



Increase Efficiency and Visibility to Improve Your Entire Dock Operation





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Executive Summary

Today's supply chain is increasingly relying on digital technology as the world's economy continues to move at a faster pace. Also, the ongoing COVID-19 pandemic has certainly made its mark on the global supply chain with massive adjustments that will last well into the foreseeable future.

What's important now more than ever before — and central to the evolution of the digital supply chain — is the ability to collect data via smart interconnectivity. Such data can help to provide actionable insights, increase efficiencies, and allow companies to make more intelligent decisions regarding their entire dock operation.

The capability for dock operations to gather and access such critical data has never been more vital than it is today due to the explosive growth in e-commerce. Speed to and velocity through the dock are becoming paramount not only for new warehouse facilities but also for upgrading existing facilities to meet today's e-commerce standards.

From a manufacturer with just a handful of dock positions to a sprawling distribution center (DC) with hundreds of docks, gathering the right dock data at the right time is critical to an effective dock operation.

The days of tired, inefficient, and worn-out approaches that rely on manually tracking activity at the dock are quickly fading. Likewise, the inability to make informed decisions about dock operations due to the lack of proper visibility and having a firm understanding of where problems exist is no longer acceptable.

Fortunately, real-time access to and management of a variety of dock data and key performance indicators (KPIs) via a data-driven, cloud-based platform is now a reality. But it's important to point out that not all dock management systems are the same.

In this white paper, we'll examine the most nagging problems and challenges affecting today's dock operations — including long wait times for truckers at the dock — which unfortunately is an ongoing aggravation that's getting worse instead of improving. We then turn our attention to how implementing the right digital dock management system will help to eliminate such negative issues and turn trucks faster by providing full control over an entire dock operation via remote monitoring.

Also included in this white paper are several key terms and metrics to help you better understand digital dock operation and expected outcomes, as well as what you need to look for when considering investing in and implementing your digital dock management system.

Industry Problems and Challenges

Faced with today's ever-burgeoning increase in e-commerce, warehouse, and DC operations have no other choice than to improve their efficiency levels. That requires reaching the goal of turning more trucks faster at their facilities, all while eliminating wasted time and without taking any unnecessary safety risks with employees.

Also, the demand to increase the velocity of cargo going over the docks and out of a facility due to the growing pressures of same-day delivery is placing significant stress on the supply chain.

According to respondents surveyed for the *MHI Annual Industry Report (2020): Embracing the Digital Mindset – Connecting Data, Talent and Technology in Digital Supply Chains*, among the top six company challenges rated extremely or very challenging (surpassed only by hiring and retaining qualified workers at 56%) are:

- Customer demands for lower delivered costs/pricing (51%)
- Customer demands for faster response times (48%)
- Increasing competitive intensity/rising customer service expectations (47%)
- Forecasting (46%)
- Customer demands for more customized products and services (41%)

With such ongoing challenges in mind, even well-run facilities can't settle on the results of past performance. There's always going to be the need to increase efficiency while doing more with less, even as they strive toward optimizing the various principles of Lean Six Sigma.

What's so frustrating, however, is that no one seems to have a good handle on how to make that a reality.

Further complicating this dilemma is the existence of multiple functional groups within a facility. They, too, need to become more efficient with what they do daily.

Know where your improvements are needed

For dock operations, it's critically important to not only know where you are operationally but also to know what you need to improve on. If you have no intelligence telling you when trucks are arriving, how long it's taking to load them, and when the trucks are leaving, you're at a significant disadvantage.

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The shorter amount of time it takes you to load a trailer, and the more visibility you have about how long a trailer is going to take to load, become valuable data. Delays not only affect safety, but they also affect real dollars at the dock as well as operationally in terms of penalties.

You can always rely on a standard inventory type system and review of shipping records to determine how many trucks were serviced on any given day and how many orders went out. However, there is no insight about how your dock equipment is performing, how fast you're turning trucks, and the problems that arise during the process.

Being able to make informed decisions to make the entire facility team better is critical as long as you know where the problems lie.

The lack of visibility into these issues minimizes your ability to determine how to fix them. Being able to make informed decisions to make the entire facility team better is critical as long as you know where the problems lie.

For example, one problem you might face could entail a trailer sitting at a dock door for 45 minutes before anyone knows it's there to start unloading. Or, you may encounter inconsistencies when one team takes 40 minutes to load trailer A, while another team takes two hours loading the same items into trailer B. Trailer A then departs before anyone knows that its dock door is ready to accept another trailer so that then causes inefficient lag time that nobody's catching.

Three vitally important metrics

Four metrics are vitally important to any efficiently run dock operation:

- Knowing exactly when a truck arrives.
- The time between when a truck arrives and when loading or unloading starts.
- The time it takes to load or unload the truck until it's ready to leave.
- When a truck leaves the dock.

For small facilities (e.g., 10 dock positions or less), they face their own set of unique challenges. This is especially true for facilities in tightly constrained urban environments that don't also have the option to expand their footprint while experiencing a dramatic increase in business due to e-commerce. The company must either become more efficient or build a new facility to keep up with the increased business.

And if a 10 dock facility is handling 40 trucks per day, those trucks must be kept moving and turned quickly. You don't have any time to waste.



As for facilities with 25, 50, or even 100 or more dock positions, one person, let alone a handful of personnel, can't exactly lean out a window and know what's going on to make informed decisions.

Without access to visibility and data that can be potentially gathered at the dock, relying on radioing someone who's there to provide information or venturing out for a look yourself, are highly inefficient ways to monitor dock operation.

Demurrage an ever-present challenge

Another key industry problem that's only getting worse is demurrage (detention time) for truck drivers who are spending an increasing amount of time waiting at loading docks. Such delays not only cut into trucking company earnings and those of their drivers, but they can also contribute to increased costs that are passed on to the consumer.

According to the American Transportation Research Institute's 2019 report — *Driver Detention Impacts on Safety and Productivity* — drivers experienced more frequent pickup and delivery delays in 2018 compared with 2014.

On average, truck drivers spend 2-1/2 hours waiting to be loaded or unloaded, and 63% of truck drivers said they wait at least three hours every time they arrive at a shipping dock.

In fact, according to a 2018 U.S. Department of Transportation Office of Inspector General report, a 15-minute increase in average dwell time raises the expected crash rate for a truck by 6.2%.

In addition, waits of six hours or more jumped 27.4% in 2018 over the earlier survey. And truckers who said they were detained more than 71% of the time increased by nearly 40%. Contributing as well to increased wait times is the fact that trucks moved 15.3% more freight in 2018 (nearly 11.5 billion tons) compared to 2014, according to the American Trucking Associations.

Warehouses that aren't functioning properly to get shipments ready in time and lax about their dock operations — especially without any metrics on the loading and unloading operations time — will cause inefficiencies at their facility and throughout the entire supply chain.

Such delays have put added pressure on truck drivers who are limited to a set number of hours of driving time in any given workday. When they're delayed at one location, that may contribute to speeding or driving while tired to make up time.



In fact, according to a 2018 U.S. Department of Transportation Office of Inspector General report, a 15-minute increase in average dwell time raises the expected crash rate for a truck by 6.2%. Also, the DOT report states that driver detention is estimated to cost drivers and trucking companies more than \$1 billion annually in lost revenue.

With safety issues factored in, that affects real dollars at the dock and even facility operations with penalties.

As you can see, the industry's challenges and their negative impacts on the supply chain are long overdue for a sound solution. Fortunately, such a solution can be found within the advent of digital technology.

Companies simply need help with identifying how to apply digital technology to their unique dock environments. And because of that uniqueness among various dock operations, keep in mind that there is no one-size-fits-all approach to the industry's pressing issues.

The Answer: Digital Dock Management

You can't start to improve the efficiency and visibility of your facility's dock operation unless you know where you stand right now. You need to identify where your problems are so that you can start to apply the correct solutions that will tell you whether or not something's working or it's not working. You require immediate proof.

Going from having a lack of any visibility or data concerning your dock, which obviously at best leads to poor or even limited decision making, to being able to see everything that's going on to make proper decisions is a huge game-changer for any facility.

If you truly want to maximize efficiency and visibility at the dock, relying on clipboards with Excel spreadsheets, driving a golf cart up and down the dock while communicating with walkie-talkies, or even looking out windows to see where trucks are and where they're not, are no longer viable methods of managing dock operations.

Manual systems are fine at the start of the day. But by 10 am, they can quickly become useless because somebody arrived late, canceled, or showed up early. By mid-morning, your carefully planned schedule has disintegrated.

So, what's the answer? Welcome to the digital age of dock management.



The digital supply chain is here

When it comes to the supply chain in general, 80% of survey respondents who participated in the *MHI Annual Industry Report (2020): Embracing the Digital Mindset – Connecting Data, Talent and Technology in Digital Supply Chains* believe that the digital supply chain will be the predominant supply chain model within the next five years. The other remaining 20% of respondents believe that the digital supply chain is already the predominant model.

Additional insights from the MHI report include:

“Data is at the center of supply chain digital transformation — collection, connectivity, and interpretation of data into actionable insights. For organizations, data-driven decision-making is essential to digital adoption and meaningful customer engagement.”

“Companies that embrace a digital mindset can open the door to greater performance and success by leveraging the latest digital technologies to inspire and drive experimentation, ingenuity and innovation.”

In addition, according to Thomas Boykin, Deloitte Consulting LLP, as quoted in the MHI report:

“Data is the life’s blood of the emerging digital supply chain. Companies that recognize the value of this data and engineer approaches to collect, filter and synthesize it into customer and market insights will flourish. Those who do not will drown in the wave of exponential data proliferation.”

Best-in-class digital dock management approach

When evaluating a digital dock management system for your warehouse or DC dock operation, regardless of size and scope, your best option is one that’s driven to provide you real-time access and management to a variety of dock data and KPI’s. It will also allow you to connect your equipment via the cloud.

Your digital dock management system should also grant you the ability to fully monitor your entire dock operation while helping you increase both efficiency and safety. The same applies whether you operate a retail, high-volume distribution and warehousing dock operation or a food & beverage, cold storage or industrial facility.

Dock equipment that’s interconnected into a system transforms a traditional dock operation into one that is truly “smart.” And what’s most important, is the ability to rely on a platform that’s a fully self-enclosed program that does not interact with any existing network or IT infrastructure nor require IT team assistance.



That means there's no need for a hard-wired design set up or a system that goes through your WiFi network. From a cybersecurity standpoint, your digital dock management system provider should not need to install any kind of platform within your network that could potentially cause future problems.

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With a best-in-class digital dock management system, your warehouse and DC personnel will be able to:

- Monitor physical processes and make intelligent data-based decisions.
- Transmit equipment operational information for remote management.
- Receive condition-based maintenance alerts to minimize downtime during repairs, improve product staging, and shipping monitoring.
- Better manage operational costs as well as eliminate waste and unnecessary work by identifying monitoring lags in turnaround time.

Combined, these benefits translate into a more robust, efficient, and managed shipping operation.

At the heart of such a digitally advanced product is a digital master control panel that serves as the dock data collection point for equipment status and operation. With an intuitive touch screen, the stand-alone digital master control panel provides personnel with important dock equipment data. And with the right technology in place, it will also continuously beam dock equipment status and operations data directly to a dashboard which can be conveniently viewed on any connected mobile device or computer with Internet access.

Expected outcomes

A best-in-class digital dock management system will enable you to manage operational costs better as well as eliminate waste and unnecessary work by identifying monitoring lags in turnaround time. The opportunity for trucking companies to become a preferred customer with preferred rates, better scheduling, and better access to freight is a huge benefit for everyone concerned.

Also, being able to reduce the number of material handling workers and lower the cost of employment — all while increasing efficiency — will make your operation that much more competitive in the long-run.

Glossary of Key Terms and Metrics

Because digital dock management is so new to the industry, the following glossary will help you to gain a better understanding of all that a best-in-class system has to offer along with the key terminology and metrics associated with digital dock management.

Term or Metric	Definition
TPS	Trailer Presence Sensor
Property Wait Time	Time in queue to get onto property until entering property
Yard Post Load Time	Time from released from dock until exiting property
Load Time	Restraint Engage until Restraint Release
Truck Turn Time	TPS on – TPS off
Arrived vs. Scheduled	Shipment arrived on time, late, or early based on their scheduled appointment
Yard Pre-Load Time	Time from check-in until at dock
Prep Time	Time from TPS on until Restraint Engage
Remove Time	Time from Restraint Release until TPS off
Empty Time	Time from TPS off until TPS on
Dock Utilization	The percent of time the restraint is engaged
Dock Space Utilization	The percent of time the TPS sensor is on
Dock Time Escalation	The dock position was occupied longer than the entered set point
Load Time Escalation	The restraint was engaged longer than the entered set point
Escalation Dock Total	The total number of dock time escalation events
Escalation Load Total	The total number of load time escalation events
Prep Time Escalation	The prep time is greater than the set point
Remove Time Escalation	The remove time is greater than the set point
Empty Time Escalation	The empty time is greater than the set point
Escalation Prep	The number of times the prep time for the dock was empty longer than the user entered set point
Escalation Empty	The number of times the dock was empty longer than the user entered set point
Escalation Remove	The number of times the remove time was longer than the user entered set point
Override Total	Total number of overrides per dock
Cycle Counts	Total number of equipment cycles per dock as reported by the PLC
Dock Downtime	The amount of time that a dock was out of service or in maintenance mode; available per dock/group at the site



Term or Metric	Definition
Docks vs. PM Count	Report docks within a user entered number of their Preventative Maintenance (PM) levels; any dock position past the set PM number will be included in this list; available per group, site, and tenant
Trailer Present Off / Door Open	No trailer at a dock and the door is open
Dwell Time	Time from entering property to exiting property
Departed	Officially released from the property (Guard Booth, Gateway Checkout, Dock Release)
Arrived	Officially arrived onto the property (Guard Booth, Gateway Check-in, Dock Restraint)
Turn Away	Equipment has been rejected from a property
No Touch Access	Allows check-in and out of a property without getting out their cab/trailer/vehicle and minimizing interaction with property personnel

What to Look For in a Digital Dock Management System

Following is a “mini buyer’s guide” to ensure that you’re aware of some of the key components you need as part of a best-in-class digital dock management system:

Real-time monitoring of dock equipment

To ensure the highest degree of visibility with your digital dock management system, it should provide the status of total time at the dock (restraint-based), alarm condition, individual dock views with detailed equipment information, override request/authorization, remote notification and/or authorization along with proper security to manage how docks can be operated and who can operate them.

Visibility into overall dock equipment operation

The digital dock management system should be able to provide the following standard reports, such as Load Time (time between restraint engage and restraint release), Dock Utilization (percent of time restraint is engaged), Cycle Counts (number of cycles of each piece of equipment per dock position), and Override Time (timestamp when a dock position goes into override).

Real-time alerts via email

Email alerts are a vital communication component of your digital dock management system and should provide alerts based on conditions such as restraint errors, restraint override, restraint engage, and restraint release.

Actionable data for planning and analysis

A dashboard lets managers view current and weekly data and generate reports to identify patterns and problems.



Summary

In the “connected warehouse”, machines, technology, and people communicate, share data, and take action based on that information. This trend is well underway as we witness the accelerating adoption of robotics sensors, and remote diagnostics for everything from forklifts to order picking.

Unfortunately, one critical area has not yet joined the connected warehouse “party”, so to speak: the loading dock. At least not until recently. Managing dock operations has largely relied on observation and informal reporting — and yes, even sometimes blind faith that everything’s working as it’s supposed to when it’s supposed to.

In this white paper, we’ve addressed a few of the most pressing challenges facing warehouse and DC dock operations including the need for increased speed and efficiency, the lack of proper visibility as well as the impacts on productivity and safety stemming from the nagging issue of driver detention.

Fortunately, there’s an answer to all of these pressing issues, and that’s digital dock management. By carefully evaluating what the market has to offer to help your dock operation become connected, you’ll eventually experience a level of operational efficiency and visibility that you’ve never witnessed before.

To learn more about digital dock management, as well as which approaches and solutions are best suited for your logistics operation or warehouse, send an email to info@4sightsolution.net, or place a direct call to **866-691-1377**. You can also find out more at www.4sightsolution.com/dock-management.



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About 4SIGHT™

4SIGHT is an advanced software system that solves logistical challenges from the guard gate to the loading dock. 4SIGHT can also manage the doors and assets inside your warehouse. 4SIGHT combines the loading dock, the yard, and the warehouse into one comprehensive unit, providing managers with the visibility, reporting metrics, and productivity tools they need to increase efficiency and profitability. 4SIGHT is comprised of a module-based system that makes it easy to choose the solutions you need to solve your operation's particular challenges, and 4SIGHT modules can be integrated with your existing business systems. 4SIGHT is part of the ASSA ABLOY Entrance Systems portfolio of products, which brings even more well-known door and entrance control brands and experience. ASSA ABLOY Entrance Systems, based in Stockholm, Sweden, also expands our already extensive global presence and provides a larger platform of solutions to customers worldwide.

Backed by Decades of In-Depth Expertise

4SIGHT Connect — including 4SIGHT Connect Digital Dock — are the latest advancements from 4SIGHT Logistics Solution, a company that evolved from more than 60 years of loading dock equipment experience and innovation that has made a profound impact on improving safety and operational efficiency.

Customers concerned about their unique roadblocks and logistics challenges with no efficient way of resolving them expressed interest in utilizing the technology already available in their loading dock equipment to improve the productivity of their operations. As a result, 4SIGHT Logistics Solution was born by leveraging that experience into an operationally-based approach to assist facilities in optimizing their yard, loading dock, and warehouse logistics through real-time, automatic visibility and productivity tools.