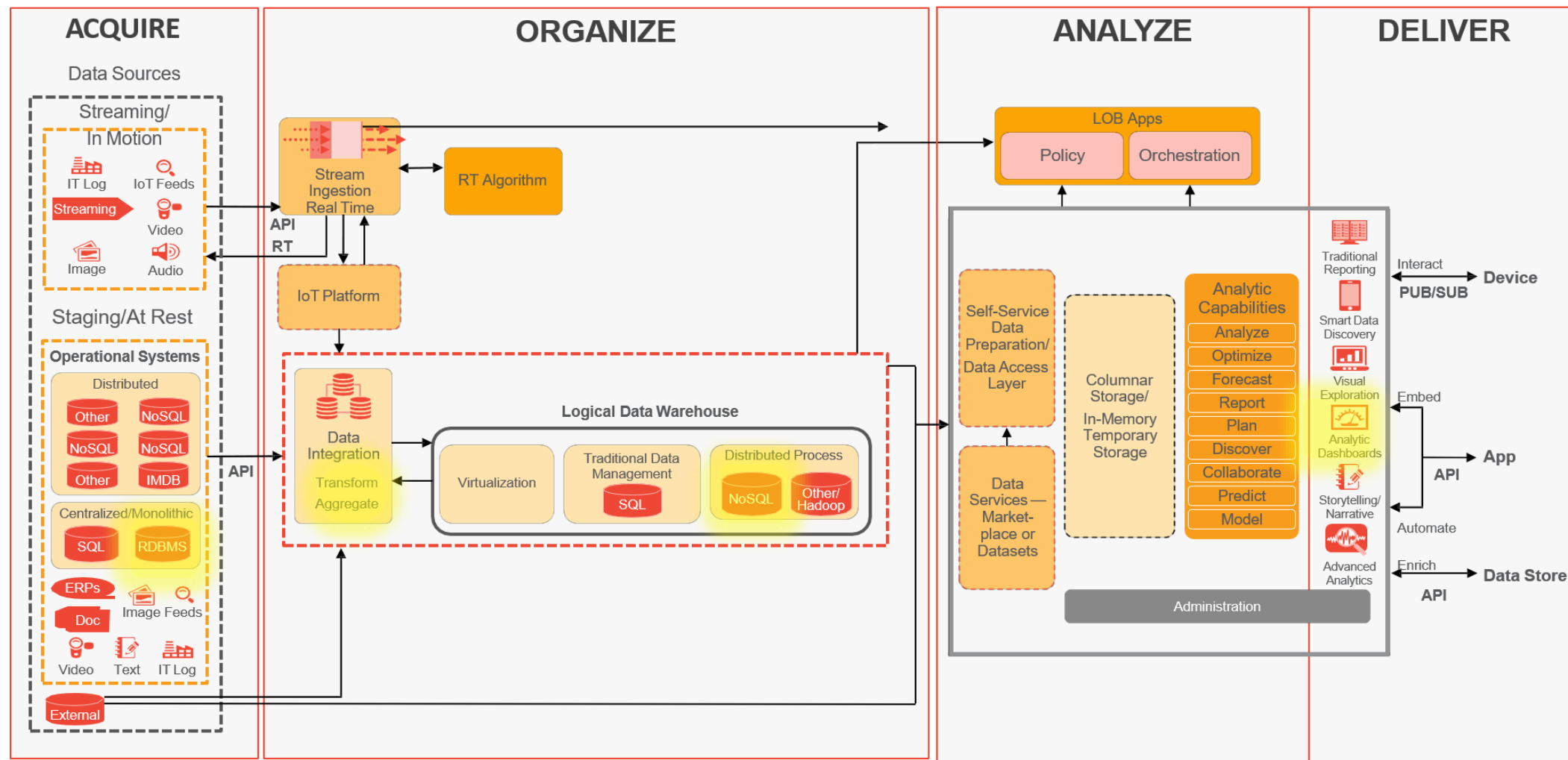
Findings

Everyone
HATES

the science
fair

by Susan
Mc

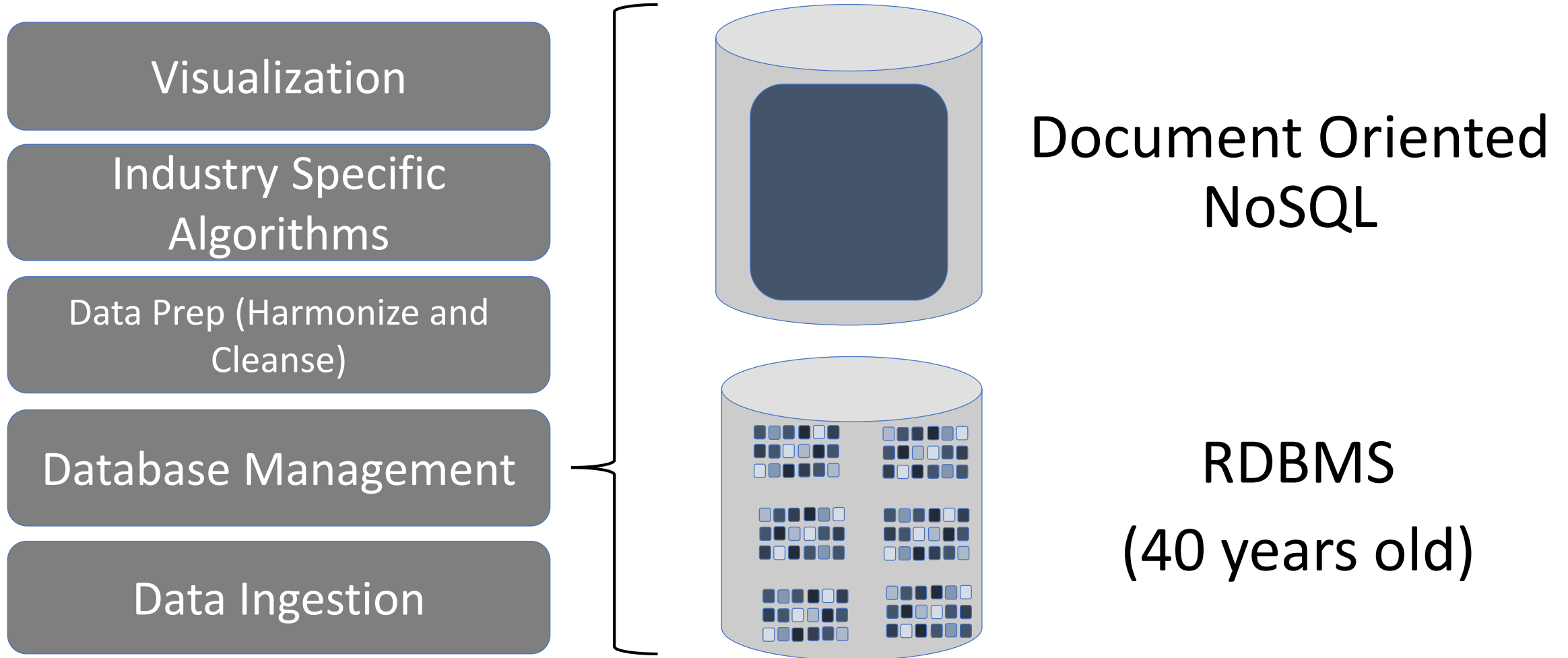
Your CDO and CTO Science Experiment



Gartner Data and Analytics Strategy Architecture

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Full Stack Data Management



“We get a call about analytics,
and we end up in architecture.”*

* 2019 Gartner Data and Analytics Forum

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Focus Where you Can Win!

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The background is a dark blue gradient. On the left, there is a faint, semi-transparent image of a computer monitor displaying various data visualizations, including a line graph at the top, a table of data in the middle, and a bar chart at the bottom. On the right, there is a faint, semi-transparent wireframe model of a human head, composed of a network of interconnected lines and points, suggesting a digital or neural theme.

Interact with Data in a More
Pragmatic Manner

Organize Data More Effectively

Challenge: WMS activity is stored in a single table with non-user friendly identifiers

- Difficult to query and very slow when looking back historically

Solution: Automatically organize data for easy querying and speed

- Split up in separate functional groups
- Gave each records easy to understand identifiers (i.e. List Picking Pickup vs. Activity = 'X', Operation – 'X', Area = 'X', Location = 'X')
- Customers can now easily query the data set *without having to be experts* in the way transactions are logged in the WMS
- *Optimized query speed* when looking back at years worth of data



SAVE TIME, REDUCE IT SPEND, TURN YOUR HISTORICAL DATA INTO AN ASSET

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Pre-mapped Data Structure

Challenge: Enterprise BI requires mapping data from scratch and has frequent scalability issues



Solution:

- Already having more than 1,000 tables mapped out into data models was a huge benefit
- Safely extracting data out of production and into the cloud enabled “real-time” reporting
- Solved the scalability issue by merging the data into one place in order to enable enterprise level reporting



Successful Approaches to Cleaning Data

Data Cleansing – Understand and View Your Data

Challenge: WMS activity records were being triplicated every time an order was modified

- Resulted in up to 10,000 erroneous records logged EVERY HOUR
- 613,800 records in the db that should have been purged and were causing performance issues – pickers couldn't pick – RF's were getting locked up
- WMS had been live for years, 3 DBAs on staff had not noticed issues in the data



Solution:

- WMS consultants put a fix in that fixed the code issue
- Data consultants cleaned up bad data for a nominal cost to the customer
- Savings of 3.75 hours per employee per month = \$500,000 in savings

Guarantee That All Your Supply
Chain Data Can Be Reviewed
and Analyzed in Real-time



Importance of Using the Right Technology

Challenge: Tableau was the original thought for the reporting gap, but there were too many obstacles to overcome



- Scalability was a concern with 10 WMS sites on 2 boxes
 - Due to some performance issues, IT reverted to 10 boxes
- IT would not allow connection to production due to performance concerns and risk
- Connectivity would be to the archive, meaning that “real-time” reporting would not be possible

Solution: Properly architected data management solution connected to production instance

- Customer can analyze enterprise distribution data in real-time

Data Harnessing – Leveraging your data

Challenge: Customer wanted to eliminate manual reporting effort around yard management – all sites sending spreadsheets for manual consolidation

- Previous solution was in place for years
- *Many hours spent* every week pulling data together

Solution: Combined 9 metrics into 2 widgets that showed yard management data across all of customers 9 facilities

- Each site saved hours each week by eliminating their manual reporting effort
- *6 hours* to create the new Yard Management Dashboard
- Estimate savings of \$75,000



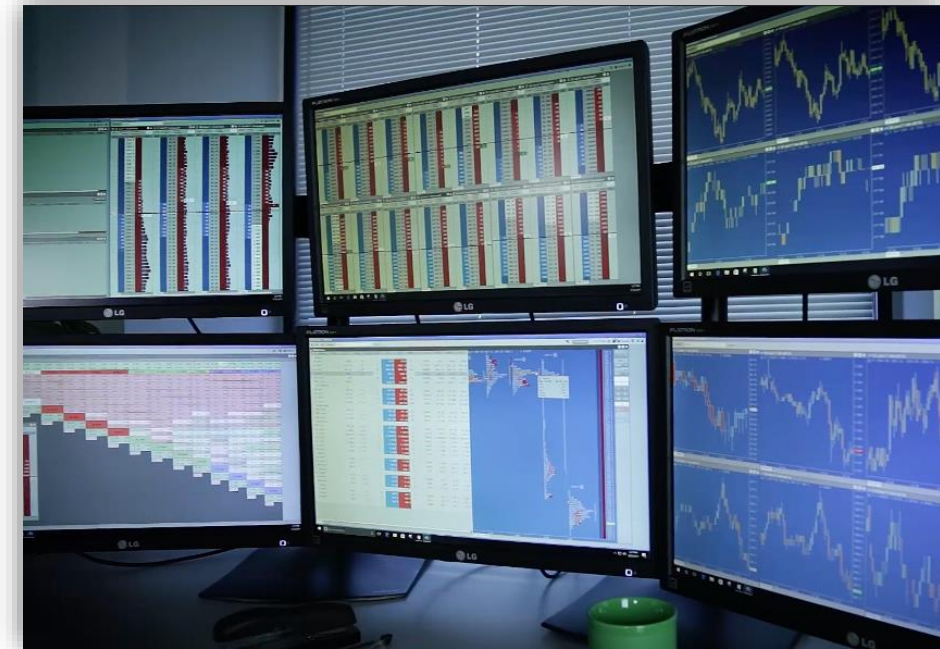
ELIMINATE MANUAL REPORTING, RETHINK WHATS POSSIBLE WITH YOUR DATA

Multi-Level Control Tower

Challenge: Comprehensive Control Tower should monitor your supply chain execution software to provide you insights into operational, application, and infrastructure issues before they occur.

Solution: – Support analysts monitor control tower to ensure that your operation and WMS are running optimally

- Operational Monitoring: Labor Performance, Utilization, Missed Appointments, Trailer Dwell Time, Aging Inventory
- Application Monitoring: Allocation Performance, Putaway Performance, Task Failures, Integration Errors, Unauthorized Config Changes
- Infrastructure Monitoring: Trending – (CPU Usage, Disk Space, Memory, DB Record Counts), Slow Queries, Index Tuning, Orphaned Records



A man in a dark suit and tie stands on the left, looking through binoculars. He holds a black briefcase in his right hand. The background is a dark gray with numerous white arrows pointing in various directions, creating a sense of movement and direction. The text is centered in a large, white, sans-serif font.

Create Multiple Value
Streams, Quickly, from Your
Supply Chain Data

Effective Data Usage and Process Improvement

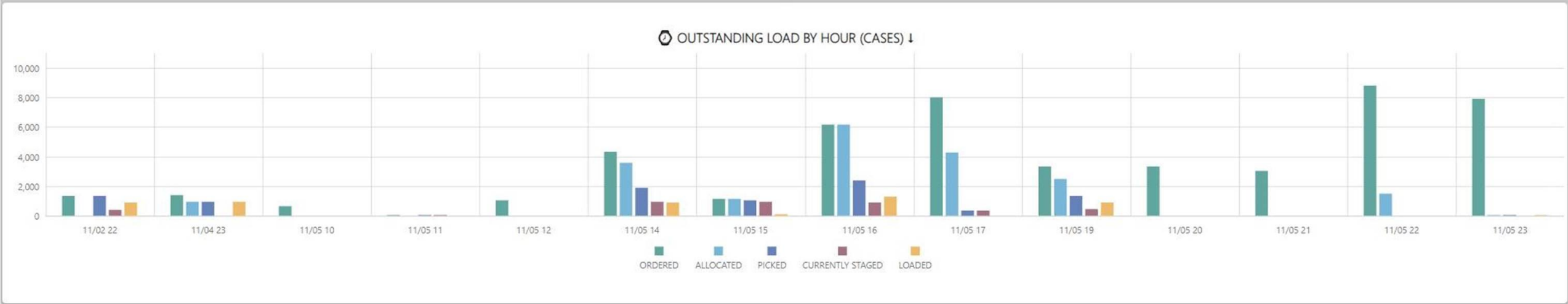
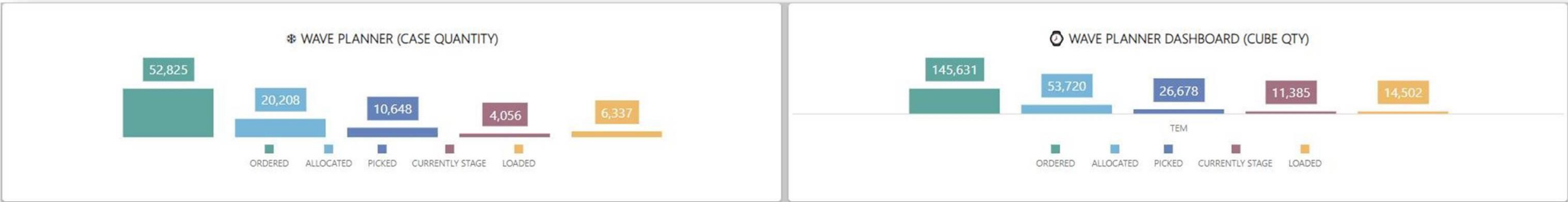
Challenge: While WMS provided excellent functionality to perform the work, there were some reporting gaps

Solution: Enhanced visibility to the work updated minute by minute

- Wave Planner Dashboard: Shows progress across a timeline that better enables a site to make adjustments
- Hour-by-Hour Throughput Dashboard: Allows sites to address performance issues on shifts
- Enhanced Yard Visibility Dashboard: Better enables sites to manage “hot” and “old” shipments



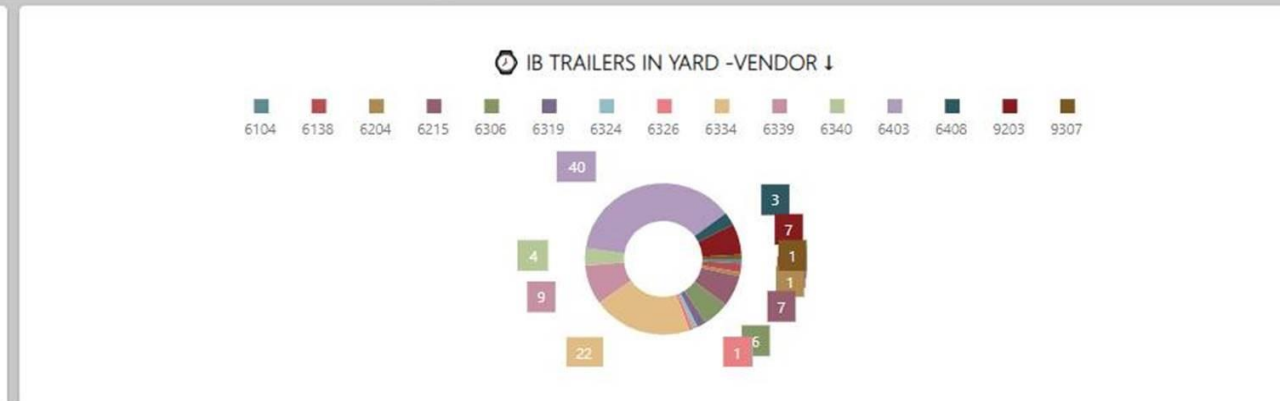
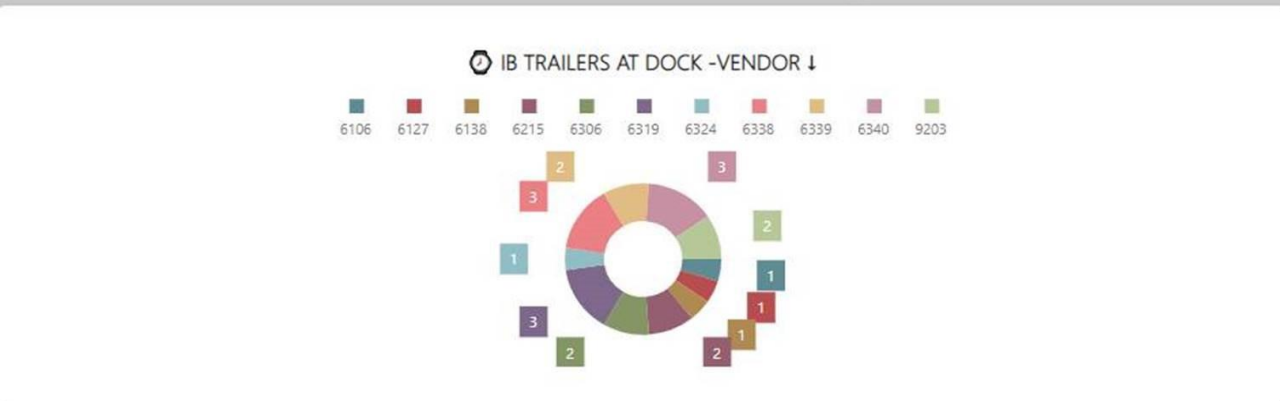
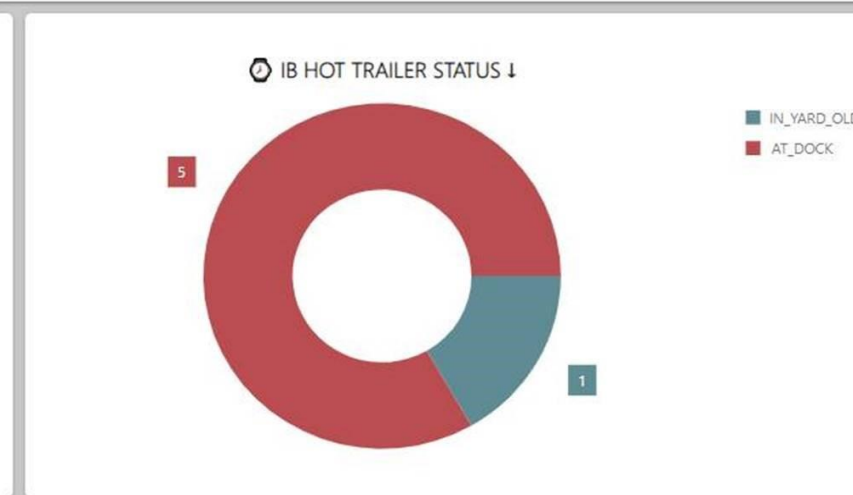
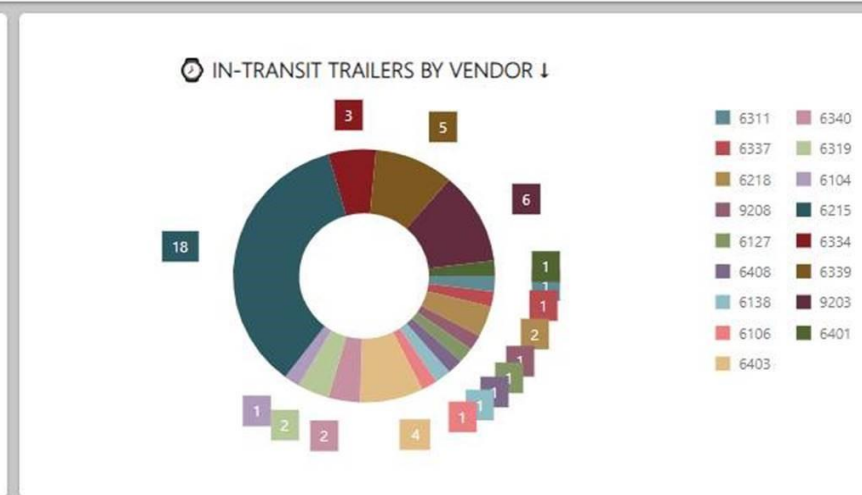
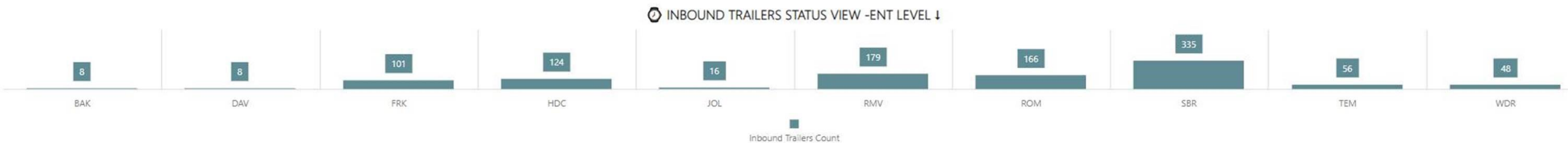
Wave Planner Dashboard



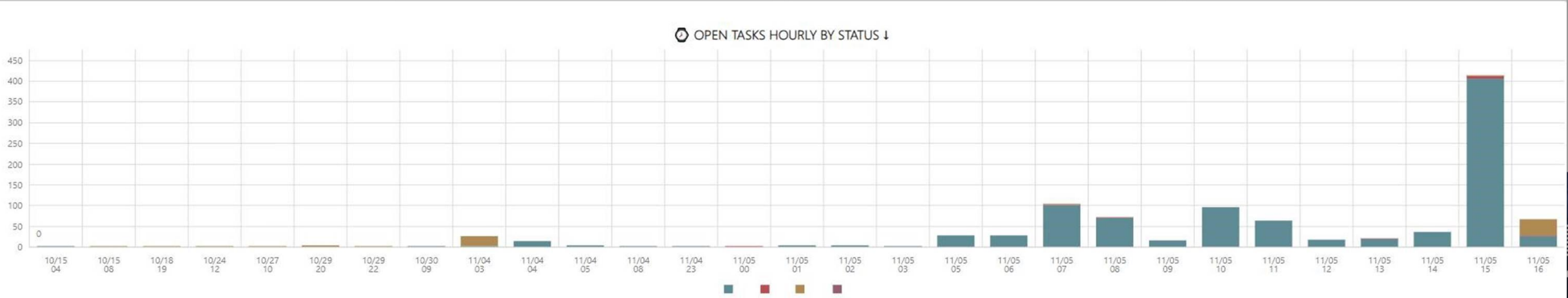
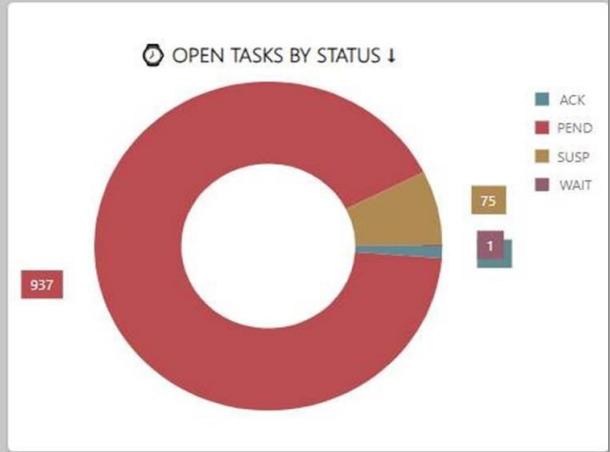
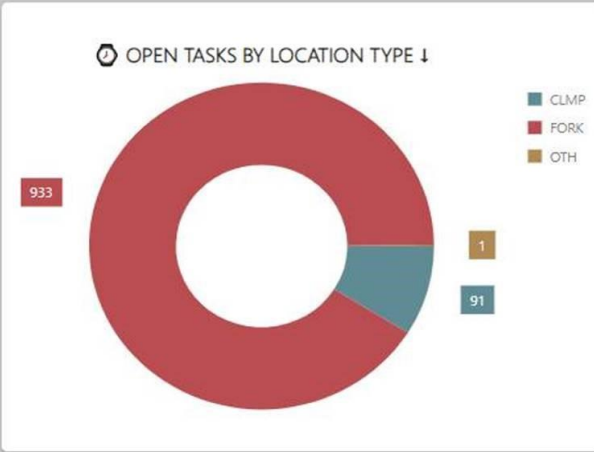
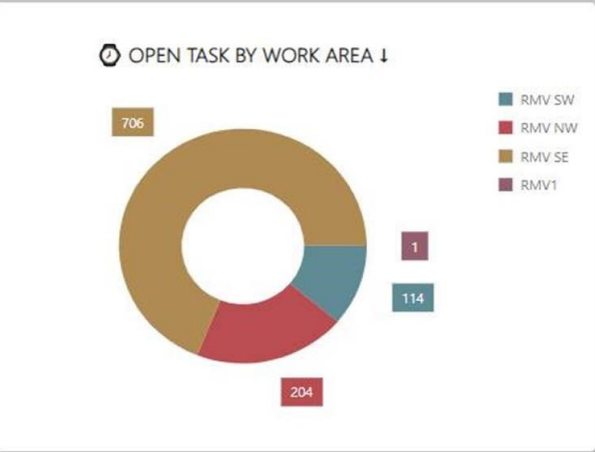
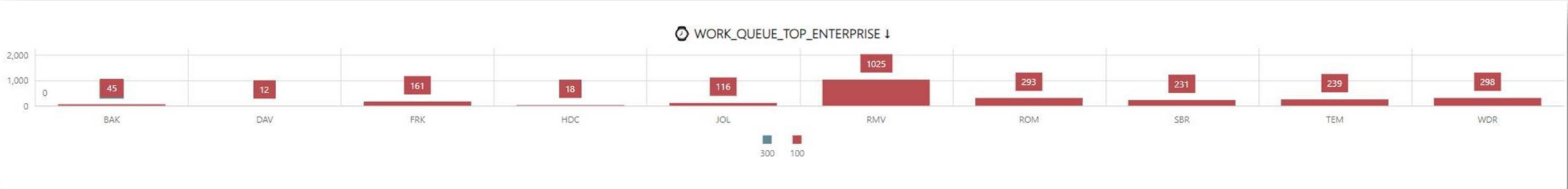
⌘ OUTSTANDING LOAD DETAILS (CASES)

WAREHOUSE_CODE	BUILDING	SHIP_DATE_EARLIEST_LOCAL	SHIP_DATE_LATEST_LOCAL	LOAD	SHIPMENT_IDENTIFIER	▼ TYPE_DESCR	SHIPTO_CUSTOMER_NAME	ORDERS	CUSTOMER_POS	CARRIER_NAME	CARRIER_CODE	SERVICE_LEVEL	TRAILER_NUMBER	TRAILER_STATUS
TEM	100	2019-11-02T22:00:00.000Z	2019-11-02T22:00:00.000Z	LD00023745	010000185809	NLCC	REYNOLDS CONSUMER / TEMPLE	0088866946	5501943760	TEMPLE to 6420 SHUTTLE	STT2	TL	4324	Loading
TEM	100	2019-11-04T23:59:00.000Z	2019-11-04T23:59:00.000Z	LD00023966	010000186861	NLCC	PACTIV CANADA / BOLTON	0088881826,0088881819	5501944346,5501944184	JB HUNT INTERMODAL	HJIM	IM	309261	Loading
TEM	100	2019-11-05T22:00:00.000Z	2019-11-05T22:00:00.000Z	LD00024544	010000189489	NLCC	REYNOLDS CONSUMER / TEMPLE	0088880244	5501945855	TEMPLE to 6420 SHUTTLE	STT2	TL		
TEM	100	2019-11-05T22:00:00.000Z	2019-11-05T22:00:00.000Z	LD00024538	010000188669	NLCC	REYNOLDS CONSUMER / TEMPLE	0088882326	5501945498	TEMPLE to 6420 SHUTTLE	STT2	TL		
TEM	100	2019-11-05T22:00:00.000Z	2019-11-05T22:00:00.000Z	LD00024535	010000188672	NLCC	REYNOLDS CONSUMER / TEMPLE	0088882327	5501945501	TEMPLE to 6420 SHUTTLE	STT2	TL		
TEM	100	2019-11-05T22:00:00.000Z	2019-11-05T22:00:00.000Z	LD00024543	010000189488	NLCC	REYNOLDS CONSUMER / TEMPLE	0088880243	5501945846	TEMPLE to 6420 SHUTTLE	STT2	TL	4273	Open For S
TEM	100	2019-11-05T23:59:00.000Z	2019-11-05T23:59:00.000Z	LD00024537	010000189393	NLCC	PACTIV/REYNOLDS/SAN BERNARDINO	0088882330	5501945788	JB HUNT INTERMODAL	HJIM	IM		

Inbound Trailer Dashboard



Work Queue Dashboard



Speed and cost of deployment

Global beverage leader:

- Replaced legacy LMS at 6 sites and cost justified an additional 24 sites
- Turned on real-time analytics at 41 sites
- Completed both in 7 months at a fraction of the cost
- Avoided the use of static BI platform
- Self-sufficient weeks



Full Stack Data Services

Data Cleansing, Archiving, Cost Reduction, Process Improvement

Data and Operations Challenges:

- Major issues in both archiving and production data
 - WMS archived a table, but wouldn't delete it
 - Tables in production were not being moved to archive
 - Nearly 100 million duplicates and orphans
- General Managers' hoarding labor driving excessive over time
- Outbound dock congestion
- On-time order processing and visibility
- Executive visibility

Data Services:

- Created tremendous visibility into the data structures in production
- Cleaned bad data in a week during off hours
- Noticeable WMS performance improvement
- Implemented Labor sharing across sites
 - Reduced overtime by 15% or 3,000 hours
 - Eliminated 2 FTE's
- Carrier visibility to real-time outbound shipment status greatly reducing wait time
- Improved overall on-time order processing
- Enhanced customer visibility into order status

With the technology available today,
why can Amazon get you a package
faster than you can get your
distribution data?

When the solution owns the entire
process, you can accomplish more
than with dis-aggregated data
management software

Help us fix how companies consume data

Join the data revolution!

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For More Information:

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