Crown Connectivity Series

Changing Metrics – and
Mindsets – in the Warehouse
**Part Two: Optimizing the ROI
of Forklift Fleet Management
Through Phased Implementation**

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Introduction

Crown has been providing forklift connectivity and fleet management solutions since 2005. During that time, we have worked closely with our customers to help them integrate forklift fleet management into their businesses. Through that process we've learned valuable lessons about technology adoption in material handling.

This paper captures those lessons to help accelerate forklift fleet management adoption and prepare the industry for more complex technology initiatives.

This is Part Two of the Crown Connectivity Series. The series includes the following:
- Part One: Five Goals the Connected Warehouse Can Help You Achieve
- Part Two: Optimizing the ROI of Forklift Fleet Management Through Phased Implementation
- Part Three: Four Keys to Unlocking Value from Forklift Connectivity

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The Material Handling Information Technology Revolution

It's likely the warehouse of the future will look significantly different than the warehouse of today. Disruptive technologies such as advanced robotics and autonomous vehicles could not only change the economics of warehouse management, they could impact warehouse design and layout in ways that require fundamental physical changes.

How quickly the industry moves to adopt those technologies remains to be seen; there are legitimate concerns about the maturity of these technologies and how organizations will recoup their investment in them.

Parallel to this hardware revolution is an information technology revolution. The increased collection and use of warehouse data has been proven to improve warehouse management and increase productivity. In general, this revolution relies on more proven technologies and will help support more advanced use of technology in the warehouse. For many organizations, however, it has proven more challenging to take advantage of this IT revolution than to leverage advancements in hardware and equipment.

Despite the potential benefits—and to some extent the inevitability of increased use of data-driven decision making in the warehouse—only 13 percent of respondents to a November 2013 *DC Velocity* magazine survey had purchased forklift fleet management. An additional 12 percent were planning to purchase in the future. Concerns about the cost and complexity of implementation were cited as key reasons for not moving forward with purchase. Fortunately, fleet management is not an all-or-nothing proposition. A minimal investment in a forklift fleet and operator management program can provide savings and benefits that can fund future investments that expand the scope and value of the program.

This paper reviews various approaches that can be taken to minimize concerns about implementation costs and complexity.

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Understanding the Investment

The coherent organization of forklift data is key to optimizing material handling operations and essential to addressing productivity, efficiency and compliance issues in virtually every type of application. There are two major opportunities to collect information from forklifts: during service events and real-time during operation. This data, when presented in a cohesive and actionable format, can then provide the visibility and control that management needs to improve overall efficiency and productivity.

The first opportunity requires no special investment beyond that required to centralize service with a supplier capable of consolidating and analyzing data collected during service events.

Real-time data collection is the foundation of forklift fleet management and requires forklift connectivity. This is accomplished through a communications terminal that integrates with the truck's electronics to collect and wirelessly communicate data on impacts, energy consumption, utilization, location and other factors. This transforms the truck from an isolated piece of equipment into a networked device and brings data-driven decision making to the warehouse floor. The wireless management system can also play a role in compliance management through access control.

Organizations that need to quickly optimize operator and truck productivity or streamline compliance management should evaluate adding wireless management systems to the fleet as the most direct path toward achieving objectives.

A management system is required to collect real-time data from the communication modules and present it to managers in a form that supports issue identification, resolution and data-driven decision making. This system generally provides a management dashboard for an overview of warehouse performance and the current status of key operating metrics; the ability to drill down into specific detailed reports to get a picture of why things are happening; and a system for generating alerts to notify managers of conditions that require immediate attention.

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Reducing Fleet Service Costs

Forklift maintenance creates the opportunity to collect information on the truck's operation in concert with or independent of the truck-based devices that support forklift fleet and operator management. Service can represent a major component of total fleet costs; however, many organizations are not positioned to take advantage of this opportunity because service is fragmented across multiple providers.

When different providers service a fleet, the consolidation of service information is more difficult and time consuming, and it is much less likely that a comprehensive view of costs and quality can be obtained. In addition, the use of different providers can introduce inconsistencies in service and parts quality. One provider may use only OEM parts while another uses third-party parts. Plus, there can be wide discrepancies in costs for the same procedures across different vendors.

Centralizing service management using a single network of providers with known pricing and consolidated reporting creates the foundation for a comprehensive fleet management program with minimal capital investment. This provides the ability to compare and benchmark service costs by vehicle in a meaningful way.

When this information is made available to management through an online reporting console, the information provides up-to-date, objective support for management decisions as well as visibility into fleet costs. Vehicle replacement decisions can be made using actual service costs with the confidence that service is being performed to the same standards and at the same cost per procedure for all trucks in the fleet. Operating hours for individual trucks and the total fleet can be analyzed to help guide decisions on fleet size and resource allocation.

Not every service provider is equipped to support fleet management, so the choice of provider is critical to the success of the program. The right partner is one that can provide the information collection capabilities required and deliver consistent, OEM-quality service across multiple locations.

With the right capabilities, the service management program can play a significant role in reducing costs. Consolidating service with a single provider often results in better pricing because the service provider has a more predictable revenue stream and can more effectively manage resources.

In addition, service efficiency is improved. Labor times can be reviewed and managed against historical information to ensure service times are consistent and appropriate, eliminating unexpected charges.

With all forklifts under management, warranty repairs can be more effectively tracked to ensure warranties are fully leveraged. A centralized approach to service management can also deliver cost-saving operational efficiencies through electronic invoicing and work order management that feature integrated quality control processes to reduce processing times and minimize questions and disputed charges.

Finally, the focus of the program can shift from a reactive, break-fix mode to proactive service that increases uptime by ensuring planned maintenance is executed in a disciplined and consistent manner across the fleet.

Adding Wireless Communications

The wireless devices that capture and transmit forklift data to the management system provide a degree of scalability in the implementation because they can be phased in. The benefits of fleet management are optimized when all trucks are equipped with management systems, but meaningful results can be realized through a phased approach to implementation that focuses on a specific facility, location or forklift type.

This is the approach office equipment manufacturer Steelcase took in its implementation. Initially, the company equipped the forklifts in a single facility with wireless communications as part of a pilot program to optimize forklift utilization in that facility. Once results were achieved from the pilot, the technology was rolled out across the fleet. The company was able to not only defer some its investment, but also apply learnings from the pilot program to the full-scale implementation.

Controlling Access to Forklifts
The wireless communication consoles that enable forklift fleet management do more than collect and transmit data. They control access to the vehicle and can thus support improved compliance with OSHA inspection and training requirements.

The management console can limit access to the vehicle to operators with the required certification and can integrate an inspection checklist to guide operators through the inspection process. The system captures the time spent on inspections and compares it to standard times to ensure the operator performs the inspection with proper attention to detail but without wasted time. If the truck does not pass inspection, a notification is sent to management and the truck is locked to prevent operators from driving it. The system also saves checklists for easy access to support compliance management. Some organizations have been able to justify the investment in forklift connectivity based solely on improvements in compliance management.

Using Real-Time Data
Ultimately, the most significant benefits of the connected forklift come with real-time data collection and analysis. By managing access to the forklift through use of a PIN code, the management system is able to track performance by operator and capture critical operating data in real-time, including:

- Equipment status (e.g., logged on, logged off or in service)
- Hours by operator based on status (e.g., idle, hydraulic and travel)
- Battery or fuel status
- Fuel consumption
- Impact events

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With real-time monitoring, events such as impacts can trigger alarms and automated notifications that allow fast response to actual and potential problems. Operators come to understand that impacts can be easily tracked to determine responsibility and that significant events will generate alerts that trigger an investigation. As a result, equipment and product damage from impacts decreases, and operators who account for a high percentage of impacts can be identified for additional training.

With the visibility provided by connected forklifts, material handling managers can track how many forklifts are in operation or sitting idle. This data can be used to analyze operator productivity as well as overall fleet utilization, which can be extremely valuable in right-sizing the fleet. As the management system collects data on truck operation, it can track operator training requirements and planned maintenance activity based on actual operating hours. It also can send notifications of upcoming training requirements and maintenance requirements.

Real-time data provides a window into forklift and operator performance that delivers the visibility to increase productivity, increase safety, reduce product and equipment damage, and make better decisions about forklift service and new equipment requirements.

The Connected Supply Chain
The technology is available today to provide insights into issues managers face when optimizing fleet and operator performance. While there are some challenges that must be faced in putting the systems and processes in place to collect and use this data consistently, those challenges can be easily addressed by working with the right partner and developing a phased approach to implementation. With the programs and technology available today, there has never been a better time to get on the path to forklift fleet management.

While forklift connectivity and fleet management is a relatively mature technology that is delivering an excellent return on investment today, it also has the potential to continue to grow and become more essential to warehouse management in the future.

One area of opportunity becomes obvious when you consider that the forklift is the only piece of warehouse equipment that reaches all areas of the warehouse. As a result, it can provide visibility into the warehouse that currently isn't available. Equipped with the right sensors, the forklift can deliver information on its own performance and the environment around it as well.

Another area of growth is in active, real-time operator coaching. Current systems focus primarily on monitoring operator behavior as exhibited through the forklift, but forklift fleet management systems create the foundation for active operator coaching. For example, the technology can assist operators in planning routes, including knowing the location of other forklifts to minimize congestion and reduce the chance of impacts.

The third area of opportunity is in data integration. With ERP, WMS and forklift fleet management, the systems are in place to collect and analyze data–and product movement–across the supply chain. As organizations begin to integrate these systems, forklift fleet management will prove to be a vital link in tracking product movement.

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Conclusion

The combination of service management and real-time monitoring (a) increases organizational efficiency by automating manual tasks such as maintenance scheduling, training management and compliance reporting; (b) reduces the cost associated with forklift service; (c) helps ensure the fleet is properly sized; and (d) identifies trucks and operators that are not performing as expected so that appropriate corrective action can be taken. These benefits can be realized through a phased implementation that first addresses either forklift service or real-time operations, depending upon organizational priorities. Real-time monitoring represents a larger investment; however, implementation can be phased in across the fleet based on physical location, truck type, age or other factors to reduce initial costs.

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