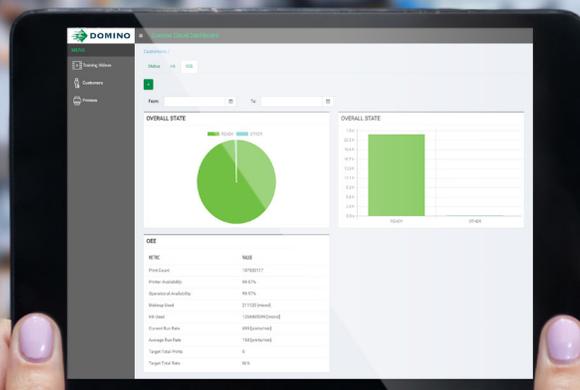


Three Ways to Improve Productivity in Your Food and Beverage Packaging Lines

WEBINAR BRIEF



In recent years, food and beverage manufacturers have seen significant increases in their SKU counts. More SKUs translate into more frequent coding changes on the packaging line. Handling these changes manually leads to high levels of plant downtime, coding errors, and unnecessary waste. Automated line changeover technology and label simplification initiatives can help. Leading manufacturers are using Domino's cloud-connected coding and printing solutions, predictive maintenance, and value stream analyses to streamline their operations and minimize unplanned downtime.

Today's suppliers need to be aware of the manufacturer's OEE objectives they are supporting, and how to help achieve the desired objective. Many companies, and their supply chains, depend on suppliers meeting their obligations and take on the risk management associated to their offering (and beyond). From a [Coding and Marking perspective](#), the expectation from the end user is that the coding technology will provide reliable, accurate codes, without fail, 100 percent of the time. Here at Domino, we coined this our "Performance Guarantee."

A supplier's services are rapidly becoming the competitive advantage and the pinnacle of the support given. While coding technology is only a small part of the manufacturing process, it is a critical part of traceability. A performance guarantee of a reliable code extends beyond a traceable code. It is the ability to provide innovative solutions to increase a value to their operations, and quantify what that value is accordingly.

Travis Gass and Mark Schaffer discussed automating coding for changeover, label simplification, and predictive maintenance in the context of food and beverage manufacturing. They shared how these practices can drive higher overall equipment effectiveness (OEE) and enhance packaging line performance.

Automating coding for line changeovers enhances efficiency, reduces human error, and increases access to data.

Food and beverage manufacturers are seeing increasing numbers of line changeovers, due primarily to SKU proliferation. According to a McKinsey & Company report, the average large consumer packaged goods company has seen SKU count increases of 30% to 70%. More SKUs lead to more frequent coding changes. Increases in manual coding changes lead to two issues:

1. **Reduced efficiency and productivity.** Manual coding changes are time consuming and take resources away from other higher-value work. In addition, every moment of packaging line downtime translates into fewer finished products getting out the door.
2. **Greater risk of error.** Studies suggest that when typing or entering data, the average person makes one mistake per 300 characters. Errors lead to rework and product waste. They can also result in angry customers, missed shipments, and recalls.

Coding automation enhances efficiency, reduces human error, decreases downtime during changeovers, and frees resources. It also increases access to data. When food and beverage manufacturers automate coding, they gain insight into printer status, printers speeds, and real-time production counts.

Printer speed has a direct impact on overall equipment effectiveness, while real-time monitoring of production counts enables manufacturers to prepare for upcoming batches. One of Domino's clients has saved 30 to 45 minutes per coding change on average, simply by anticipating the end of a batch.



“Consumers want more product choices, such as new flavors, different package types, or a variety of package sizes. The days of running a single flagship product on a line for days, weeks, or months are gone. More SKUs lead to more frequent coding changes.”

Mark Schaffer, Domino

High-performance operations can benefit from automated line changeover technology.

Bush Brothers & Company is a privately held company in Chestnut Hill, Tennessee that manufactures a variety of canned beans. Its factories process 400 to 500 SKUs. Prior to automating line changeovers, it took staff 10 to 20 minutes to change codes. Coding errors often weren't detected until two or three shifts of products had been manufactured. Cleaning and remarking the incorrectly labeled cans was time consuming and expensive.

The team decided to implement Domino coding and printing technologies to automate changeovers and eliminate holds. Bush Brothers can now push code changes to printers automatically. In addition, the company is using Dynamic Host Configuration Protocol (DHCP) on its network to support hot swappable printers. No matter where a printer is plugged into the network, it gets the same IP address every time and it knows what to print. As a result, technicians are no longer needed for printer setup. Anyone on the plant floor can do it.

Thanks to automation, Bush Brothers eliminated 20 minutes of downtime per changeover. At a cost of \$300 to \$400 per minute of downtime, the savings has added up quickly and the ROI is clear. In addition, automating coding has resulted in greater accuracy and freed time for plant employees to work on other projects.

Three lessons when automating line changeovers:

- 1. Formalize the testing plan and timeline.** Think through unanticipated conditions. Remember that things often don't go as expected, so build in extra time.
- 2. Build strong ties with the IT team.** At Bush Brothers, for example, the printers are always connected to the Domino cloud. To facilitate this, the IT team needed to adjust the company firewalls. In an automated plant, strong relationships between the operations and IT teams lead to innovative ideas and better collaboration.
- 3. Plan for the worst, manage to the best.** Every company has different requirements related to throughput and plant uptime. Assess what the organization needs to meet those demands. Bush Brothers decided to invest in 20% more printers, so it would have a spare pool to minimize downtime.

“Everything in the packaging facility is focused on getting cases of end product out. Scheduling expects manufacturing to deliver first-pass quality every time. Automation is more accurate, and it frees plant employees to work on other projects.”

Travis Gass, Bush Brothers & Company

Figure 1: Bush Brothers & Company—Value Stream Analysis and Automation Results



Label simplification streamlines operations and eliminates hidden costs.

Automation of coding is a good first step toward improving efficiency. However, many manufacturers still struggle with a complex set of label templates. When new SKUs are launched, some companies simply create a new label. Over time, they end up with hundreds or thousands of labels.

This can lead to hidden, non-value-added costs like application of incorrect labels, confusion or delay when looking for the right label, longer changeover times, errors that create rework and holds, and excessive time spent making global changes. It should take minutes or seconds, not hours or days, to make a global change across all formats.

Four recommendations for simplifying labels:

1. **Start by inventorying your templates.** Conduct an honest assessment.
2. **Identify repeatable patterns.** In food and beverage, for example, the only differences in labels are often a flavor or package size.
3. **Build templates based on requirements.** Focus on building generic templates, rather than individual templates for each SKU. It is not uncommon for manufacturers to reduce 300 templates or labels to five or twelve.
4. **Connect fields to database sources.** This simplifies global changes.

When companies begin this process, they recognize the tremendous cost associated with label complexity. Label simplification leads to smoother operations and fewer mistakes. Adding new SKUs becomes easier.

Data-driven, predictive maintenance helps manufacturers achieve zero unplanned downtime.

Traditionally, manufacturers have relied on preventive maintenance programs and serviced equipment on specific cycles or periods of time. Many companies are now exploring predictive maintenance, which is data driven and based on operating conditions. For example, a preventive maintenance schedule may indicate that fans should be replaced every six months. Based on the plant environment, however, a predictive maintenance program may recommend changing fans every three months.

Since Domino printers are connected to the Domino cloud, the company can collect equipment data remotely and monitor performance. A slow fan speed, for instance, may indicate that a clog needs to be proactively addressed. Typically, manufacturers have viewed production line coders and printers as regulatory requirements. Internet connectivity and data collection, however, change all that. Predictive maintenance transforms coders and printers into value-added products that improve plant maintenance and uptime.

Bush Brothers uses Domino's preventive and predictive maintenance plan. Thanks to its hot-swappable spare printers, maintenance events usually result in less than three minutes of downtime. The team swaps in a spare printer and then Domino takes care of the failed unit.

“If you go back and look at your templates, you will most likely find opportunities for simplification there. These are low-hanging fruit.”

Mark Shaffer, Domino North

To deliver robust coding and printing solutions, Domino examines what is happening upstream, instream, and downstream in each customer's packaging line. Over the years, the team has seen many different plant environments and identified common packaging line characteristics that represent opportunities for improving efficiency and throughput. While some of these opportunities relate to coding or printing, others do not.

We invite you to continue the dialogue and discover how to impact efficiency by **automating coding, reducing human error, and increasing access to data.**

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Founded in 1978, **DOMINO PRINTING SCIENCES** has established a global reputation for the development and production of coding, marking and printing technologies, as well as for its worldwide aftermarket products and customer service. Domino's Digital Printing Solutions Division serves the commercial printing sector in providing digital inkjet printers and control systems that deliver solutions for a complete range of labeling and variable data printing applications.

The Domino Group employs more than 2,800 people and operates in over 120 countries. The company has manufacturing facilities in the UK, US, China, Germany, India, Sweden and Switzerland.

