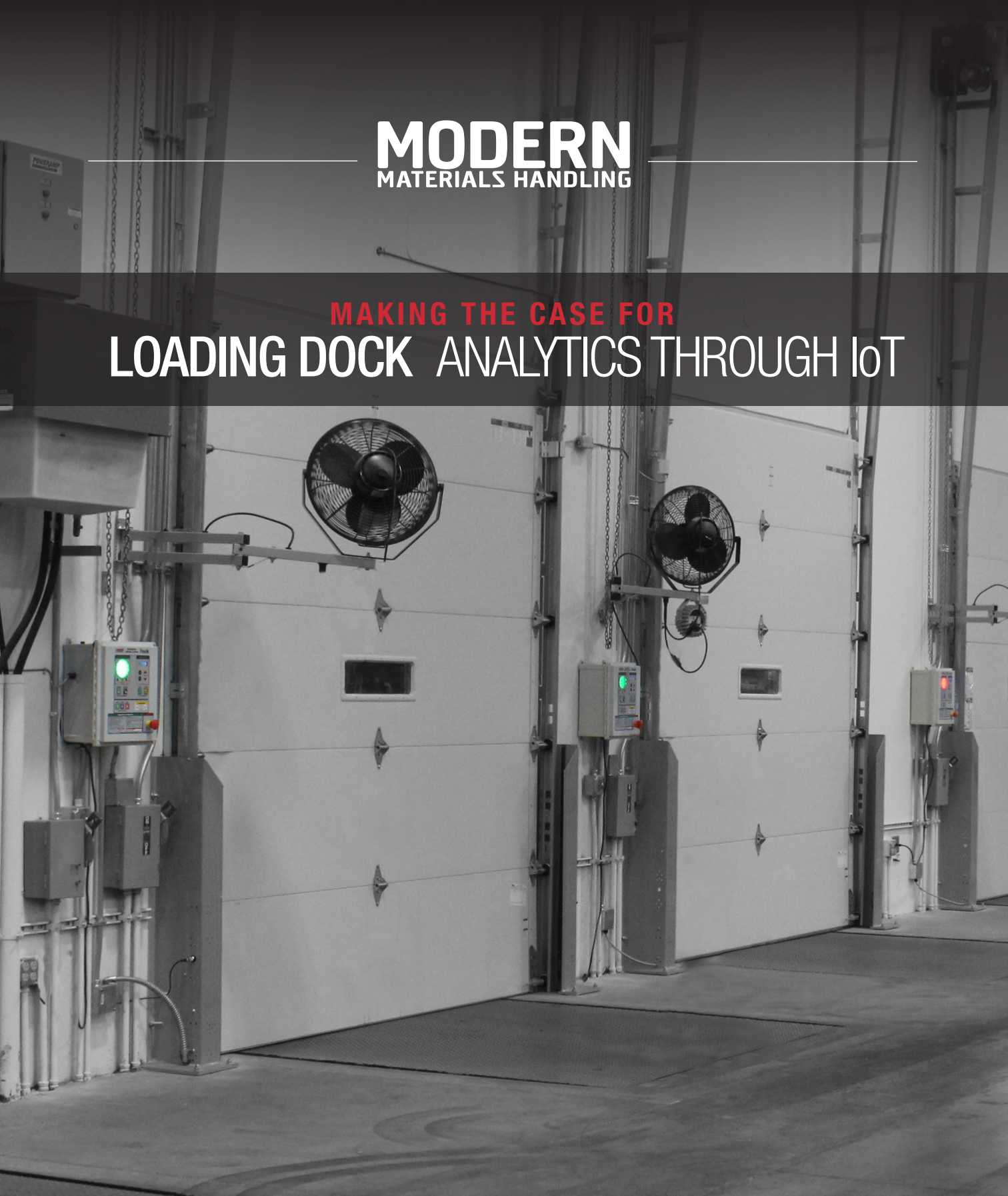
MODERN
MATERIALS HANDLING

MAKING THE CASE FOR

LOADING DOCK ANALYTICS THROUGH IoT



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LACK OF **LOADING DOCK VISIBILITY** HARMS OPERATIONAL EFFICIENCY

It's time to close the information gap between loading docks and facility operations.

WAREHOUSES AND DISTRIBUTION CENTERS (DC) have tapped technology to closely monitor, analyze and adjust operations within the four walls. They have warehouse management system (WMS) solutions to control inventory and order fulfillment workflows, as well as warehouse control software to orchestrate the running of automation like conveyors and sorters.

With such systems in place, DC managers know when material flow gets disrupted, or inefficiencies begin to creep in with either labor or equipment. But this leveraging of advanced technology tends to stop at the dock door, where despite some advances in the equipment over the decades, many facilities are still hampered by a lack of visibility into dock activity, according to Mike Pilgrim, president of Systems LLC, a provider of dock equipment and solutions.

"Dock equipment has gotten more advanced through features like hydraulics, better controllers, and safety interlocking, but in terms of being able to monitor activity and leverage analytics, docks have been skipped over until very recently," says Pilgrim. "There has been this gap in terms of information access when it comes to the dock area of facilities. It's a gap that needs to be filled to make sure the entire operation is as productive, as safe, and as cost efficient as possible."

Systems provides equipment including dock levelers, truck restraints, dock seals and more. Recent advancements from the company include an integrated control panel called iDock Controls, and now, cloud-based software called iDock Connect that monitors current activity, provides analytics and reports, and generates notifications. These functions go well beyond the lights on control panels that might be useful for operators right at the point of work, but aren't typically accessible to other roles and managers in a company including top executives, operations leader, safety directors, and maintenance managers.

"Dock equipment has gotten more advanced through features like hydraulics, better controllers, and safety interlocking, but in terms of being able to monitor activity and leverage analytics, docks have been skipped over until very recently."

— *Mike Pilgrim, president, Systems LLC*

Essentially, companies need to move visibility of dock activity into the future by applying more connectivity and analytics over their dock assets, explains Brett Lindstrom, marketing and communications director for Systems.

"You could be the most efficient facility out there in terms of using software to run your operations like order picking or packaging inside of a facility, but once goods get to your loading dock, the leveraging of advanced software and technology tends to stop right there," says Lindstrom. "Today, we live in a world of data. To find efficiencies, you need data-driven insights, and that is what we are trying to provide to companies when it comes to management of loading dock activities."

According to the "2018 MHI Annual Industry Report," which

included a survey of more than 1,100 supply chain industry managers, customer demands on the supply chain, and hiring qualified workers, were seen as the top two challenges for being "extremely" or "very challenging." While there are many systems that can potentially help with these pressing challenges, having data-driven insights into dock operations can help avoid bottlenecks as goods come into or leave distribution points and avoid wasted labor time.

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The type of dock activities and conditions that have tended to lack visibility include:

- Are trucks present and waiting at a dock position, but there is no unloading or loading activity taking place?
- Are dock doors being left open unnecessarily?
- Are truck restraints being used?
- How often is each dock being used, and is there balanced utilization of a facility's loading docks?
- Are any pieces of equipment past due on scheduled maintenance, or close to being due?

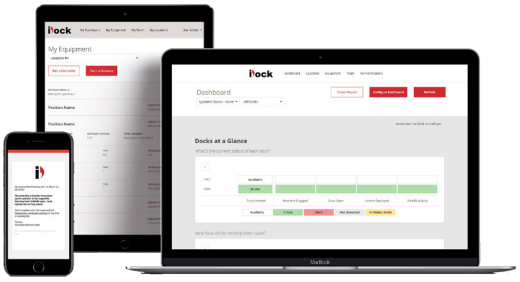
"Today more than ever, time is money," notes Pilgrim. "Managers realize that inefficiencies like trucks being present but not being attended to results in wasted time, which equates to wasted money. If a truck is just sitting there with no activity, you want to know about it. Beyond that, you want to be able to balance the utilization of all your docks, and have solid information so that you know when and if there is a need to expand. You gain a lot by having access to dock activity information."

Recent advances in sensors, Internet gateways, and Cloud infrastructure have made it possible to enable dock activity visibility and analytics under an Internet of Things (IoT) approach. IoT-connected sensors and smart equipment controllers are able to convey real-time data on the operation of physical things (e.g. a forklift crossing a dock door entrance; a truck restraint engaging a trailer's rear impact guard) to Cloud-based software where analytics and alerting take place.

MHI's 2018 study found that adoption of IoT in supply chains is currently at 22%, but is expected to reach 50% in two years, growing to 79% in five years. Enabling supply chain analytics is seen as the top use case for IoT, the study also found.

> "The real opportunity is when dock visibility, analytics and alerting capability is opened up to the two-dock facilities, not just the big companies."
>
> — *Jeff Schulze, VP of national sales, Systems LLC*

When vendors can streamline and simplify IoT by adding sensors to their equipment, and coming up with pre-built, Cloud-based analytics and trending software, IoT visibility over dock activity becomes something even small sites can use, explains Jeff Schulze, VP of National Sales for Systems. "Dock monitoring has been around, but it's been something reserved for larger enterprises and big sites who can take on an expensive project," says Schulze. "The real opportunity is when dock visibility, analytics and alerting capability is opened up to the two-dock facilities, not just the big companies."



BRINGING DOCK **VISIBILITY AND ANALYTICS** INTO THE 21ST CENTURY

WHAT IF BOTH CURRENT DOCK ACTIVITY AND ANALYTICS into the most pressing trends in areas like loading and unloading efficiencies, dock safety, and maintenance were something that you could view from the screen of a smart phone or tablet? What if costly negative events like doors being unnecessarily left open or a door or a truck restraint being pried open after hours could be sensed and responded to as they take place?

The reality is that these capabilities are available today, and not just as the result of some Big Data project for a Fortune 500 company, but engrained within standard dock equipment, proven sensors, and subscription-based Cloud software, explains Mike Pilgrim, president of Systems LLC, which offers dock equipment and solutions under its McGuire, Poweramp, and DLM brands.

Specifically, Systems' iDock Controls supports the data connectivity needed, while its new iDock Connect software delivers Cloud-based dock activity trending and analytics. "Being able to capture data from everyday dock operations and view it as part of productivity enhancing set of dashboards is a reality today with this solution set," says Pilgrim. "Additionally, it's not just sending you a bunch of data to sift through—it's giving you specific dashboards for crucial disciplines, and it's scalable even for smaller, two- or three-dock operations."

The Cloud-based iDock Connect builds on iDock Controls, an advanced control panel and operator interface that Systems introduced in 2018. Featuring three-light communication and equipment interlocking, iDock Controls also gathers data including cycle counts and fault code data.

Sensors within equipment such as restraints detect whether equipment is engaged or in bypass, and other optional sensors such as a truck presence sensor (located just above a dock door position) or a forklift truck activity sensor (positioned by each dock door to detect the passing of forklifts) generate data on the coming and going of vehicles. These sensors feed data to iDock Controls, and from the control panels a data gateway called iDock Gateway transmits the sensor data to the Cloud. Up to six iDock Controllers can connect to one gateway to transmit data.

Once data is in the Cloud, iDock Connect is a subscription-based software solution that presents users with dashboards, analytics, and text or e-mail notification capabilities. The power of iDock Connect comes from accurate activity monitoring based on sensor data, and its easy-to-use reports and dashboards.

"This solution offers analytics and trending based on actual dock activity as captured by sensors," explains Brett Lindstrom, marketing and communications director for Systems. "When a user of iDock Connect is looking at a report on dock efficiency, that is based on actual activity. You can see all the trucks you've serviced for a given period time, and anytime there is an interval of no activity based on forklift sensor data, iDock Connect starts tracking that as inefficient time."

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For the users, the trending and analytics are presented as dashboard widgets with color enhanced bar charts, line graphs, or status displays. There's no need to manipulate raw data because iDock Connect's pre-built charts are aimed at specific types of information needed by key stakeholders.

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— Brett Lindstrom, marketing and communications director, Systems LLC

For example, a line graph lets operations managers see the percentage of trucks that are being unloaded/loaded efficiently. An activity "heat map" lets users see which days and hours of the day docks are at their busiest on average, which would be useful to a DC manager scheduling arrival times with carriers, or to a maintenance manager looking for the least disruptive time to perform work.

"In today's connected world, you're not limited to sending data to just one person, you can disseminate analytics and alerts that are aimed at multiple, key disciplines involved in dock operations, and they can view the specific information they need," says Pilgrim.

In developing iDock Connect, close attention was given to providing visual, easily consumed views of specific types of information. For example, one analytics page allows users to quickly see the total amount of time any dock doors are unnecessarily left open. This type of report would be useful to a director of operations at a cold storage facility or company president concerned about issues like energy waste, or increased risk of theft. Another report allows safety mangers or site operations directors to view the percentage of trucks safely restrained.

Under a Software-as-a-Service (SaaS) model, iDock Connect doesn't involve information technology infrastructure. With a simple subscription fee and selection of reports, alerts, and sensor options that might be useful, companies can start benefitting from iDock Connect. The solution will work with Systems' three brands of equipment which leverage iDock Controls, and it's also possible to configure a solution with some other brands of dock equipment by using a version of iDock Controls that functions as a smart light communications package.

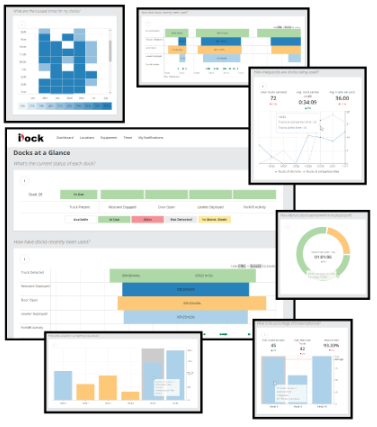
At a relatively small site, an attractive option would be to add a truck presence sensor to feed real time arrival/departure data to the controller, and from there to iDock Connect's alerting function. In this manner, one person working multiple roles at a small warehouse could be in an office doing work, or perhaps moving pallets in the facility, and be instantly notified when a truck backs into position at a dock.

Text and e-mail alerts are a useful part of iDock Connect, and again, are useful to specific disciplines in an operation. The maintenance manager, for example, could receive an alert every time a piece of dock equipment goes "past due" on a planned maintenance event. Or, if a dock door opens after hours, the site's security staff could receive alerts.

"The benefits of iDock Connect are as varied as the range of role-based objectives in an organization with dock operations," explains Lindstrom. Dock loading/unloading efficiency, safe use of dock equipment, streamlined and timely maintenance, tighter security, and protecting against loss of energy from doors left open, are among the benefits of iDock Connect.

"Different roles are going to gravitate toward using certain widgets, and some may be useful to multiple roles," Lindstrom says. "You might be a VP of operations sitting in an office monitoring weekly loading/unloading efficiencies, but you may also have a loading dock manager standing right there on the docks holding a tablet and pulling up the same activity. Because they are built using a Responsive Web design, they'll display nicely on most any device."

Visual, preformatted reports are aimed at pinpointing specific potential problem areas so that managers can find remedies. If a site



has 50 docks, and a couple are showing the truck restraints are being put into bypass, that trend is easy to spot and investigate.

The same holds true for analytics on inefficient loading/unloading sessions, or average loading/unloading times. Managers can see the overall trend, and then see which docks the issues are occurring at the most. "These are well formatted, visual reports that point to a course of action around the objectives of key disciplines—you're not just connecting to a bunch of raw data," says Pilgrim.

HOW iDOCK CONNECT CAN **DRIVE SAVINGS** AT A FOOD INDUSTRY DC

THE BENEFITS OF DOCK ACTIVITY MONITORING AND ANALYTICS are possible today for warehouses of many sizes, from small facilities to major regional distribution centers (DCs). However, for a larger DC with dozens of docks and cold storage, the benefits of moving dock visibility into the 21st century really stand out.

For example, at a large DC for a food distributor, rollout of iDock Controls and iDock Connect could bring a range of payoffs, including reducing incidents of doors being left open unnecessarily, which leads to rapid energy loss in a refrigerated warehouse. If the site had 75 docks and all of them were connected, either through upgrading to new equipment that comes with iDock Controls, or the addition of iDock Controls for some existing compatible equipment, the solution could include:

- *Sensors and smart controllers are the foundation for capturing dock activity data, cycle counts and other data such as fault codes or fluid levels. With optional forklift truck activity sensors placed at each dock door opening, as well as truck presence sensors above the exterior of each dock door, iDock Connect can present information and alerts on loading efficiencies and the full range of activity including exactly when trucks arrive and leave each position.*

- *Gateway devices from Systems relay sensor data from six different controllers via WIFI to the site's Internet connection so that activity data can be fed up to the Cloud for trending and analysis via iDock Connect. As a SaaS solution, there's simple subscription pricing for the software, with the purchased sensors, controllers and gateways from Systems being all that's needed to capture the data. There is no software to implement—just secure log-ons to establish for the users so that they can access the trending, analytics widgets, and alerts they want to use anytime, anywhere on their devices of choice.*

- *As a complete implementation of iDock Connect with sensors to capture all key dock activity data, the full range of trending and analytics would be available, including analytics for truck loading and unloading efficiencies, monitoring of the total number of trucks serviced, and average load times. (A small site with two docks could have a pared down solution with a couple of controllers and truck presence sensors.)*

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ALERTING & ANALYTICS IMPROVE UPTIME AT SYSTEMS' OWN DOCKS

Unlike some technology companies, as a provider of dock equipment solutions, Systems LLC also makes and ships physical things. That means it has dock operations both to receive raw materials for manufacturing, and ship finished goods out to dealers. That presented Systems with an ideal opportunity to test out its new iDock Connect dock activity analytics and alerting solution internally.

According to Steve Miller, Systems' senior VP of operations, the iDock Connect software and support iDock Controls have been in use for several months at a Systems facility in Wisconsin, which has four dock positions, as well as a 10-dock operation in Arkansas. The solution also has been beta tested by customers, but Miller says that the internal use has proven the value of having connected docks, Cloud analytics, and alerts.

The iDock Connect solution allows Miller and other operations and maintenance managers to monitor real-time activities including truck arrivals at dock positions, forklift truck movements at door positions, and issues like equipment fault codes, equipment cycles, oil levels in hydraulic equipment, and maintenance events coming due.

The data comes from sensors integrated with the equipment and at dock positions, fed to the iDock Connect analytics and alerting. The software generates text or email alerts around conditions such as truck restraints being put in bypass, or fault codes on equipment.

"We've found that the maintenance aspects of iDock Connect to be the most useful in our facilities," says Miller. "When we do have a fault code that will not allow the equipment to work, I get a text message, and so does the maintenance manager, informing us what the specific issue is, like a loss of power. That allows us to get there very quickly already knowing what the issue is."

The iDock Connect dashboards on loading/unloading efficiencies and real-time alerts based on truck presence sensors also helps staff ensure rapid turnaround of trucks. As a manger, Miller says he will view the analytics to see how well-balanced dock utilization is and adjust if needed.

"The information and alerting really helps operations managers, supervisors and maintenance managers stay on top of issues with dock operations and be highly responsive to events," Miller says. "I can be hundreds of miles away from one of our facilities, and closely monitor activity like how many trucks are getting loaded and unloaded every day, and the efficiency level for that activity. It's proven to be a powerful tool for us because its based on real-time information on activities that are important to us."

In practice, the facility might phase in iDock Connect as it upgrades equipment across docks. With the connected controllers and gateways in place, and iDock Connect subscriptions for key users across operations, maintenance, and safety management roles, the DC could expect to see returns in the following areas:

- *Energy savings from reduction or elimination of incidents when doors are left open, but no production activity is taking place. For a large could storage warehouse in the food industry, even eliminating or reducing the duration of such incidents could quickly add up to major savings on the site's energy bill. Managers can use the analytics to assess door left open events while iDock Connect's notification capability would trigger text or email alerts for such incidents that are detected.*

- *Quicker turnaround times for carriers and logistics partners, with a reduced chance of time overruns and possible extra fees.*

- *Improved labor efficiencies at the dock positions. This is enabled in part by instant detection and alerts of when trucks arrive, but also by giving operations VPs or managers analytics that allow them to assess and compare average loading and unloading time for trucks at each dock and discuss ways to improve performance with operators or other staff.*

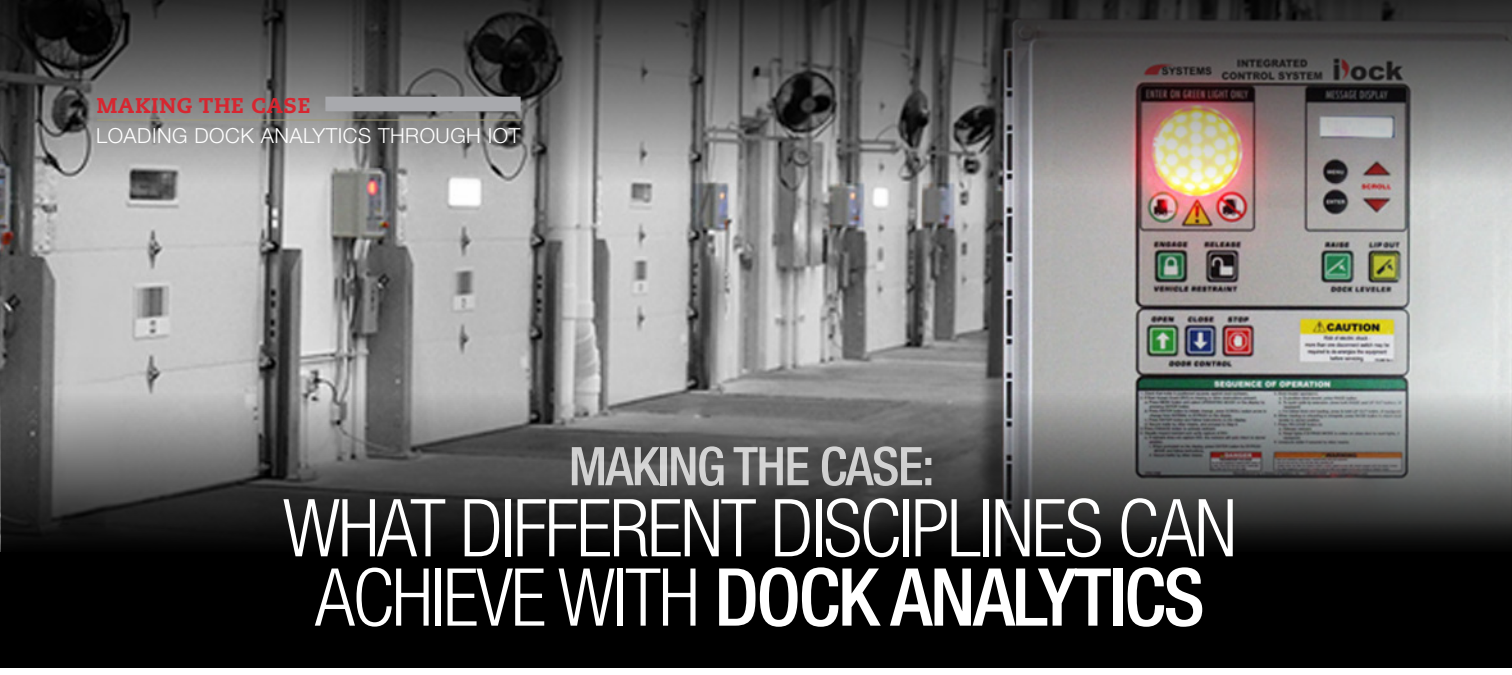
- *Balanced use and wear and tear on dock equipment assets. With views into cycle counts and how often each of the DC's 75 docks is being used, managers can work toward a more balanced utilization of dock positions. This avoids uneven wear and tear on equipment and presents mangers with useful information about the need to expand the docks or schedule them differently.*

- *Operations at the dock will be safer because managers can be alerted when truck restraints are put in bypass mode, while also reviewing reports of the percentage of trucks properly restrained.*

- *Tighter security is supported via sensors that detect when doors are opened or when truck restraints are disengaged. If a door is inadvertently left open at the close of a shift, at a break, or after hours, alerts can be sent to notify staff. Any unusual loading dock activity after hours also triggers an alert to the appropriate security staff or manager responsible for site security.*

Over time, the use of iDock Connect at a food industry DC could easily save the operation significant costs by avoiding energy waste, reduction in product loss from theft, and improvements in dock efficiencies.

The DC may find that its current 75 positions have enough capacity to service their business volume for years to come, thanks to a combination of greater loading and unloading efficiencies, and improved maintenance and uptime for dock equipment. As other DCs within the company roll out iDock Connect, it will be easy for top managers to use the software to compare dock efficiencies across sites.



MAKING THE CASE: WHAT DIFFERENT DISCIPLINES CAN ACHIEVE WITH **DOCK ANALYTICS**

LOADING DOCKS AND DOCK EQUIPMENT are assets that must be used safely and maintained properly, but docks are also crucial points of activity within a supply chain fulfillment process.

Because of this multi-faceted nature of managing docks, software aimed at giving visibility into dock activity should be tailored to the objectives of different disciplines in an organization. With iDock Connect, the new Cloud-based dock activity trending and analytics solution from Systems, multiple roles will benefit from the trending and analytics, which are constantly updated based on sensor data, cycle counts, codes, and other data coming from the docks.

Here's how iDock Connect from Systems LLC can help various key roles in an organization:

Presidents/CEOs/company owners: Dock activity might not at first seem like a strategic concern, but it can be when it impacts decisions around dock facility expansions, asset utilization, and facility throughput. Analytics within iDock Connect can help a company leader see the true level of dock utilization, and encourage a more balanced use of docks within a site.

"As a top executive, you might hear that dock expansion is needed, but by viewing analytics, you see can see the true level of dock utilization across all your docks and have solid data on whether an expansion project really is called for, or you can simply utilize your existing docks better by quicker turnarounds or more balanced use of the docks you have," says Mike Pilgrim, president of Systems.

VPs or directors of operations: For these roles, avoiding unnecessary bottlenecks, costs, and inefficient dock activity are key objectives. For example, iDock Connect can highlight and alert users about inefficient dock activity, like a truck in position for one hour, but the forklift sensor only detecting unloading or loading activity for 25 minutes out of the one hour. Or, having a door open but no dock activity can be monitored, and alerts can be generated around such events, to avoid costly energy loss.

"One of the biggest concerns for operations VPs and managers is inefficient loading/unloading," says Brett Lindstrom, marketing and communications director for Systems. "A truck may arrive at the dock, but then will unnecessarily sit there for a half hour before being touched, and then it takes only 10 minutes to load it. With alerting and dashboard widgets that point you to these inefficient events, you can investigate why they are happening and take steps to eliminate them."

Safety managers: In larger companies or for larger distribution centers, there's often a dedicated safety manager whose responsibilities ensure safe dock operations. Docks can be dangerous work places. Back in 2007, a National Institute of Standards and Technology panel found that 7% of forklift accidents occur when a forklift truck is driven off a loading dock.

Proper use of truck restraints reduces this risk by eliminating small movements or "creep" that can occur due to repeated stresses and weights involved in dock loading/unloading activities. Such creep from unrestrained trailers can cause a gap a forklift truck could fall into. Vehicle restraints eliminate such gaps from happening while also precluding a driver from suddenly leaving a dock or moving the truck at the wrong time.

Smart restraints with sensors can alert safety managers via iDock Connect, and safety managers can also view trends on the percentage of trucks safely restrained or put into bypass mode. With the ability to track incidents down to specific times and docks, safety managers can investigate the reasons for incidents and put in place training or other measures to eliminate safety incidents.

Maintenance directors: At larger sites with many docks, an iDock Connect dashboard widget allows the maintenance manager to see via a color coded display which pieces of equipment as past due for maintenance, and which assets are approaching a planned service interval. This can help prioritize work order scheduling.

The iDock Connect solution's "heat map' widget can help pinpoint the average low use hours for docks to schedule maintenance in the least disruptive way, while iDock Connect's view into dock utilization trends can help a maintenance manager determine if some docks are being overused and others under-used, so that better balance and more even wear on equipment can be realized. Additionally, the alerting capability in the solution allows maintenance directors to receive text or emails about past due maintenance events or conditions such as low hydraulic fluid levels.

Smaller sites with a one or two-person team: While a DC with 100 docks can absolutely reap major benefits from loading dock trending, analytics, and alerting, so can a small warehouse site or receiving dock. Here, a streamlined use of sensors might be suitable, with perhaps some regular use of maintenance functions, but also the addition of a truck presence sensor above each dock door.

This setup would allow the person running the small site to attend to office duties, deal with pallet movements, load staging or other inventory tasks out of sight of the dock, and be immediately alerted when a truck pulls into position. In this way, a small site's manager can stay productive without having to waste time waiting at the dock for a truck that may be running late or arriving early. With a connected controller, a couple of sensors, and a subscription to iDock Connect, the solution can help a small, one-person operation multitask and stay digitally connected to crucial dock activity.

In effect, iDock Connect brings monitoring dock activity into the 21 Century, providing managers within an organization the type of handy, Cloud-based insights they need to improve dock operations, according Jeff Schulze, VP of national sales for Systems. As Schulze concludes, "We prioritized iDock Connect's trending, the analytics visuals, and the alerting for the key disciplines responsible for dock operations to give them the information they need to make dock activity more efficient, safer, more reliable, and less costly."

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CLOSING ARGUMENTS:

CONNECTIVITY PLUS INFORMATION EQUALS **SAVINGS AT YOUR DOCKS**

LOADING DOCKS ARE GATEWAYS for distribution fulfillment processes. Yet they are all too often viewed as simple assets that can't yield information.

Today, loading docks and their equipment can be smart, connected, and a source of analytics and alerting to improve efficiencies. Sensors, smart controllers, and integrated gateways that feed data to Cloud software have brought visibility over docks into the 21st Century.

Systems LLC, a provider of dock equipment and solutions, has introduced iDock Connect, a software-based solution for connecting to dock activity and improving dock performance via Cloud-based analytics and alerting. The solution works in combination with iDock Controls, Systems' advanced controller, and a simple gateway device that can send data from multiple controllers and sensors to iDock Connect.

But what makes dock monitoring and analytics valuable to your organization, and why is now the right time to do it? The top reasons include:

Analytics and alerting to drive productivity gains: Cloud-based trending and analytics driven by sensor data allow managers to monitor inefficient dock loading and unloading. Simple, proven sensors provided by Systems can detect conditions like forklifts moving in and out of trailers, trucks being present, doors being open and more.

This data is turned into easy to understand graphs and information views that pinpoint events like trucks that are in place for too long a time with no loading activity, or doors left open unnecessarily. Such events are hard to monitor and avoid with mechanical dock equipment and simple local control panels, but with iDock Connect they can be analyzed, investigated and reduced or eliminated.

The results: energy savings from doors being shut immediately; better use of dock labor; better use of truck drivers' time, and quicker loading and unloading to aid facility throughput and lessen the chance of carrier detention fees.

Ensure safe, secure operations: Uptake of truck restraints has been strong in the market over the last several years, even outpacing the healthy growth for dock levelers. This shows industry interest in dock safety by having equipment that is more advanced than simple wheel chocks. But it's one thing to invest in truck restraints, and another to ensure they are being used all the time.

With analytics and alerts, safety managers can see the percentage of trucks being restrained, and instantly be notified when truck restraints go into bypass mode. Additionally, with iDock Controls as a foundation, the overall solution can track fault codes and each controller has interlocking capability to enforce the proper sequence for using dock equipment.

Improve equipment maintenance: With iDock Connect's trending and reports, users can analyze if docks and dock equipment are being utilized in a balanced way to avoid uneven wear and tear on equipment. The solution's "heat map" view is a quick way to understand low use and high use times at the docks, thereby allowing maintenance activity to be scheduled at times when docks are least busy. Other analytics and alerting also point maintenance managers to equipment that is past due or becoming close to past due for maintenance. The result is better equipment reliability, and less likelihood of disruption to operations.

Manage your dock as strategic assets: Top managers and company leaders now have available the analytics that they need to pinpoint inefficient loading/unloading operations, and ensure a balanced use of docks. For larger sites, such analytics give company leaders solid data on whether a dock area needs expansion, or if dock use needs to be adjusted to ensure a more balanced use of existing dock doors.

With the acute shortage of warehouse labor, and the cost of warehouse space on the rise, ensuring labor hours aren't wasted at the docks, and that dock doors are being fully utilized, gain strategic importance. When combined with other solution categories from other vendors such as transportation planning solutions that schedule carrier arrivals, or warehouse management solutions that have dock scheduling or load building functionality, dock activity analytics from Systems give company leaders the technology they need to avoid bottlenecks and reduce costs in their overall process.

Finally, dock activity monitoring and analytics is an affordable solution with iDock Controls and iDock Connect. There are no Big Data programmers to hire to build the analytics because Systems has preconfigured these as part of a Cloud-based, software-as-a-service (SaaS) solution. That makes dock activity monitoring affordable even for small sites with some limited investment in equipment, a controller, and a few sensors.

Unlike past eras, when dock activity monitoring involved custom-built remote monitoring and displays, or special options to high-end yard management systems, Systems has made dock activity information management scalable, affordable, and easy to tap into for sites ranging from two docks to a hundred docks or more.

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