

TECHNOLOGY IS A GAME CHANGER

Scott Dugan, Command Alkon, discusses the growth of new digital technologies within the building materials industry.

Introduction

Digitalisation is a common theme that has created a lot of chatter in the industry lately. Today, digitalisation enables the automation and integration of discrete steps in a complex supply chain. Cement producers are realising incredible benefits by combining these digital innovations with simple process improvements.

Cement companies that have intelligent systems and technology backbones in place have reaped benefits from the ability to make insightful decisions based on data. These companies are also seeing substantial returns on investment through increased production, reduced costs, optimised logistics, and much more.

How does Apex automation work?

Apex automation streamlines the business processes and operational tasks necessary to ticket and scale bulk products. Drivers can check-in, load, and ticket trucks without interruption or interaction with plant personnel. Advanced-scale ticketing software works in conjunction with simple site-automation technologies to deliver impressive improvements in the speed, efficiency, and safety of operations.

These point-of-sale modules interface directly with the sale, dispatch, transportation management, and back-office modules for quoting, invoicing, receivables, inventory, reporting, and business intelligence. This ensures that information flows quickly and easily across the enterprise. All processes are connected – from sales through to dispatch and the office.

What does this process look like?

RFID readers or license plate recognition is used to identify each vehicle as it arrives at the site. Tags can be either truck-mounted or can be swiped at a terminal or kiosk mounted at cab height. With truck-mounted tags, the vehicle is identified once it passes by the tag reader and the system can automatically control a 'green light' to direct the driver to proceed to the kiosk.

At the kiosk, the driver can confirm their assignment on the terminal or contact the loadout operator for changes. Once confirmed, the system will capture the tare weight and communicate the load ID and target weights to the loadout system. The system will update remote displays to direct the driver to the correct loadout lane. As the truck enters the loadout lane, another identification point confirms the truck is in the right place; if this is not done the truck cannot get a load. Once verified, the truck can self-load by the driver or by the loadout operator. Either of these methods ensure the right material is going into the right truck with the correct quantity. Efficiency is important, but accuracy and control are critical with a costly product like cement.

At the same time the ticket is printed, the scale watcher module captures video footage and a still image of truck license and side door view, with an overlay of key ticket information. These images are stored with the ticket, eliminating the need for driver signatures. All of this is done without the driver leaving the vehicle, without

the scale operator physically handling tickets, and without the loader operator handling paperwork or calls. The driver stays safe, the scale operator concentrates on servicing customer calls and managing the truck process, and the loadout operator remains focused on loading accuracy.

Reap the benefits of fleet management

Streamlining logistics often affords the biggest opportunity for improvement in the building materials sector and the cement industry can greatly benefit from this as well. TrackIt provides drivers with information that promotes better communication with dispatch and on the jobsite, it eliminates paper processes, speeds up the delivery of information and payments, and enables better decision-making through real-time information. GPS Truck Tracking and Telematics equipment give management a constant view of the location and performance of their entire fleet.

Transportation is in a flux – drivers are hard to find, trucking capacity is tight, and freight spend is increasing. Many non-productive hours occur during the loading/unloading of a truck, sitting in traffic or at a dock, or clocking in/out at a jobsite. Anything that can be done to cut wasted time in transportation operations will help to contain costs, as well as keep drivers happy and trucks on the road.

Non-productive time equates to about 20 – 40 min. per truck per day, based on experience. This is a loss of 200 min./week multiplied by 48 weeks/year (on average) for a total of 160 hours/ year, per truck. If there are 25 trucks in a fleet, that means businesses suffer from a loss of 4000 hours that could be used productively to grow the business and improve customer service.

Fleet management is another opportunity to leverage data insights for increased efficiency. Connected fleets combine vehicle telematics data (tyre pressure, engine speed, etc.), driving behaviour data (speed, accelerating, braking, time spent loading and unloading), and business data, to save on transportation costs. For example, by viewing fuel consumption under various conditions, such as a full load, no load, idling, etc., companies can identify the trips with the highest fuel consumption, drill down to the details, then compare to fleet benchmarks in order to reduce activities that lead to higher-than-normal costs.

Driving behaviour can be analysed in a similar way, by looking at fuel-consuming behaviours and correlating it to routes or other work information. Finally, the vehicle manufactures data, which is then evaluated for key performance indicators, such as engine efficiency or maintenance needs. The information gathered with TrackIt can be used to improve a driver's performance by showing areas for improvement, such as breaking at a restaurant on

the approved route rather than one 10 miles away or taking too long to clock in/out. By maximising truck drivers' productivity with automated processes using TrackIt, at least 50% of the employee's non-productive time can be captured.

TrackIt enables drivers to punch the clock from the cab, which alone can save a minimum of 20 min./day, per truck. Just this small amount can equate to hundreds of thousands of dollars of savings in transportation operations.

Some real examples of enhanced business operations

A quarry in Alabama has an annual volume of 1.2 million t of crushed stone and had been experiencing problems with truck times at the plant. The times were unacceptable for the trucking firms serving the operation, sometimes in excess of 20 min. or longer onsite. After the implementation of Apex automation solutions and ticketing systems to streamline its processes, the operation was able to reduce its average time to less than 10 min., cutting the time onsite in half.

A cement operation in Sacramento also reaped the benefits of automation systems. The facility was in the construction phase with a plan for three loadout lanes, each with a two-section truck scale and two surge hoppers overhead, for simultaneous loading of front and back trailers and an estimated capacity of 1.2 million tpy. Once the appropriate

positioning of automated systems was defined, the final result was a cement loadout facility with a typical load time of 3 min., far exceeding the industry average.

Digital transformation plays a critical role in increasing value for customers

Modern technologies are improving supply chain management in the cement industry by streamlining their operations and allowing customers to access more timely information, as well as visual components, to keep track of their individual orders. This reduces the producer's costs and increases efficiencies. With a vast amount of infrastructure growth, there is a need to do more with less. There will be more optimised business processes in the future, as the building materials industry continues to accept new digital technologies. 🌐

About the author

Scott Dugan joined Command Alkon in 2005 and has been focused on the bulk materials customers with the Apex product for the majority of his career. He has performed roles in customer support, implementations, project management, product management, technical sales, and is currently the General Manager of the Kansas City office and Apex product. His degree in management information systems and prior experience in information technology bring technical expertise to the bulk materials industry.

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