



Pragmatic Approach to Digital Transformation In Downstream Distribution

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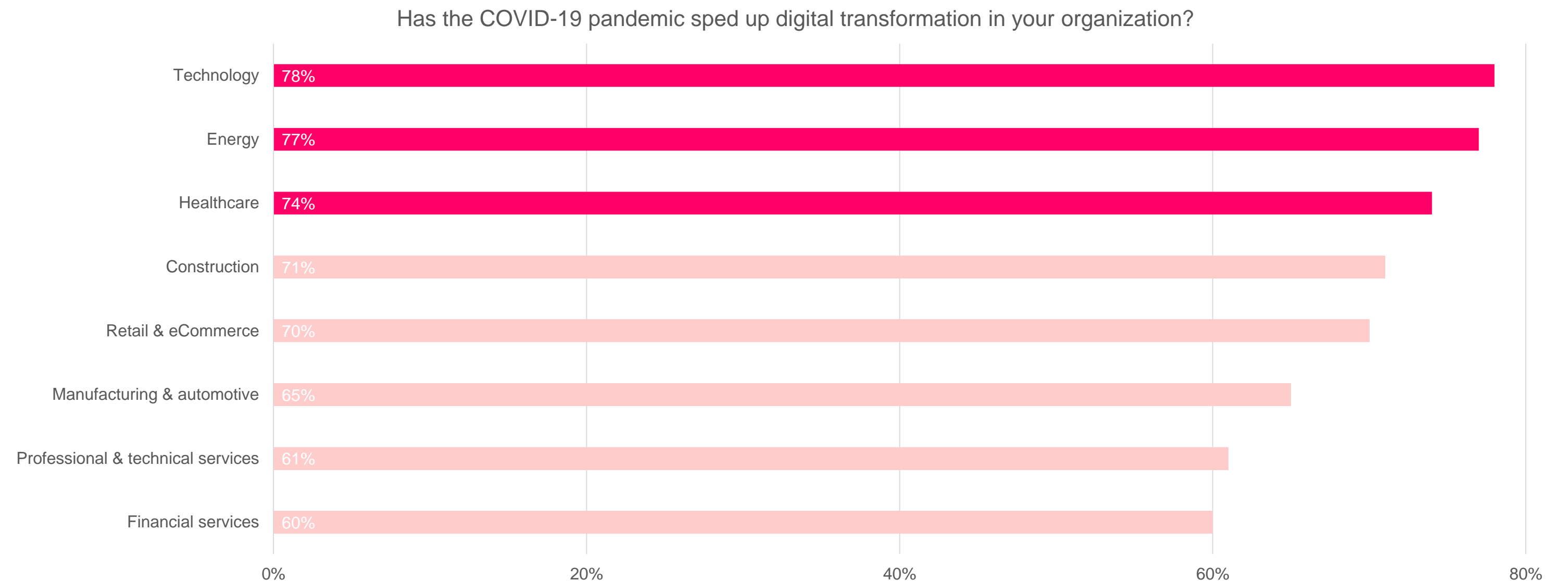
Covid-19 as the Digital Accelerant



Digital Transformation is no longer a Buzzword, but Linchpin of Survival.

97% of companies surveyed on-line from June 6th to 24th 2020 with 2,569 respondents between 200 to 300 each in Australia, France, United States, Germany, UK, Italy, Spain, Japan and Singapore report Covid-19 has sped up digital transformation.

78% of tech companies, **77%** of **energy companies** and **74%** of healthcare organizations say the pandemic sped up their digital transformation **a great deal**



Source: twilio Covid-19 Digital Engagement Report September 2020

Digital Transformation Before and After Covid-19

- Before:** CEO and top management blue sky
IT professionals wish-list
Business as usual with increased costs and headaches for digitalization
Disconnect from strategy to reality
- After:** Internal infrastructure to enable remote work from home and anywhere
Business Continuity Planning as MUST
Business disrupted with digitalization transformation as survival
Re-prioritise digital roadmap from essential operation needs to blue sky

- ✓ Enable our workforce to support customers from anywhere
- ✓ Transform the customer experience with improved responsiveness and engagement
- ✓ Proactively align BCP with each customer to eliminate operational risks



Digitalize the Customer Experience



“Standardise the system to enhance services provided to customers.”

“Increase customer experience by providing consistency across all channels.”

“Improve staff efficiency, productivity and collaboration to better serve customers.”

Four Critical Gaps as a Result of Covid-19 in Downstream Distribution

Network Connectivity
Resource Access
Supply Chain
Contingency Operation

DKI provides End-to-End terminal operation support to Petrochemical Terminals across 28 countries with engineers located in 8 countries

K Diamond Key International
Global Customer Care 



02

Challenges and Opportunities

Challenges of Implementing Digital Transformation – uncharted ocean













- No.1:** ROI on **measureable** return in terms of \$\$, benefits and values
- No.2:** Disjoint infrastructures with **isolated and inconsistent** information systems
- No.3:** Reluctance to replace **aged legacy** systems
- No.4:** Another **traditional IT** project which lacks the engagement with operational functions
- No.5:** Organization for **Digital Readiness**
- No.6:** Figure out **Monster Data**

60% of Operators Don't Know How to Deal with Data

Lacking **clear strategy, skills, engineering support** in Energy industry

What barriers to digital transformation has COVID-19 broken down within your organization?

 Significantly higher  Significantly lower

Source: twilio Covid-19 Digital Engagement Report September 2020	Barriers	Technology	Financial Services	Retail & eCommerce	Healthcare	Energy	Construction	Manufacturing & Automotive	Professional Services
	Getting executive approval or buy-in	35%	42%	32%	36%	43% 	37%	39%	34%
	Lack of a clear transformation strategy	39%	37%	37%	36%	54%	46%	32%	27%
	Reluctance to replace legacy software	37%	40%	36%	38%	27%	36%	30%	28%
	Insufficient budget	33%	36%	32%	41%	35% 	36%	37% 	26%
	Lack of skills and know-how	33% 	39%	30%	34%	53%	39%	26%	23%
	Lack of time	42%	31% 	35%	27%	35% 	24%	31% 	29%
	Lack of engineering support	33%	42%	32%	29%	53%	35%	24%	26%
	Bureaucracy	31%	32% 	30%	27%	19%	21%	23%	31%
	Not applicable, we had no barriers	8%	2%	4%	10%	1%	11%	7%	9%
	None of these	2%	4% 	2%	0%	1% 	0%	4% 	4% 
	Average # of barriers broken down due to COVID-19	2.8	3	2.6	2.7	3.2	2.7	2.4	2.3

Opportunities and Benefits: **Pro-active** CAPEX, operations and maintenance planning.

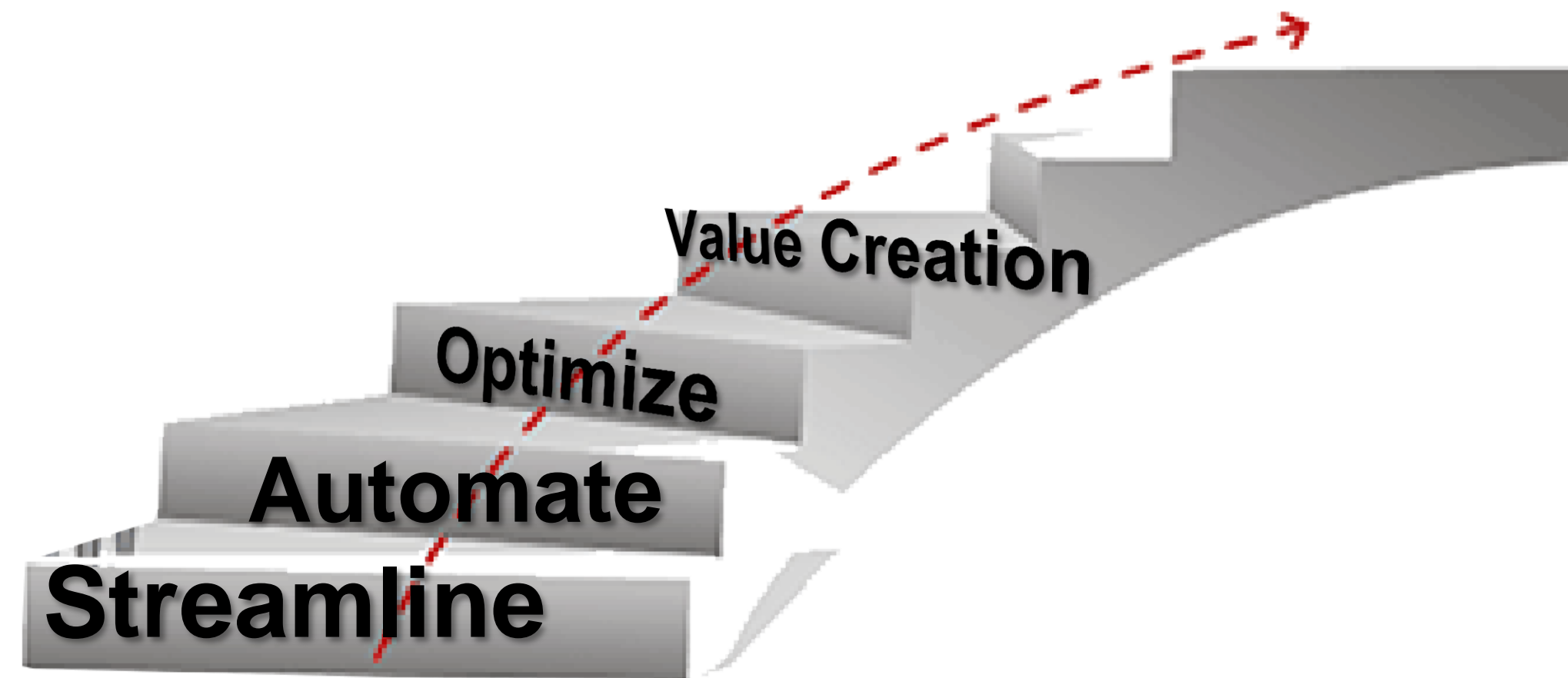
- **Agile investment decisions** – direct capex spending to the biggest opportunities by predicting and benchmarking KPI's
- **Free up resources** – reduce the time required to identify, assess and resolve operational issues
- **Minimise slow downs** – optimise the scheduling of maintenance by predicting the windows that have the least impact
- **Reduce unplanned outages** – create leading indicators of equipment health so you can take corrective action early
- **Manage stakeholder expectations** – quantify how step changes in operating conditions will impact performance
- **Become the 'terminal of choice'** – reduce gate-to-gate time and improve customer experience by using optimisation and classification tools to improve loading efficiency
- **Reduce 'human factor' safety risks** – create leading indicators of human performance with real-time analytics to predict potentially dangerous scenarios
- **Optimise storage strategies** – monitor and predict the variation in product demand to ensure tank capacity is optimised to achieve a high number of tank turns

Improve real-time visibility at heart of digital transformation (DX).

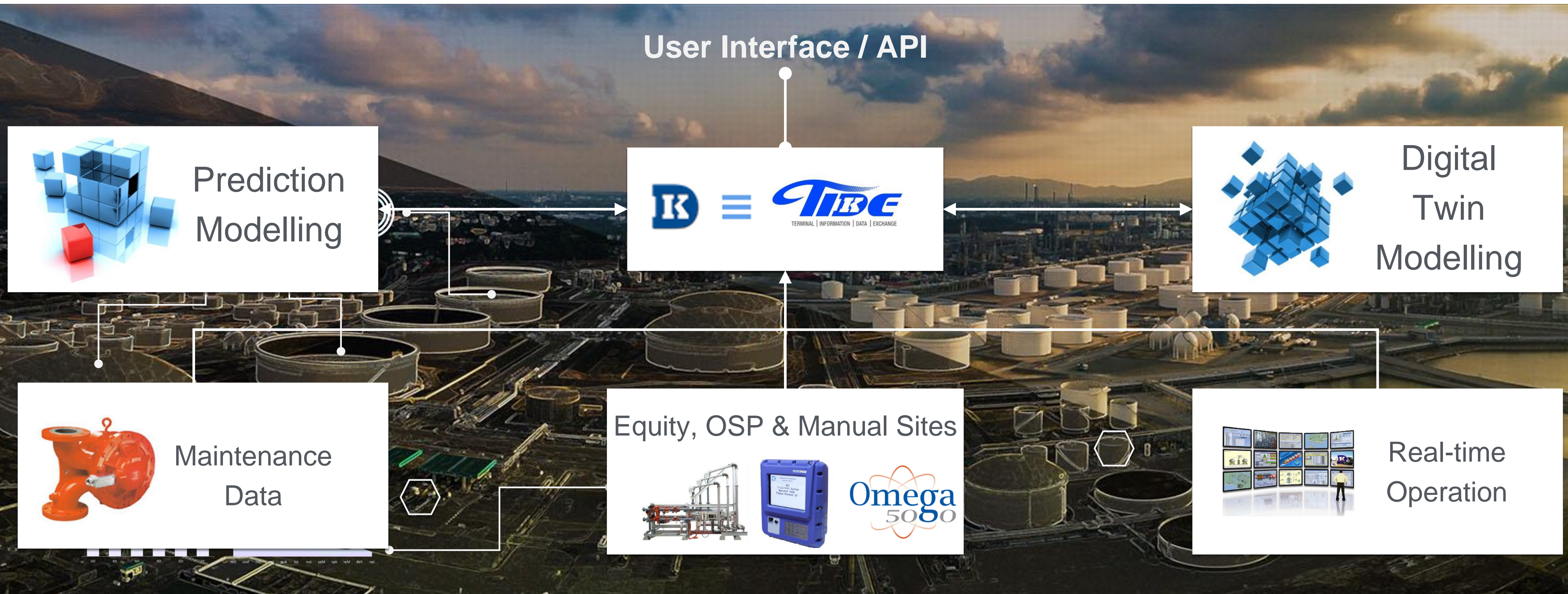
DKI's digital solutions are used by companies to improve the **visibility of business operations** in a way that helps to identify, develop and otherwise **create new strategic business opportunities** that support becoming the 'terminal of choice'.

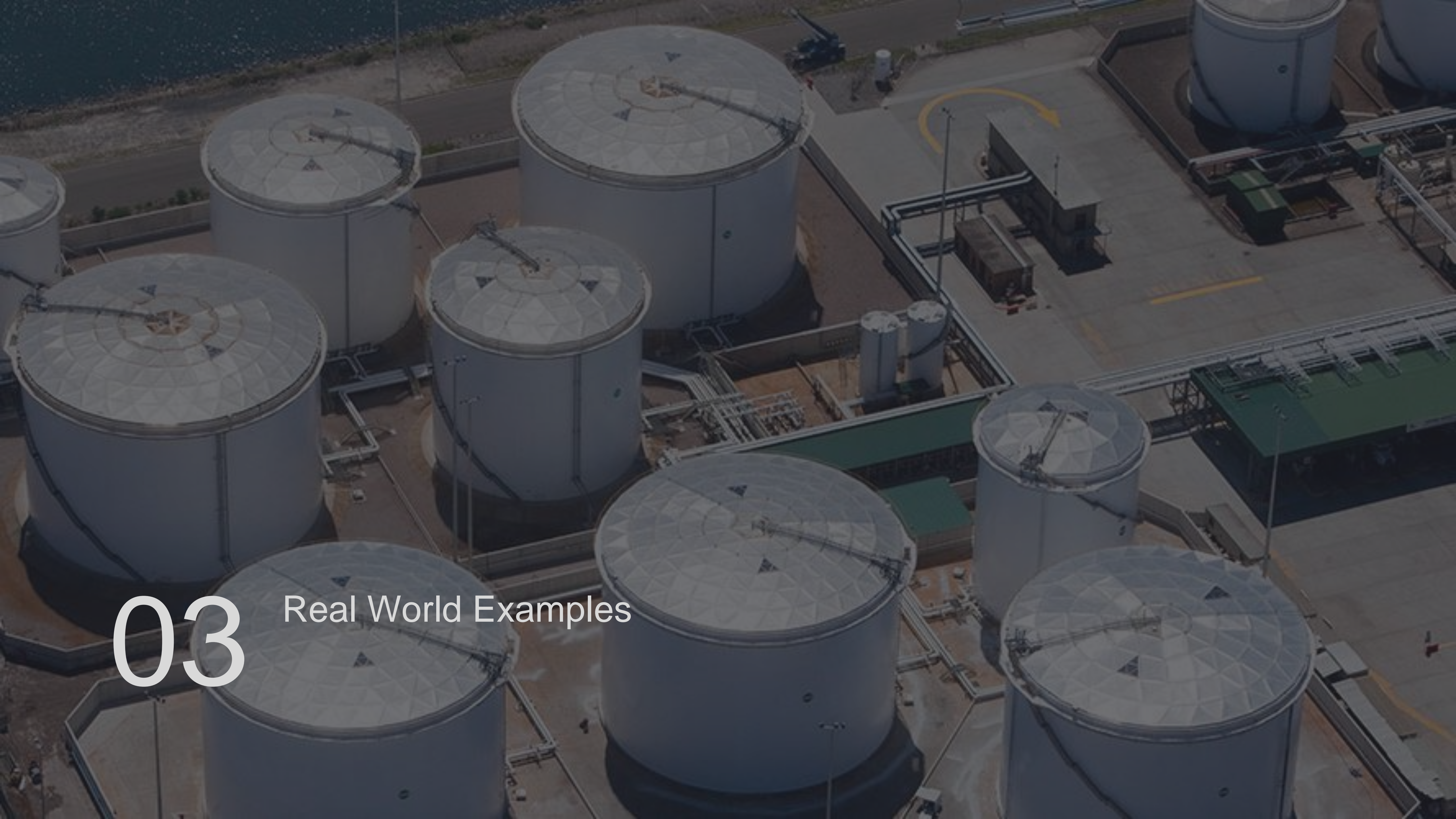
A key differentiator is that our approach allows us to make useful predictions about not only **systemic behaviour** but also **human behaviour** leading to significant improvements in **customer experience** through areas such as:

- **Safety Performance**
- **Asset Utilisation**
- **Operational Efficiency**
- **Stock Management**



Choosing the **Proven** Technology Giving the **Immediate** Benefits:

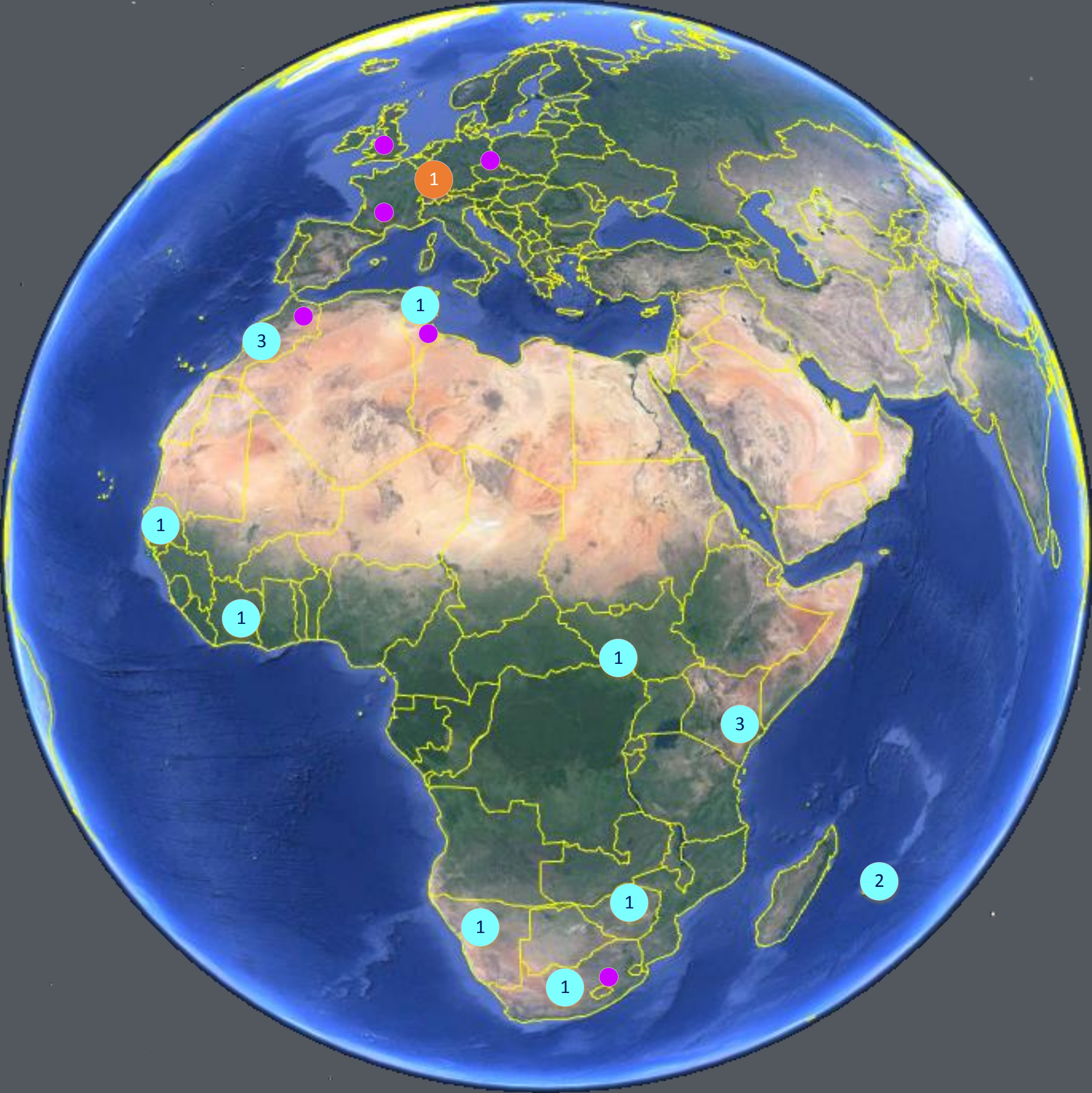




03

Real World Examples

How has DX transformed a major fuel distribution network (before)



Fuel Supplier Company

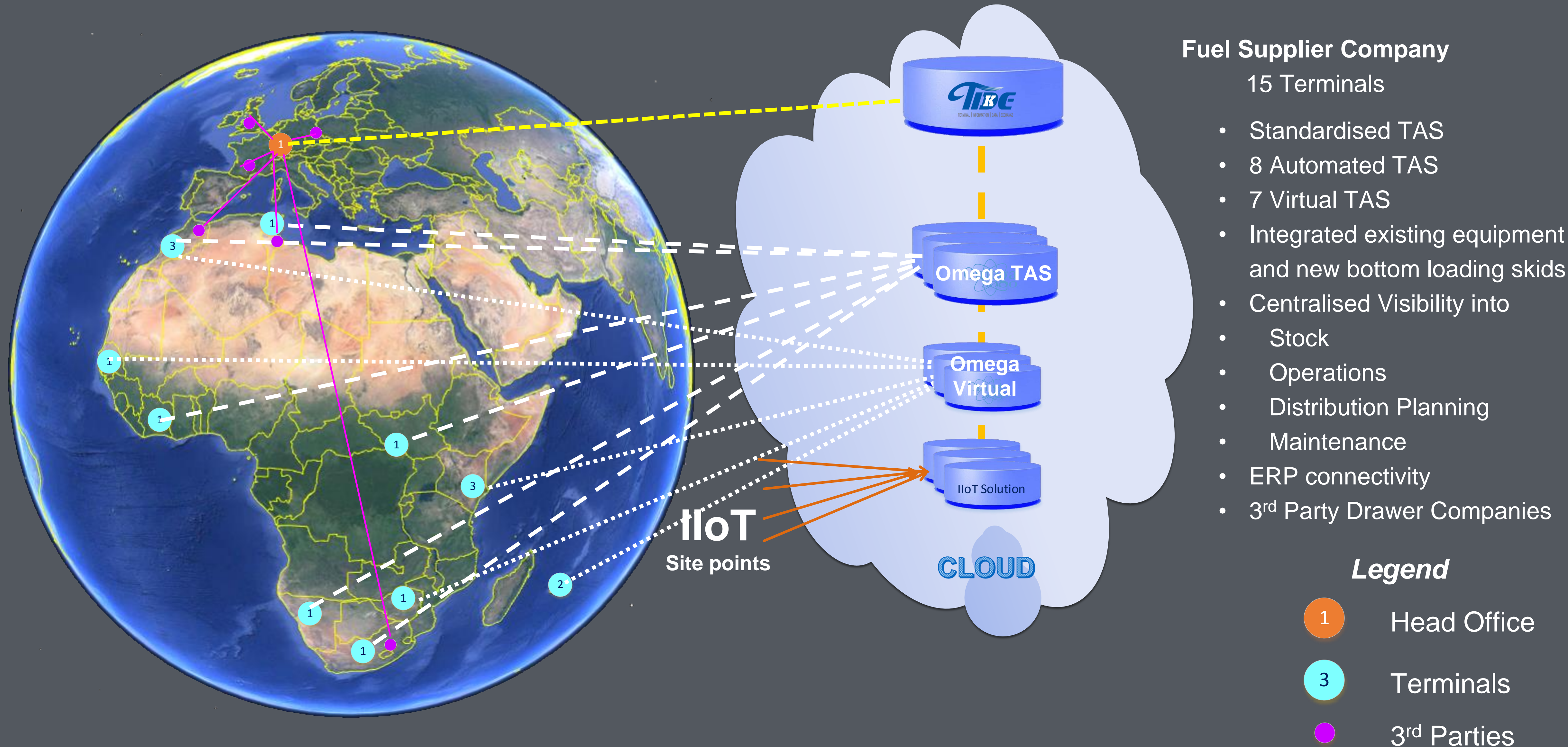
15 Terminals, 8 Automated, 7 Manual

- 4 discrete types of Automation
- Disjoint operations
- Obsolete equipment
- Non standard – local evolution
- Limited visibility into operations
- Manual Stock transparency

Legend

- 1 Head Office
- 3 Terminals
- 3rd Parties

How has DX transformed a major fuel distribution network (after):



How has **Digital Twin** helped to save CAPEX in a fast changing environment:

Analysis conducted at one client site **identified a USD 1.25mil CAPEX saving**. Results showed that queuing times would drop 25% by swapping a large CAPEX project with a smaller, targeted modification to existing infrastructure.



SAFETY

Machine Learning algorithms that cut through the alarm flooding and separate human and systemic trends



PRODUCTIVITY

Identified how to increase terminal efficiency 35% while keeping bay utilisation at relatively high at 45%



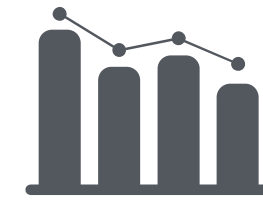
PROVE IDEAS

Verify improvement initiatives objectively, many of the best changes are counterintuitive.



CUSTOMER EXPERIENCE

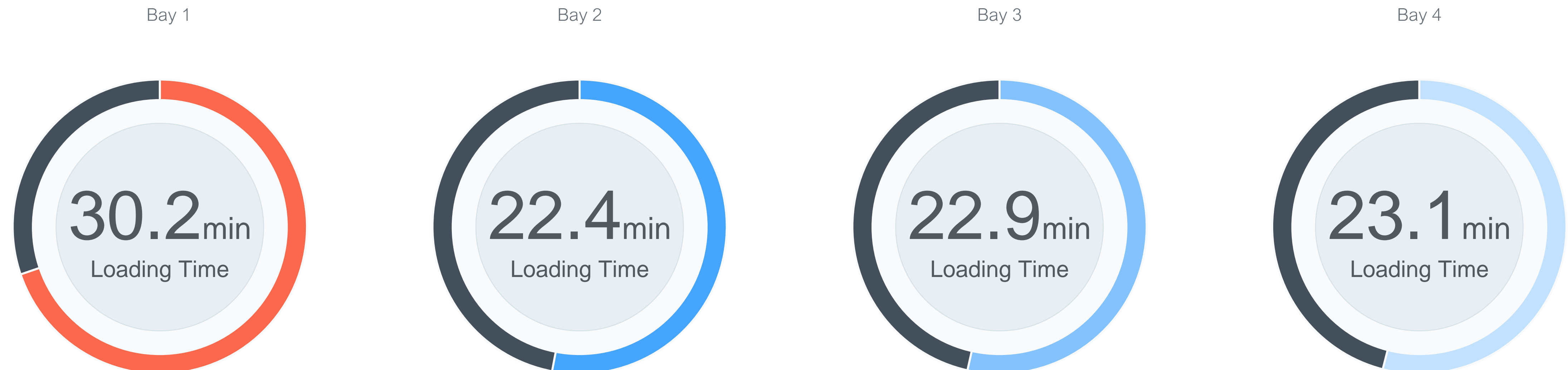
Reduced driver waiting times by 40% and loading times by 20% on average.

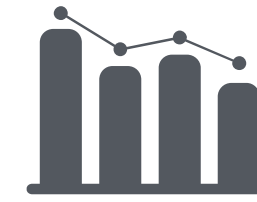


Linking CAPEX to Operation IMPACT using **Digital Twin** data to make best decision

Evaluating CAPEX investments should not just be financial viability – it is also about **operational impact**
It's possible for two different investment options to have the **same ROI but very different effects** on operations.

Consider the impact of adding an ethanol blend arm to a loading bay, roughly the same cost, very different results:





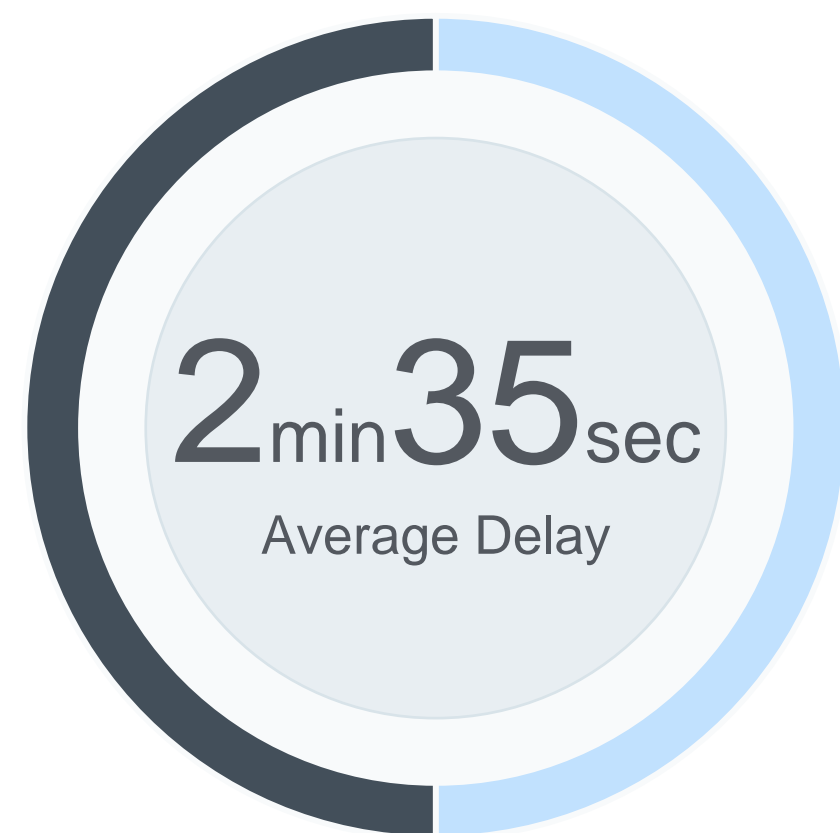
DX as the most effective tool to understand and deal with alarm flooding

Alarms – the slowdowns hidden in plain sight

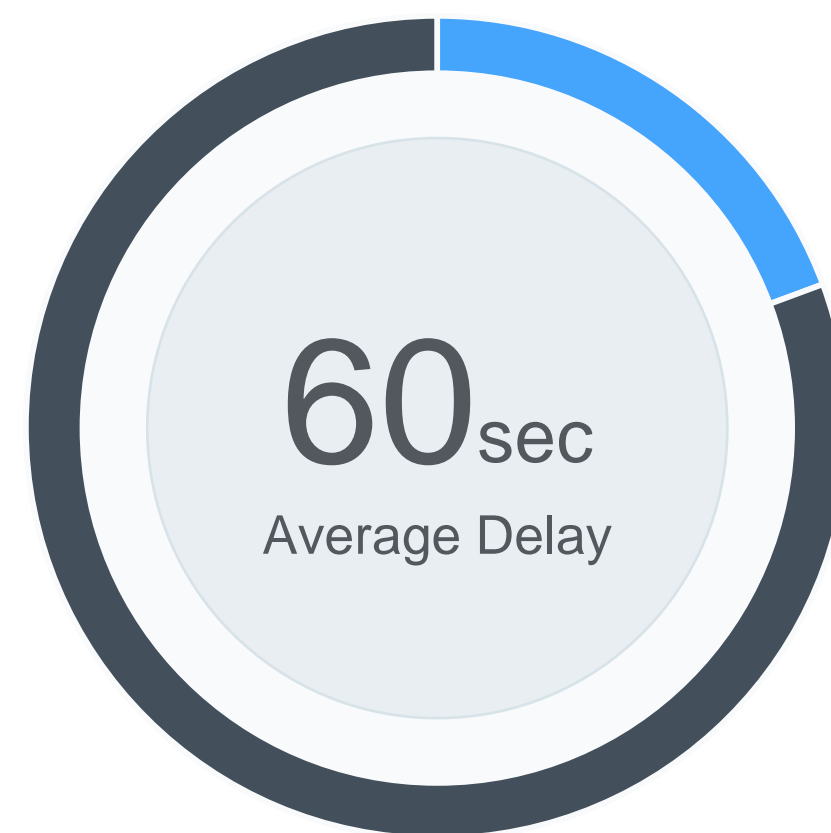
Alarms are a useful proxy for operating efficiency – more alarms typically indicate less efficient operations.

Loads that experience alarms are guaranteed to take longer to complete – many of the alarms are **avoidable slowdowns**

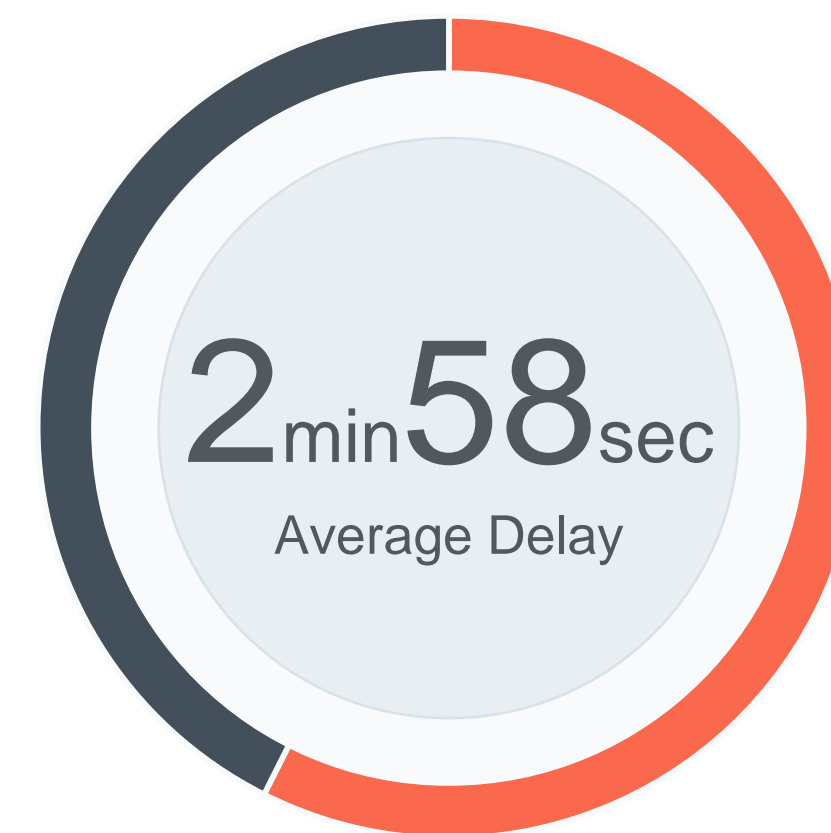
Industry Sample Average



Terminal A



Terminal B



Terminal C



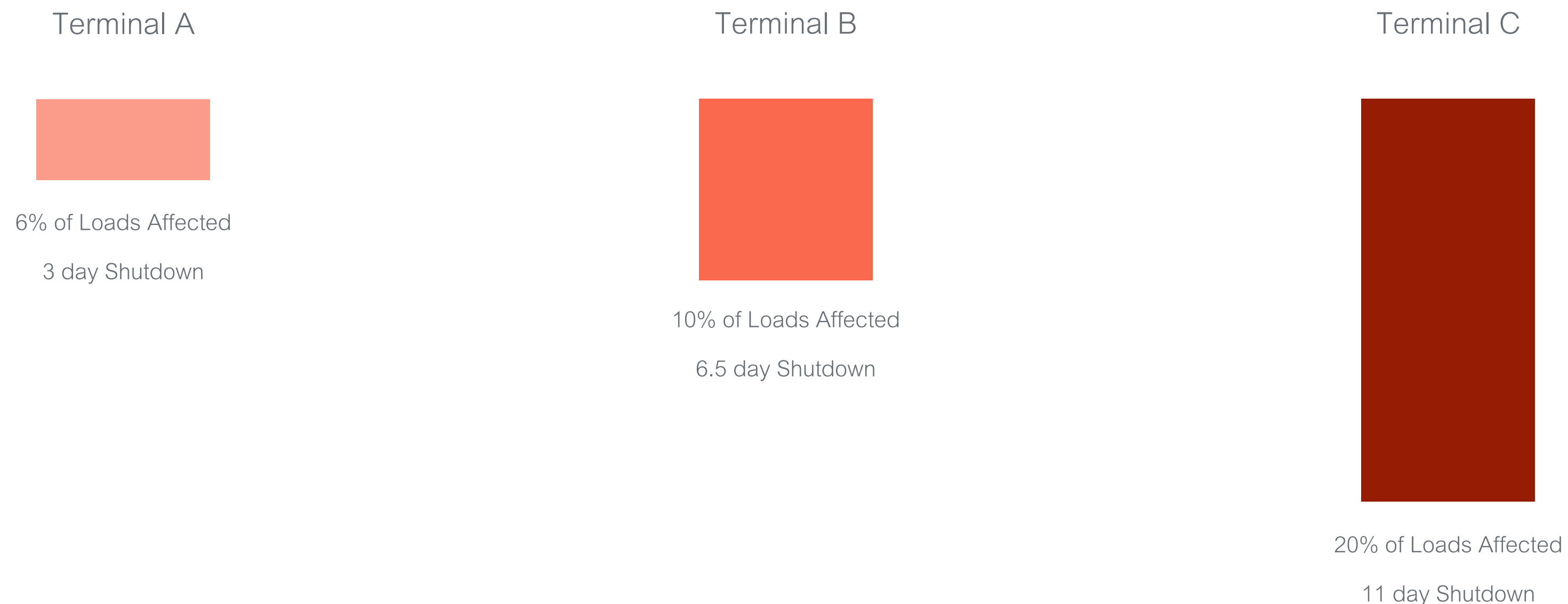


DX as the most effective tool to understand and deal with alarm flooding

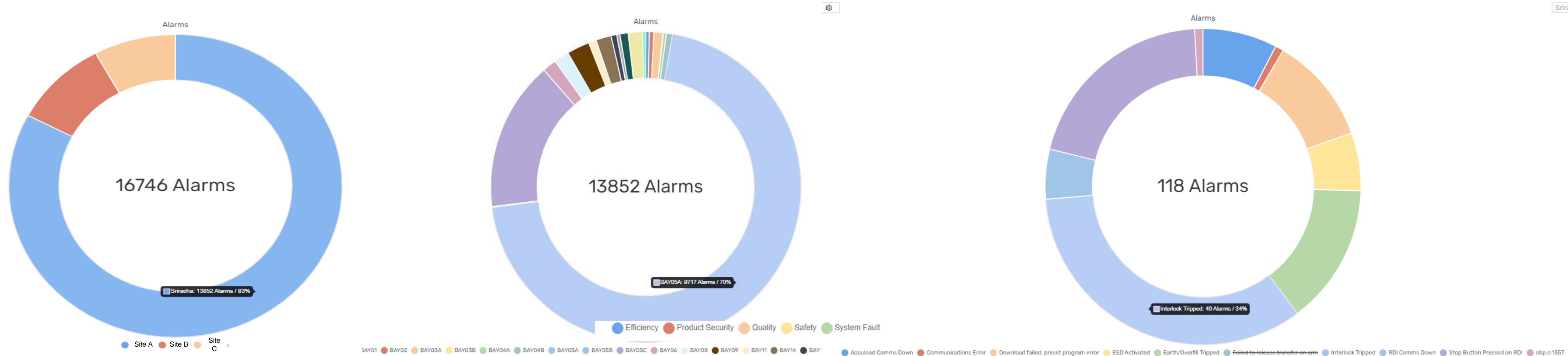
Death by a thousand cuts – each delay is small but adds up quickly

In the case of Terminal C, 20% of loads had at least one alarm which caused lost loading time **equivalent to 3.5% of annual throughput or 2,600 loads or a 11 day shutdown.**

Resolving these kind of issues not only makes the terminal **safer**, but also represents an **easy throughput gain** and better **customer experience**.



DKI TIDE as DX tool: three clicks to quickly identify the cause



Overview of all site alarms

Click 1 – Drill down to site details

Click 2 – Drill down to bay level

Click 3 – Drill down to cause and solution

Interlock Tripped

Cause
This alarm occurs when one or more of the Vapour, Earth & Overfill permissive interlocks is lost while product is flowing.

Solution
The majority of instances relate to poor continuity between the truck connector and the monitor cable. Ensuring that both truck connectors and the monitor cables are maintained correctly will help to minimise the instance of nuisance trips. If the alarm persists, check the Accuload and the rack monitor for details as to the cause of the trip and rectify accordingly.

OK

- Dashboard
- Overview
- Reports
- Analytics
- Historical**
- Predictive
- Listings
- Master Data
- Message Broker
- Backup
- Organisation
- User
- Admin
- Sign Out

TIDE / Historical Analytics

Filter by Customer and by Carrier

Historical Analytics Get Historical analytics to measure and analyze your terminal group.

08/10/2018 14:53 → 08/10/2020 14:53 Default

Alarm Summary Alarm Characteristics Alarm Delays **Alarm Correlations**

Filter Customers Filter Carriers

Interlock Trip Distribution By Tanker

$y = 0.2437x$

Good performers **Poor performers**

Tankers with the Highest Percentage of Interlock Trips

Set Min. Loads

Tanker ID	Percentage
TH701542	6400 %
TH858817	794.44 %
THSCC7802	600 %
TH714638	600 %
TH708418	600 %

Tankers with the Highest Amount of Loads with No Interlock Trips

Tanker ID	Number of Loads
LF95912S	762 Loads
LFSE 0628S3	713 Loads
LFSE 05850S	704 Loads
HKTR7505	693 Loads
HKTK2393	684 Loads

Each terminal is unique: load profiles, product growth and demand distributions.

Being the **'terminal of choice'** means that each terminal needs to be tailored to suit local conditions – **context specific customer experience**. To get ahead of your competitors you need to be able to **rapidly digitalize the exchange of loading data with your customers (PIDX as an example), and shift limited resources** to capitalize on the best opportunities.

- Visibility – how well are my terminals performing today ?
- Perspective – how do my terminals compare against each other and the broader industry ?
- Foresight – what should my priorities be today, to succeed tomorrow ?

Digital Transformation – turn historical, real-time, predicative data into actionable insights to improve safety, reduce operation costs, enhance efficiency and your customer experience



Think big



Act small



Deliver real

We are here for you

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